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Technical Specifications (In-Cash Procurement)

Technical Specification - Interface management of the Hot Cell Complex

This document aims at specifying the engineering activities to be performed for the Hot Cell Complex (HCC)interfaces.

Table of Contents

1 Purpose

This document aims at specifying the engineering activities to be performed for the Hot Cell Complex (HCC) design:

1 – Operating phases and control philosophy of the HCC,

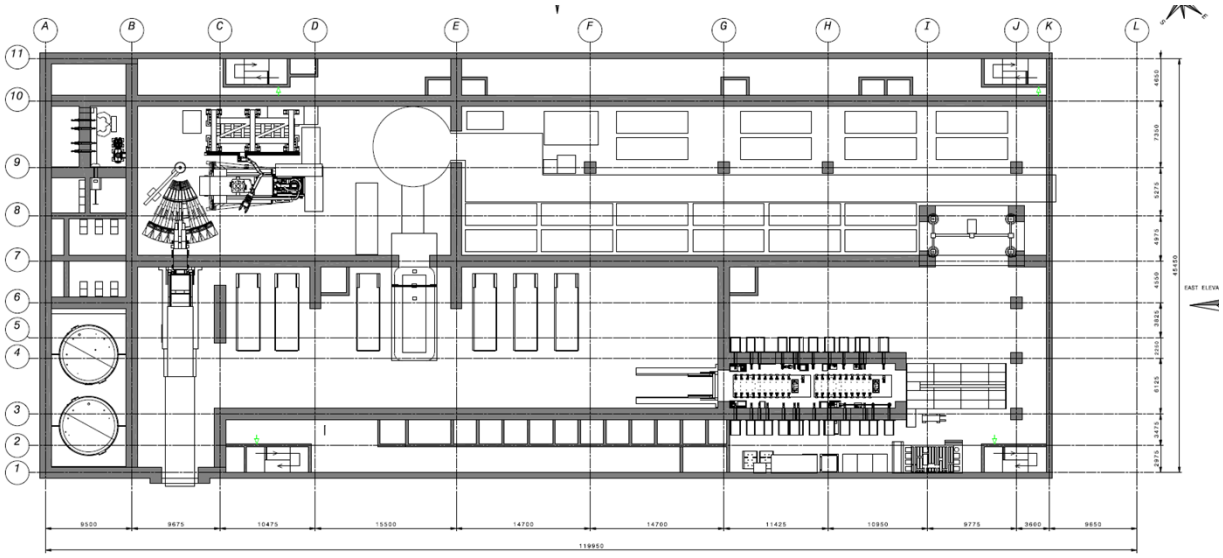
2 – Load collection of the HCC,

3 – Management of interfaces, in particular the update and completion of the Interface Control Documents and Interface Sheets,

2 Scope of work

The scope includes the overall Hot Cell Complex, including the building and the processes, in particular the Hot Cell Complex building, the Radwaste process and the Hot Cell Remote Handling System.

The Hot Cell Complex is described in ITER_D_X932PF - Description of Hot Cell Complex - Option 2. Hereunder are a few extracts of layout drawings ITER_D_WDYC63 - HCC - Option 2 - 2D drawing BUILDING#21 and ITER_D_WKF4X6 - HCC - Option 2 - 2D drawing BUILDING#23.



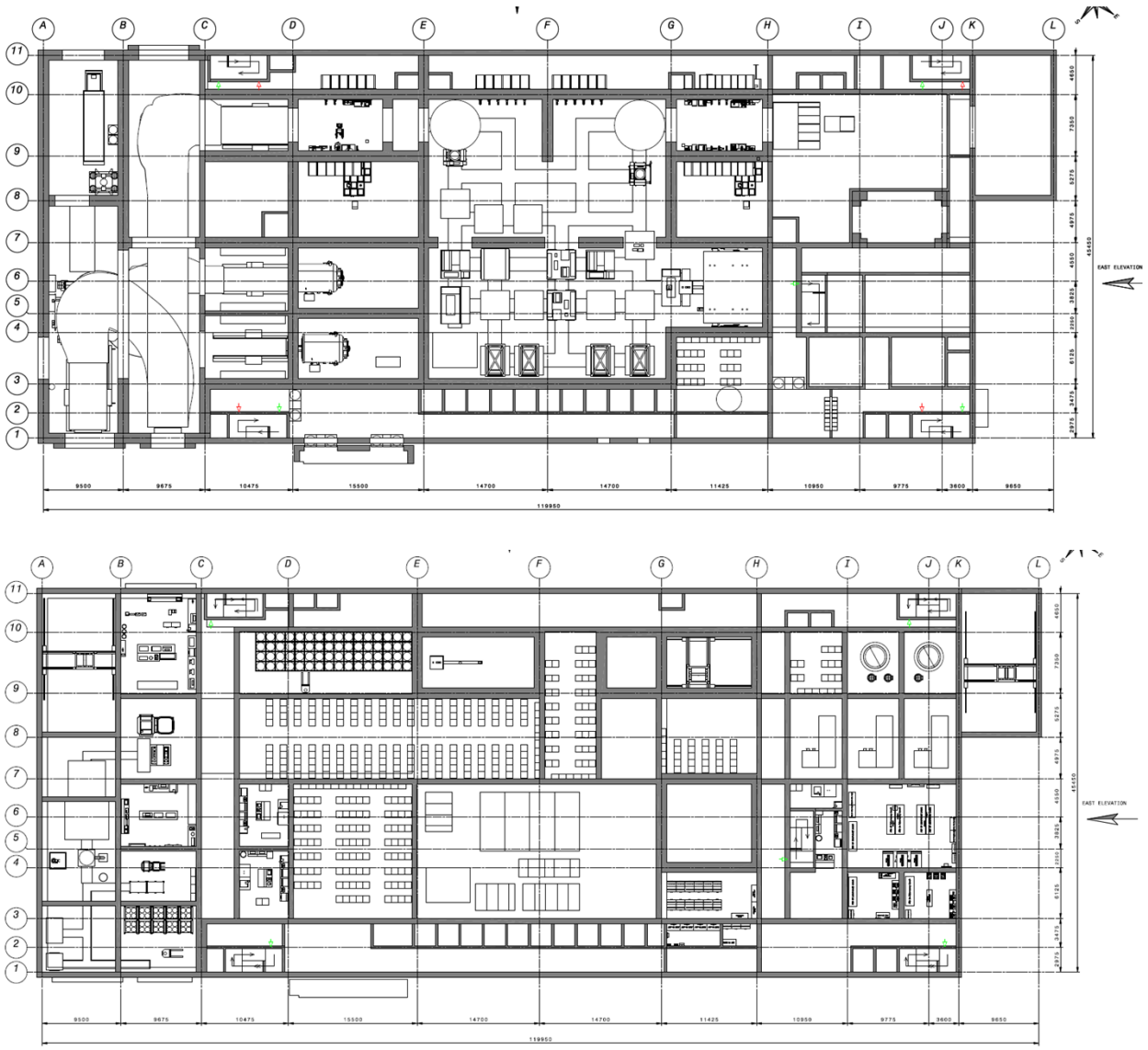


Figure 1 Building 21: B2, L1, and L2 levels (pre-concept)

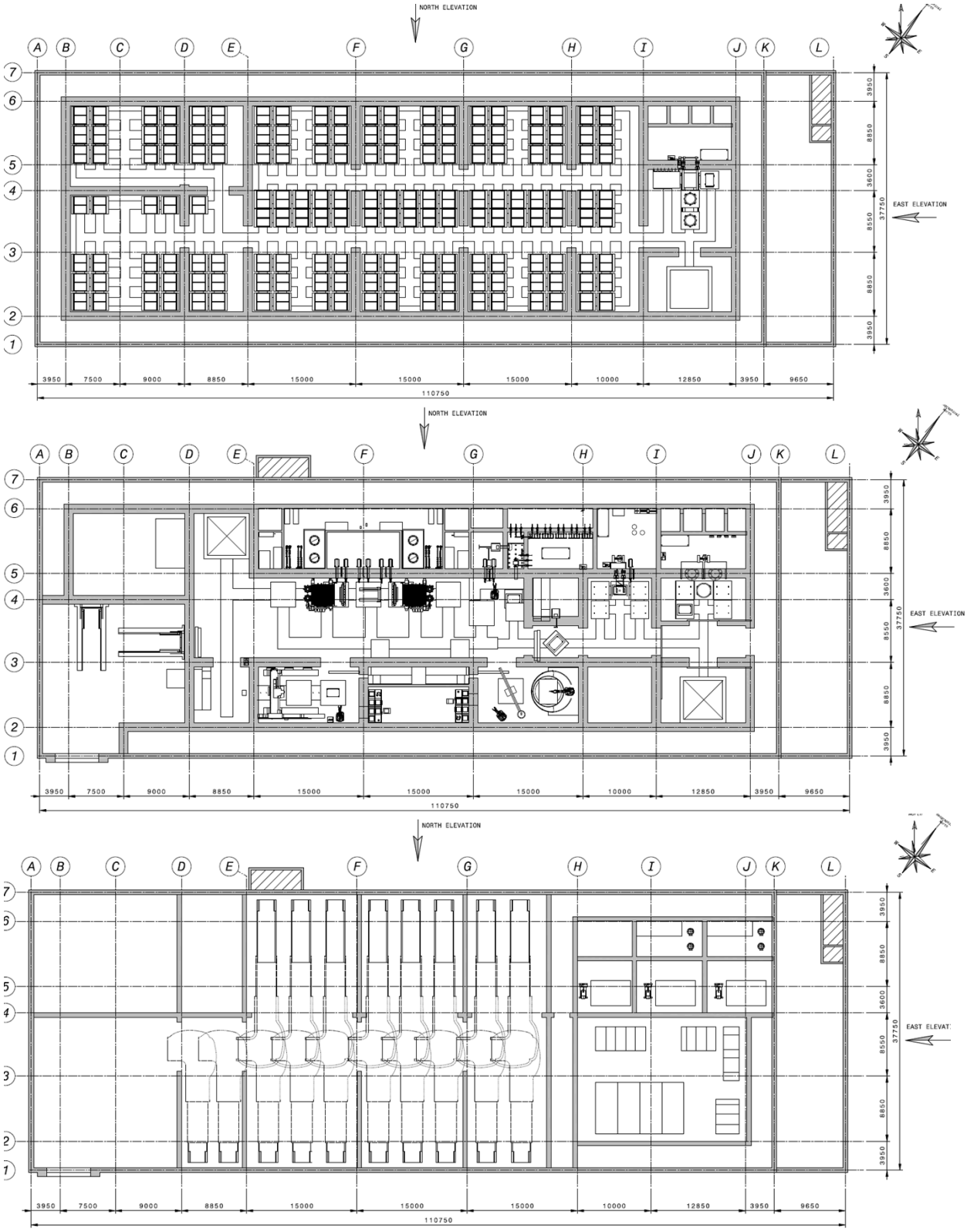


Figure 2 Building 23: B2, L1, and L3 levels (pre-concept)

The table in appendix summarizes main features of the Hot Cell Complex, illustrating the level of complexity and the required skills for this contract.

3 Definitions

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

4 References

Acronyms:

- C-R: Contractor Responsible. See Contract specifications for definition of duty.
- C-TRO: Contractor Task Responsible Officer. See Contract specifications for definition of duty.
- IO-RO: ITER Organization Responsible Officer. See Contract specifications for definition of duty.
- IO-TRO: ITER Organization Task Responsible Officer. See Contract specifications for definition of duty
- PBS: Project Breakdown Structure

5 Estimated Duration

The contract duration shall be one year and shall commence after the official start date and upon the mutual agreement of both parties. The services shall be performed on-site at IO.

6 Work Description

6.1 Context

The pre-conceptual design of the Hot Cell Complex (HCC, cf. Figure 1 and Figure 2) is being developed by IO. This work is based on the existing conceptual design which was performed in 2017 in the frame of an engineering contract, and which outcome was to have one single building.

The main change is to host radwaste processing and components maintenance functions in two separate buildings.

Therefore, the following activities are being performed:

- Design activities of the HCC buildings,
- Design activities of the Radwaste and Remote Handling System located within the HCC,
- Safety analysis based on the Hot Cell Complex design.

A contract for the conceptual design of the Hot Cell Complex buildings and services will be started in Q2 2019, while series of contracts have been launched in order to study the Radwaste and Remote Handling Systems located within the Hot Cell Complex. The requested work is focused on design activities and cost optimization.

6.2 Objective of the contract

The objective of the contract is broken down into 4 deliverables which correspond in fact to three types of activities as described below.

6.2.1 Operating phases and control philosophy of the HCC

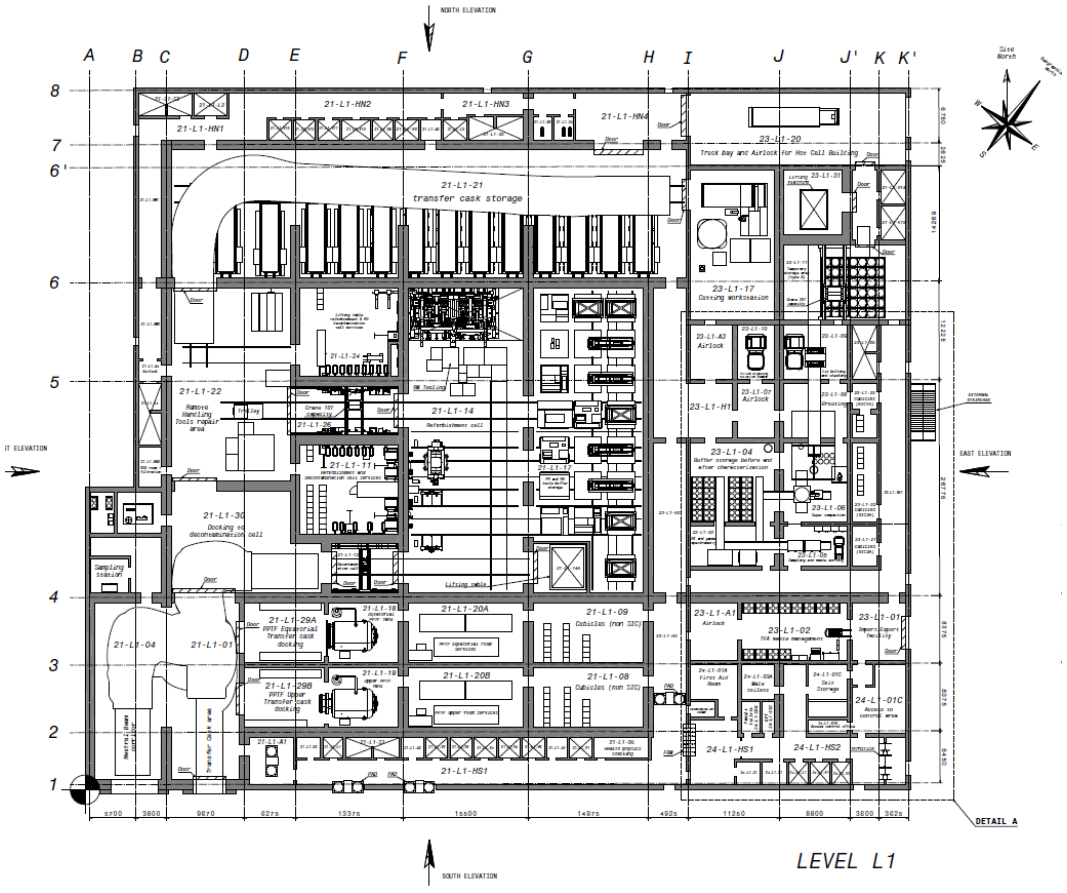
The contractor shall update the HCC control philosophy ITER_D_L5RATN - Hot Cell Complex Preliminary Control Philosophy, and shall establish the operation plan. This review of the operations to be undertaken in the facility describes the operating phases and activities and the associated supervision and control systems to be implemented. The lessons learned and the technical guidelines from the Tokamak shall be taken into account.

This activity corresponds to the Deliverable D1.

6.2.2 Load collection

The contractor will collect all the requirements which can influence the loads of the buildings (coming from the process, from the building services, from outside of the buildings…) for the following items: floor loads, fire loads and heat loads.

These load collections were performed for the previous conceptual design of the HCC, for information an extract of the reference layout below:



For information, the corresponding references of the previous documents are:

ITER_D_VDK9UZ - WP2-32 Civil Works Layout of gravity loads - TAN/CWS/280/DWN/01, ITER_D_VEK9T2 - WP2-12 – HVAC LAC Heat balance calculations – TRP -

TAN/HVA/241/TRP and ITER_D_UPUJK8 - WP1-10 - Preliminary fire and explosion analysis - TAN/FRP/063/TRP/01.

This activity corresponds to the Deliverable D2.

6.2.3 Update and completion of the ICD and IS

This activity corresponds to:

- the update and completion of ICD and IS between buildings PBS62.21, 62.23 and 62.24 on the one hand and all the systems involved on the other hand,
- the support to the update of ICD and IS between PBS23.06 and clients.

It shall include a summary interface matrix.

Update and completion of ICD and IS between buildings PBS and all concerned PBS, as defined in chapter 17.

Illustration of other Interfaces between PBS23.06 and clients:

- ITER_D_2WSDXY - ICD-16-23 Interface Control Document for Blanket System (PBS 16) and Remote Handling System (PBS 23)
- ITER_D_2LXG42 - ICD-17-23 Interfaces Control Document for Remote Handling (PBS23) and Divertor (PBS17)
- ITER_D_6JPEQV - ICD-23-26 ICD for Remote Handling System (PBS 23) and Tokamak Cooling Water System (TCWS of PBS 26)
- ITER_D_3UYZYZ - ICD-23-32 Interface Control Document (ICD) between PBS 23 and PBS 32
- ITER_D_2KSEZW - ICD-23- 43 Interface Control Document for SSEN (PBS43) and RH Equipment(PBS23)
- ITER_D_35HKH3 - ICD-23-44 Interface Control Document for Remote Handling System (PBS 23) and Cable Tray Systems (PBS 44)
- ITER_D_2WCP4W - ICD-23-45 Interface Control Document for Remote Handling system and CODAC
- ITER_D_2N5VWP - ICD-23-46 Interface Control Document for Remote Handling (PBS 23) and Central Interlock System (PBS 46)
- ITER_D_2MHUVK - ICD-23-48 Interface Control Document for Remote Handling (PBS 23) - Central Safety System (PBS 48)
- ITER_D_2ZVFYN - ICD-23-51 Interface Control Document for Remote Handling System (PBS 23) and Ion Cyclotron H&CD (PBS 51)
- ITER_D_34SPW7 - ICD-23-52 Interface Control Document for Remote Handling System (PBS 23) and Electron Cyclotron Heating and CD System (PBS 52)
- ITER_D_33MTMU - ICD-23-55 Interface Control Document between Remote Handling (PBS 23) and Diagnostics (PBS 55)
- ITER_D_4DRWS3 - ICD-23-56 Interface Control Document for Remote Handling System (PBS 23) and Test Blanket Modules System (PBS 56)
- ITER_D_4EH3BV - ICD-23-64 Interfaces Control Document between Remote Handling Equipment (PBS 23) and Radiological and Environmental Monitoring System (PBS 64)
- ITER_D_4C66RW - ICD-23-66 Interface Control Documents (ICD) for Remote Handling (PBS 23) and Radwate Treatment and Storage (PBS 66)

This activity corresponds to the Deliverables D3 and D4.

7 Responsibilities

7.1 Contractor's Responsibilities

In order to successfully perform the tasks in these Technical Specifications, the Contractor shall:

• Strictly implement the IO procedures, instructions and use templates;

• Provide experienced and trained resources to perform the tasks;

•Contractor's personnel shall possess the qualifications, professional competence and experience to carry out services in accordance with IO rules and procedures;

• Contractor's personnel shall be bound by the rules and regulations governing the IO ethics, safety and security IO rules.

7.2 IO's Responsibilities

The IO shall:

• Nominate the Responsible Officer to manage the Contract;

• Organise weekly meetings on work performed;

• Provide offices at IO premises;

• Provide a standardized IT working environment (laptop, screen, keyboard, webcam and headset);

8 List of deliverables and due dates

The list of deliverables corresponds to the activities defined in section 6.

D #	Description	Due Dates
D1	Preliminary version of the HCC control philosophy + Operational plan	T0 + 3 months
D2	Load collection - Floor loads - Fire loads - Heat loads	T0 + 6 months
D3	Preliminary version of ICD/IS: - ICD PBS 62-21, 62-23, 62-24 vs all PBS in interface (according to the list defined in chapter 17) - IS PBS 62-21, 62-23, 62-24 vs all PBS in interface (according to the list defined in chapter 17) - PBS23.06 vs clients (e.g. PBS16, 17, 32…)	T0 + 9 months

D #	Description	Due Dates
D4	Final version of ICD/IS: - ICD PBS 62-21, 62-23, 62-24 vs all PBS in interface (according to the list defined in chapter 17) - IS PBS 62-21, 62-23, 62-24 vs all PBS in interface (according to the list defined in chapter 17) - PBS23.06 vs clients (e.g. PBS16, 17, 32…)	T0 + 12 months

To be noted that the priorities between the different Deliverables to be issued could be changed at the KoM or during the duration of the contract, as per IO request and in agreement with the contractor.

9 Acceptance Criteria

These criteria shall be the basis of acceptance by IO following the successful completion of the services. These will be in the form of monthly progress reports as indicated in section 7, table of deliverables and further detailed below:

- Reports as deliverables shall be stored in the ITER Organization's document management system, IDM by the Contractor for acceptance.
- Technical Responsible Officer is the Approver of the delivered documents.
- The Approver can name one or more Reviewers(s) in the area of the report's expertise.
- The Reviewer(s) can ask modifications to the report in which case the Contractor must submit a new version.
- The acceptance of the document by the Approver is the acceptance criterion.
- The acceptance criteria of the document correspond to:
    - Justified and documented comments,
    - Respect of the deadlines,
    - Agreement and validation from all stakeholders after full review,
    - Lessons learned of existing nuclear facilities,
    - Reference to existing technologies and proven solutions used in nuclear field,
    - Reference to existing and applicable Norms and Standards,

10 Specific requirements and conditions

The contractor shall have significant experience in the following areas:

- In management of interfaces in complex nuclear projects, in particular building interfaces,
- In design activity of complex nuclear projects,
- In functional analysis, operational and maintenance procedures,
- In commissioning and operation of nuclear facilities.

At least 10 years' experience is required in these fields of expertise.

The contractor shall also provide with their offer:

- a resource loaded schedule, in line with the delivery dates given in section 8,
- a resource estimate for each of the Deliverables,

11 Work Monitoring / Meeting Schedule

The work will be managed by means of Progress Meetings and/or formal exchange of documents transmitted by emails which provide detailed progress. Progress Meetings will be called by the ITER Organization, to review the progress of the work, the technical problems and the planning. It is expected that Progress Meetings will be held weekly or biweekly. Progress meetings will involve C-R, CTROs, IO-RO and IO-TROs.

The main purpose of the Progress Meetings is to allow the ITER Organization/RHRM Division and the Contractor Technical Responsible Officers to:

a) Allow early detection and correction of issues that may cause delays;
b) Review the completed and planned activities and assess the progress made;
c) Permit fast and consensual resolution of unexpected problems;
d) Clarify doubts and prevent misinterpretations of the specifications.

In addition to the Progress Meetings, if necessary, additional meetings to address specific issues to be resolved may be requested by the ITER Organization.

For all Progress Meetings, a document (the Progress Meeting Report) describing tasks done, results obtained, blocking points and action items must be written by the Contractor. Each report will be stored in the ITER IDM in order to ensure traceability of the work performed.

12 Delivery time breakdown

See Section 7 – Deliverables and Due Date

13 Quality Assurance (QA) Requirements

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 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).

14 CAD Design Requirements (if applicable)

Not applicable, no CAD design activity is requested.

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.

16 Main features of the Hot Cell Complex

	Demonstrable skills and experience	Main features of the Hot Cell Complex facilities
Nuclear civil engineering of complex large scale project	High technology project	First-of-a-kind or research construction projects
	Strong links with industry and potential Plant manufactures	Wide range of disparate leading edge/high-tech systems and equipment to be designed for in the Preliminary and Construction Design stages in order to avoid risk of change during suppliers manufacturing design.
	International projects	ITER stakeholders are China, the European Union, India, Japan, Korea, Russia and the United States. It corresponds to 35 different nations. The project language is English and safety documentation to be delivered to the French safety authority shall be in French and English.
	Engineering/design	Design and overall integration of : - Building structure. Volume HCC 290,000 m^3 nuclear concrete building (B21 and B23) - Approximately 600 rooms within the HCC, - Building systems, e.g. Heating, Ventilation, and Air Conditioning (HVAC), fire protection, electrical distribution, Instrumentation & Control (I&C), liners, red zone cooling, - Mechanical heavy handling, e.g. cranes, doors, trolleys,
Hot Cells expertise	Numbers of hot cells / red zones	15 different hot cells in HCB, in total volume of red zones / C4 ventilation class = 26,000 m^3
	Management of irradiated and contaminated components	Contact dose rate = 250 Sv/h due to activation in the Tokamak. Contamination of tritiated and activated dust on In Vessel components and IRMS Constant efforts to prevent spread of dust in red zones (from design stage to operational procedures), ALARA
	Tritiated environment	High level of tritium concentration > 4000 DAC in red zones Red zone / C4 areas fully covered by stainless steel liner, with an gap between the wall and the liner
	Nuclear maintenance	10 different hot workshop, 300 m^2 average each, dealing with hands-on maintenance on components after remote decontamination, ALARA
	Remote heavy handling in red zone	Handling of various heavy components, non-exhaustive list: – Equatorial Port Plug (50t, 3.5m length x 2.4 m x 2m),

	Demonstrable skills and experience	Main features of the Hot Cell Complex facilities
		– Upper Port Plug (25t, 6 m length), – Divertor (9t, 3.5m length, 2m high, 0.8m wide), – Vacuum Cryopump (2.9m length, 1.7m diameter), – Oversized Neutral Beam components up to 8m length, 3m high and 3.3m wide Two lines of defence: high reliability of heavy transfer systems and mitigation means in case of unexpected load drop.
	Docking of transfer casks	Transfer and docking of Remote Handing Transfer Cask, large size docking door: 2m x 2.4m
Radwaste management	Treatment of radioactive solid waste	Orders of magnitude during 20 years operation: – 1000 tons of MAVL waste – 100 tons FMA-VC – 100 tons purely tritiated waste – 10 tons TFA
	Treatment of radioactive liquid effluent	Orders of magnitude: 200 m^3 / year
	Radwaste process remotely controlled	Type B radwaste process located in the red zones / C4 areas shall be fully remotely controlled (no man access).
Hot Cell Remote Handling	Complex remote operation	Port Plug refurbishment, example of tasks to be performed fully remotely: – tilting 90° of 50t port plugs, – removal of subcomponents, – welding and control, – testing.
	Hot Cell Remote Handling	Design and integration of: – Tens of heavy duty long range manipulator, fully powered by electrical motors, – Few telescopic power manipulators, – Shielded windows, – Lighting and viewing systems, – Frames and handling tools, Buffer storage, remote decontamination, hands-on maintenance.
	Centralized control system	Functions such as ventilation management, remote transfers, remote refurbishment of In Vessel Components, remote waste treatment, shall be controlled from a centralized control room located in the Personal Access Control Building
	Seismic requirement	High seismic requirement (2 to 3 g acceleration in different dimensions) on building structure and part of the building system and process which is seismic classified according to the safety analysis

17 List of existing ICD/IS between PBS62.21, 62.23 and 62.24 and all systems involved

PBS SYSTEM	PBS 62.21	PBS 62.23	PBS 62.24
16	ITER_D_2EPQ5C - ICD-16-62.21 Interface Control Document for Blanket System (PBS 16) and Hot Cell Building (PBS 62.21)		
	ITER_D_34VVMF - IS-16-62.21-001 Interface between Blanket System (PBS 16) and Hot Cell Building (PBS 62.21)		
17	ITER_D_2EPQ6T - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Divertor (PBS 17)		
	ITER_D_335XA6 - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Divertor (PBS 17)		
22	ITER_D_2EPQGW - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Machine Assembly and Tooling (PBS 22)		
	ITER_D_33RKVE - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Machine Assembly & Tooling (PBS 22)		
23	Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Remote Handling (PBS 23) (2EPQJM v1.11) (current)		ITER_D_2X2H7L - Interface Control Document (ICD) between Personnel Access Control Building (PBS 62-24) - Remote Handling (PBS 23)
	Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Remote Handling (PBS 23) (32Z3B4 v2.0) (current)		ITER_D_34NNVH - Interface Sheet (IS) between Personnel Access Control Building (PBS 62.24) and Remote Handling (PBS 23)
26	ITER_D_2FGZEU - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Component Cooling Water (PBS 26-CC)	ITER_D_27WBMC - Interface Control Document (ICD) between Rad Waste Building (PBS 62-23) - Component Cooling Water (PBS 26-CC)	ITER_D_2FQJA2 - ICD-62.24-26.CH Interface Control Document (ICD) between Personnel Access Control Building (PBS 62.24) - Chilled Water (PBS 26.CH)
	ITER_D_33HRHN -	ITER_D_33Z5VT - Interface Sheet	ITER_D_33LDMC - Interface

	Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Water Cooling System (PBS 26.CH, CC)	(IS) between Radwaste Building (PBS 62.23) and Water Cooling System (PBS 26)	Sheet (IS) between Personnel Access Control Building (PBS 62.24) and Chilled Water (PBS 26.CH)
31	ITER_D_TR87HJ - ICD-31-62.21 Interface Control Document for Vacuum System (PBS 31) and Hot Cell Facility Bldg (PBS 62.21)		
	ITER_D_W38YCN - IS-31-62.21-001 Plan and Layout		
32	ITER_D_2EPQM4 - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Tritium Plant (PBS 32)		
	ITER_D_34QUFZ - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Tritium Plant (PBS 32)		
43	ITER_D_2EPQNK - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Steady State Power Supply (PBS 43)	ITER_D_2EQCEQ - Interface Control Document (ICD) between Rad Waste Building (PBS 62-23) - Steady State Power Supply (PBS 43)	ITER_D_2EQDCX - Interface Control Document (ICD) between Personnel Access Control Building (PBS 62-24) - Steady State Power Supply (PBS 43)
	ITER_D_333ZBE - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Steady State Power Supply (PBS 43)	ITER_D_34JQAQ - Interface Sheet (IS) between Radwaste Building (PBS 62.23) and Steady State Power Supply (PBS 43)	ITER_D_34NTX9 - IS-62.24-43-001 Interface Sheet (IS) between Personnel Access Control Building (PBS 62.24) and Steady State Power Supply (PBS 43)
44	ITER_D_343LNZ - ICD-62.21-44 Interface Control Document for Hot Cell Facility Building (PBS 62.21) and Cable Trays System (PBS 44)	ER_D_34FS59 - ICD-62.23-44 Interface Control Document for Radwaste Facility Building (PBS 62.23) and Cable Trays System (PBS 44)	ITER_D_346QDP - ICD-62.24-44 Interface Control Document (ICD) between Personnel Access Control Building (PBS 62-24) and Cable Trays System (PBS 44)
	ITER_D_R93AM8 - IS-62.21-44-002 Interface between CLIENT PBS 62.21 Hot Cell Building for building services cables and PBS 44 Cable Tray System	ITER_D_R99JTX - IS-62.23-44-002 Interface between CLIENT PBS 62.23 Rad Waste Building for building services cables and PBS 44 Cable Tray System	ITER_D_2YFJXL - IS-62.24-44-001 Interface between PBS 62.24 Personnel Access Control Building and CLIENT PBS 44 Cable Tray System for cable tray network & openings
45	ITER_D_2EPQSR - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - CODAC (PBS 45)	ITER_D_2EQCLT - Interface Control Document (ICD) between Rad Waste Building (PBS 62-23) - CODAC (PBS 45)	ITER_D_2EQDJJ - ICD-62.24-45 Interface Control Document between Personnel Access Control Building (PBS

			62.24) - CODAC (PBS 45)
	TER_D_33TKS6 - IS-45-62.21-001 - PBS 45 Cubicle housing in building B21, ITER_D_V7PP5V - IS-45-62.21-002 - I&C interfaces between PBS 45 CODAC and PBS 62.21	ITER_D_2W33PH - IS-45-62.23-001 - PBS 45 Cubicle housing in building B23 ITER_D_V7PPVR - IS-45-62.23-002 - I&C interfaces between PBS 45 CODAC and PBS 62.23	ITER_D_2W3S8S - IS-62.24-45-001 Physical and environmental interface between Personnel Access Control building (PBS 62.24) and CODAC (PBS 45)
46	ITER_D_2EPQV8 - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Central Interlock System (PBS 46)	Obsolete ITER_D_2EQCSW - Interface Control Document (ICD) between Rad Waste Building (PBS 62-23) - Central Interlock System (PBS 46)	ITER_D_2EQDQM - Interface Control Document (ICD) between Personnel Access Control Building (PBS 62-24) - Central Interlock System (PBS 46)
	ITER_D_353ENC - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Central Interlock System (PBS 46)	Obsolete ITER_D_2ZSBB4 - Interface Sheet (IS) between Radwaste Building (PBS 62.23) and Central Interlock System (PBS 46)	ITER_D_2YLVJ3 - IS-62.24-46-001 Interface Sheet (IS) between Personnel Access Control Building (PBS 62.24) and Central Interlock System (PBS 46)
48	ITER_D_2EPR2M - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Central Safety System (PBS 48)	ITER_D_2EQCUX - Interface Control Document (ICD) between Rad Waste Building (PBS 62-23) - Central Safety System (PBS 48)	ITER_D_2EQDUP - Interface Control Document (ICD) between Personnel Access Control Building (PBS 62-24) - Central Safety System (PBS 48)
	ITER_D_V9ZZAK - IS-48.01-62.21-001 Interface sheet between Hot Cell building (PBS 62.21) and CSS nuclear risk (48.01)	ITER_D_V8E32G - IS-48.02-62.23-001 Interface between PSSOS and CSS-OS	ITER_D_V8ZB5M - IS-48.02-62.24-001 Interface between PSSOS and CSS-OS
51	ITER_D_2EPR35 - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Ion Cyclotron H&CD System (PBS 51)		
	ITER_D_33A8WX - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and IC H&CD System (PBS 51)		
52	ITER_D_TRD4VQ - ICD-52-62.21 Interface Control Document for Electron Cyclotron Heating and CD System (PBS 52) and Hot Cell Facility Bldg (PBS 62.21)		

	/		
53	ITER_D_TRBNWS - ICD-53-62.21 Interface Control Document for Neutral Beam H&CD System (PBS 53) and Hot Cell Facility Bldg (PBS 62.21)		
	/		
55	ITER_D_2EPR54 - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Diagnostics (PBS 55)		
	ITER_D_357AB7 - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Diagnostic (PBS 55)		
56	ITER_D_2EPR92 - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Test Blanket Modules (PBS 56)		
	ITER_D_34M9LV - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Test Blanket Modules (PBS 56)		
57	ITER_D_PAQDWD - ICD-57-62.21 Interface Control Document for In Vessel Viewing System (PBS 57) and Hot Cell Facility Building (PBS 62.21)		
	ITER_D_VVT3LC - IS-57-62.21-001 Interface between In Vessel Viewing System and Hot Cell Facility Building		
58	ITER_D_35UDKG - ICD-58-62.21 Interface Control Document for Hot Cell Facility Building (PBS 62.21) and Port-Plug Test Facility (PBS 58)		
	ITER_D_VPPLGP - IS-58-62.21-001 Space Reservations, ITER_D_VPZFRZ - IS-58-62.21-002 Heat Loads,		

	ITER_D_VPPM5D - IS-58-62.21-003 Seismic loads , ITER_D_VQ8SZR - IS-58-62.21-004 Operation and Maintenance, ITER_D_VQ8T7L - IS-58-62.21-005 Penetrations		
64	ITER_D_2EPRD8 - Interface Control Document (ICD) between Hot Cell Building (PBS 62-21) - Radiolg & Env Monitoring (PBS 64)	ITER_D_2EQCWY - Interface Control Document (ICD) between Rad Waste Building (PBS 62-23) - Radiological Protection (PBS 64)	ITER_D_2EQDYR - Interface Control Document (ICD) between Personnel Access Control Building (PBS 62-24) - Radiological and Environmental Monitoring (PBS 64)
	ITER_D_358TTF - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Radiological Protection (PBS 64)	ITER_D_35FU7Q - Interface Sheet (IS) between Radwaste Building (PBS 62.23) and Radiological Protection (PBS 64)	ITER_D_33BTL3 - Interface Sheet (IS) between Personnel Access Control Building (PBS 62.24) and Radiological Protection (PBS 64)
66	ICD-62.21-66 Interface Control Document for Hot Cell Building (PBS 62-21) and Radwaste Treatment & storage (PBS 66) (2EPRNT v1.8) (current)	ICD-62.23-66 Interface Control Document between RadWaste Building (PBS 62.23) - Radwaste Treatment & storage (PBS 66) (2EQCYZ v1.6) (current)	ITER_D_2LYAR9 - ICD-62.24-66 Interface Control Document between Personnel Access Control Building (PBS 62.24) - Radwaste Treatment & storage (PBS 66)
	Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Radwaste Treatment & Storage (PBS 66) (35LTTZ v1.2) (current)	Interface Sheet (IS) between Radwaste Building (PBS 62.23) and Radwaste Treatment & storage (PBS 66) (33622M v1.5) (current)	IS-62.24-66-001 Interface Sheet (IS) between Personnel Access Control Building (PBS 62.24) and Radwaste Treatment & storage (PBS 66) (34TRX3 v2.0)
69	ITER_D_345UM8 - Interface Control Document (ICD) between Hot Cell Bldg (PBS 62-21) - Access Control & Security (PBS 69)	ITER_D_32ZWYQ - Interface Control Document (ICD) between Low Level Radwaste Bldg (PBS 62-23) - Access Control & Security (PBS 69)	ITER_D_34B5CX - ICD-62.24-69 Interface Control Document between Personnel Access Control Bldg (PBS 62.24) and Access Control & Security (PBS 69)
	ITER_D_35X2F8 - Interface Sheet (IS) between Hot Cell Building (PBS 62.21) and Access Control & Security (PBS 69)	ITER_D_35XSCM - Interface Sheet (IS) between Radwaste Building (PBS 62.23) and Access Control & Security (PBS 69)	ITER_D_32ZT2J - Interface Sheet (IS) between Personnel Access Control Building (PBS 62.24) and Access Control & Security (PBS 69)