

# Job Title: Process Engineer TCWS-007

Requisition ID **6003** - Posted - (France, 13067 St Paul Lez Durance Cedex) - **Engineering of Systems - New Posting**

The ITER Organization brings together people from all over the world to be part of a thrilling human adventure in southern France—building the ITER Tokamak. We require the best people in every domain.

We offer challenging full-time assignments in a wide range of areas and encourage applications from candidates with all levels of experience, from recent graduates to experienced professionals. Applications from under-represented ITER Members and from female candidates are strongly encouraged as the ITER Organization supports diversity and gender equality in the workplace.

Our working environment is truly multi-cultural, with 29 different nationalities represented among staff. The ITER Organization Code of Conduct gives guidance in matters of professional ethics to all staff and serves as a reference for the public with regards to the standards of conduct that third parties are entitled to expect when dealing with the ITER Organization.

The south of France is blessed with a very privileged living environment and a mild and sunny climate. The ITER Project is based in Saint Paul-lez-Durance, located between the southern Alps and the Mediterranean Sea—an area offering every conceivable sporting, leisure, and cultural opportunity.

To see why ITER is a great place to work, please look at this video

**Application deadline:** 08/05/2022

**Domain:** Construction

**Department:** Plant Construction

**Division:** Mechanical Implementation

**Section:** Tokamak Cooling Water System

**Job Family:** Construction

**Job Role:** Engineer – 2

**Job Grade:** P2

**Language requirements:** Fluent in English (written & spoken)

**Contract duration:** Less than 4 years, until end of 2025

***Specific note: This vacancy is for less than 4 yrs., as the employment contract is valid until December 2025, while it will be subject to the contract renewal process according to the staff regulations.***

## **Purpose**

As a Process Engineer, you will be responsible for the process design, interface management and preparation of commissioning/operations of the integrated loop of Blanket, ELM-VS, and Divertor-Primary Heat Transfer Systems (IBED-PHTS).

You will perform the thermal hydraulic design and/or analyses of the PHTS of ITER Tokamak Cooling Water Systems (TCWS), and contribute to the preparation of the Technical Specification for the procurement, fabrication and testing of the TCWS equipment.

## **Background information:**

The PHTSs are designed to remove approximately 1,000 MW of heat from the Vacuum Vessel and the In-Vessel Plasma facing components. The relevant hydraulic circuits have a very complex piping distribution that imposes a detailed design of the flow balance of the parallel cooling lines as well as the inlet pressure to the In-Vessel components.

This job is assigned to the TCWS Delivery Group.

## Key Duties, Scope, and Level of Accountability

---

- Performs the process design of IBED-PHTS and makes sure that all functional interfaces with clients and services systems are satisfied and feasible in the layout;
- Prepares commissioning plans, commissioning procedures and operating guidelines for IBED-PHTS;
- Keeps up to date all documentation related to the process design of IBED-PHTS, in particular the documentation basis for the safety assessment;
- Acts as interface with the Construction Department for all construction matters with a potential impact on the IBED-PHTS process design and is responsible to assess in a timely fashion such impacts and give timely feedback to the construction department;
- Supports the commissioning team for IBED-PHTS first plasma operations and beyond;
- Participates in the steady state thermal hydraulic design of the PHTSs of ITER TCWS by using Fathom software;
- Provides solutions to balance the parallel flows of cooling lines for all the clients of the PHTSs by using Fathom software;
- Participates in the preparation of the datasheet for the selection of the valves, orifices, pumps and other components for the PHTSs;
- Provides solutions for the pressure and flow control for Plant Control Systems by using valves, bypass and pumps by Variable Frequency Drives;
- Supports the TCWS Section for the design, procurement, assembly and/or installation and operation of the TCWS piping and components in close collaboration with Domestic Agencies (DAs) and other ITER Organization (IO) Departments/Offices;
- May be required to work shifts during the ITER assembly and commissioning phase;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- May be required to work outside ITER Organization reference working hours, including nights, week-ends and public holidays.

## Measure of Effectiveness

---

- Manages the complete process design of IBED-PHTS making sure that requirements stemming from the System Requirements Document (SRD) are duly implemented;
- Makes sure that the process design of IBED-PHTS is complying on one side with the TCWS SRD and, on the other side, with all physical and functional interfaces of the system, making sure the design is well integrated in the project.
- Produces accurate thermal hydraulic design/analyses of the TCWS and PHTSs in a timely manner;
- Collaborates effectively and professionally with all stakeholders and maintains excellent relations with interfacing teams;
- Ensures satisfaction of safety and functional thermal hydraulic requirements flow down;
- Produces high quality reports on time.

## Experience & Profile

---

- **Professional Experience:**
  - Minimum 5 years' experience in process or systems engineering in the field of complex nuclear installations or construction within international environments or projects.
- **Education:**
  - Master degree or equivalent in Nuclear Engineering field or other relevant discipline;
  - The required education degree may be substituted by extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains.
- **Language requirements:**
  - Fluent in English (written and spoken).
- **Technical competencies and demonstrated experience in:**

- Specialized Domains of Expertise: Thermal Hydraulic Engineering, including sizing calculations for Cooling circuits' equipment, and application of specific software for Thermal-Hydraulic circuits calculations (e.g. Fathom and RELAP) is required;
- Process Design (create technical designs based on project requirements): Process and system design development, including process and/or high category nuclear safety systems, design engineering and analysis;
- Interface management: Identify, resolve and maintain technical and functional interfaces;
- Writing commissioning plans, procedures and operating guidelines for hydraulic circuits;
- Control Processes of Cooling Systems for Nuclear Power Plants or nuclear facilities.
- Application and use of 2D-3D CAD software (e.g. CATIA, SSD etc.) is required;
- ANSYS, CFD or MELCOR software experience is advantageous.
- **Behavioral competencies:**
  - Collaborate: Ability to facilitate dialogue with a wide variety of contributors and stakeholders;
  - Communicate Effectively: Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment;
  - Drive results: Ability to persist in the face of challenges to meet deadlines with high standards;
  - Manage Complexity: Ability to analyze multiple and diverse sources of information to understand problems accurately before moving to proposals;
  - Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.

---

***The following important information shall apply to all jobs at ITER Organization:***

- Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, ITER Values (Trust; Loyalty; Integrity; Excellence; Team mind set; Diversity and Inclusiveness) and Code of Conduct;
- ITER Core technical competencies of 1) Nuclear Safety, environment, radioprotection and pressured equipment 2) Occupational Health, safety & security 3) Quality assurance processes. Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- May be requested to work on beryllium-containing components. In this case, you will be required to follow the established ITER Beryllium Management Program for working safely with beryllium. Training and support will be provided by the ITER Organization;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- Informs the IO Director-General, Domain Head, or Department/Office Head of any important and urgent issues that cannot be handled by line management and that may jeopardize the achievement of the Project's objectives.