

TECHNICAL SUMMARY
Call For Tender IO/22/10023123/JPK
Design and Fabrication of Tokamak Complex Detritiation System
Central Processing Plant

1 PURPOSE

The ITER Organisation (IO) intends to issue a call for tender for the detailed design and fabrication (D&F) of the Tokamak Complex Detritiation System (TCDS) central processing plant

Standby DS (SB DS)

Comprises six separate modules, each with 140Nm³/hr throughput, organised into two independent trains A & B (three in each train).

Classified as PICSIC (credited for nuclear safety)

This system is normally not operating (in standby).

Required to start up within a defined duration in the event of certain accident conditions, and available to take over the diert loads in the event that NDS becomes unavailable

Normal DS (NDS)

Comprises two separate modules, each with 140Nm³/hr throughput

Not classified PICSIC (Safety related)

This system is normally in operation

This arrangement is shown in Figure 1, with the scope boundary shown by the red box

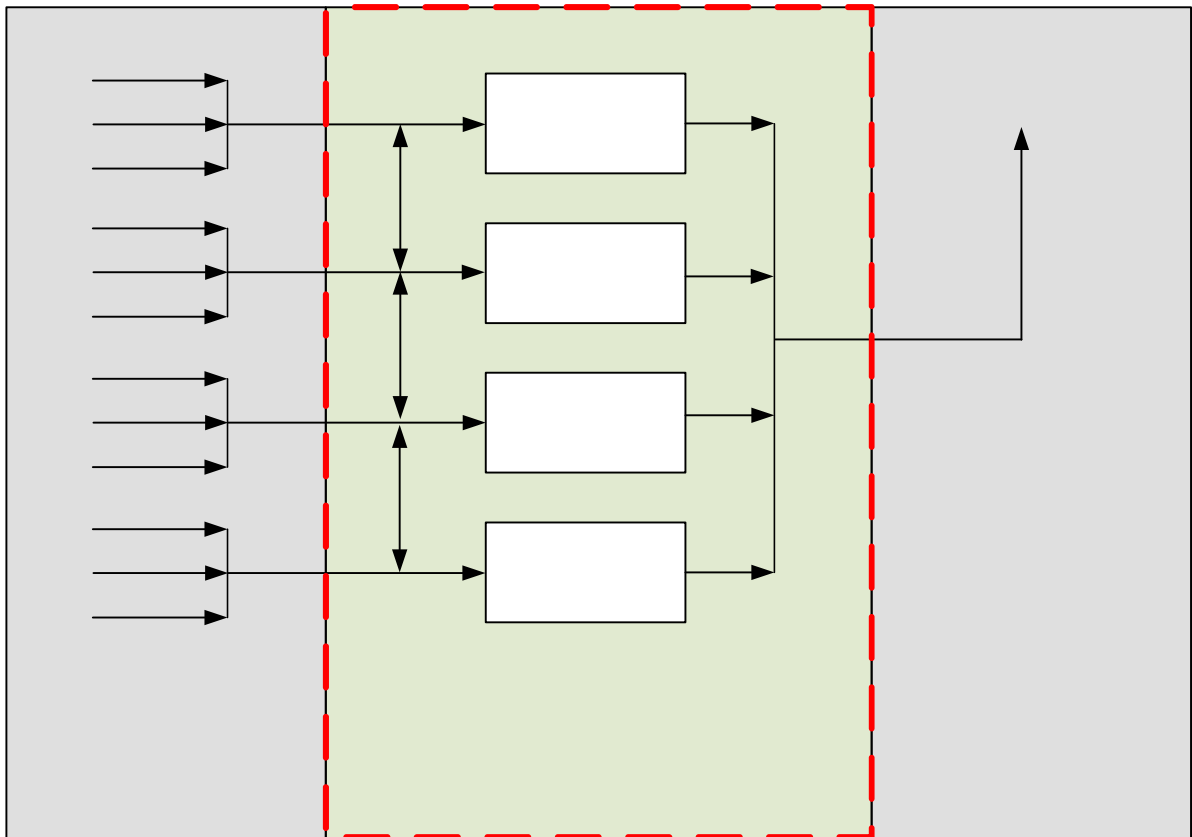


Figure 1: TC DS Central process part arrangement and scope boundaries within red box

32 Equipment location and layout

The TC DS central process part shall be installed inside the Tokamak Complex on levels 2 and 3 of the Tritium Plant Building (Building 14). This part of the building is currently under construction, and is scheduled for completion by 2024. A cut-section of the Tritium Building

33 Description of main process equipment items

The main equipment items that make up the NDS and SBDS modules are listed in the following sections

331 Process equipment

- HEPA filters**
- Catalytic oxidation reactors**
- Gas (Air) heaters**
- Heat exchangers (Air/Air and Air/Cooling Water)**
- Scrubber columns (liquid/gas contactors)**
- Blowers**
- Valves**

The main material used for construction of the process equipment and piping is stainless steel.

332 Structural equipment

The scope of work includes piping supports, pipe racks and platforms used to support and access equipment

34 Control & Instrumentation

The TCDS control system comprises two parts: the Process Control System (PCS) and the Safety Control System (SCS).

The PCS is a non-safety control system used to maintain operating parameters. The PCS shall be implemented by PLCs.

The SCS is a safety control system used to start up SBDS and take emergency actions.

5 SCOPE OF WORK

The scope of the contract is to perform the detailed design, procurement, fabrication and

8 EXPERIENCE

The successful selected Contractor and its personnel shall possess technical and engineering expertise and experience in

- The successful planning, execution and project management of medium scale EPC type projects
- Detailed design and fabrication of equipment for gas treatment systems, including the equipment items listed in Section 3.3
- Engineering design, analysis and preparation of technical documentation in the areas of HVAC, process, mechanical, piping structural, electrical and I&C engineering for systems performing nuclear safety functions
- Design of instrumentation and control for systems performing nuclear safety functions
- Quality assurance and quality control for design, procurement and fabrication of equipment and components for nuclear safety applications
- Qualification of equipment and components for nuclear safety applications
- Ability to use the AVEVA E3D, Engineering and Diagrams software for process plant design

Rich experience in tritium applications is not required

9 NUCLEAR AND QUALITY REQUIREMENTS

ITER is a Nuclear Facility identified in France by the number INB 174 (Installation NucQ) () on site

been constituted informally for a specific tender procedure. All members of a consortium (i.e. the leader and all other members) are jointly and severally liable to the IER Organization. The consortium cannot be modified later without the approval of the IER Organization.