Job Title: Mechanical Design Engineer TCWS-003

Requisition ID **6844** - Posted - (France, 13067 St Paul Lez Durance Cedex) - **Construction and Installation** - **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.

ITER Organization (IO) is an Equal Opportunity/Inclusive organization committed to diversity in the workplace, with diversity and Inclusiveness being one of the ITER Values.

As IO attracts and retains people coming from a vast array of different backgrounds and cultures, bias and exclusion cannot be tolerated. IO believes it is our diverse perspectives and backgrounds that gives unique strength and value to the ITER mission, regardless of race, member nation, gender, religion, status, sexual orientation, or disability - all are welcome and respected at ITER.

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: 05/03/2023
Domain: Construction Domain
Department: Plant Construction Department
Division: Mechanical Implementation Division
Section: Tokamak Cooling Water System Section
Group: TCWS Delivery
Job Family: Construction
Job Role: Engineer – 3
Job Grade: P3
Language requirements: Fluent in English (written & spoken)
Contract duration: up to 3 years

***Specific note*: 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 Mechanical Design Engineer, you will coordinate between the structural/mechanical engineers and the CAD draftsman to make sure that the TCWS design is compliant with both mechanical and layout requirements.

Background

The ITER Tokamak Cooling Water System (TCWS) has three separate primary heat transport systems supported by three additional systems, with a requirement to remove approximately 1,000 Megawatt of heat. These systems perform safety functions for confinement of radioactive material, confinement of high energy liquid, and decay heat removal which is generally lower in magnitude (less radioactive material, pressure, and decay heat) but of similar function to commercial fission reactors. The systems have 33 km of nuclear-grade piping, which is a comparable size to a commercial fission reactor water system. The main objective of this position is to make sure that the construction design of the TCWS is done timely for construction/installation needs.

Key Duties, Scope, and Level of Accountability

- Coordinates between the mechanical engineers and the CAD draftsman in the TCWS section to make sure that the TCWS design respects the mechanical requirements and it is compatible with layout constraints;
- Ensures the design of components/pipes/supports is compatible with access, in-service inspection and maintenance requirements;
- Guides CAD draftsman so that when drafting components/piping/supports layout, such layout is mechanically sound and would not need major rework to pass mechanical qualification;
- Propose changes and solutions for layout that minimize the impacts on the mechanical qualification of piping/components/supports;
- Performs and reviews detailed piping/supports/components/platforms stress analyses for the construction/installation of the TCWS;
- Assesses the constructability of the proposed design for the piping and the supports;
- Ensures that the proposed construction design respects all interfaces (notably the loads to the equipment nozzles and the embedded plates in the building), is optimized from layout standpoint by working in close collaboration with CAD draftsman and is compliant with the applicable codes (ASME B31.3, ASME VIII, etc.) and regulations (Pressure Equipment Directive and Nuclear Pressure Equipment Directive);
- Is responsible for issuing documentation needed for the Engineering Work Packages: Bill of Materials (BoMs), isometrics, support drawings, etc.;
- May be required to work outside ITER Organization reference working hours, including nights, week-ends and public holidays.

Measure of Effectiveness

- Ensures the TCWS design is compliant with mechanical and layout requirements by proactively anticipating and resolving associated issues promptly;
- Issues and verifies analyses, stress reports, EWPs and drawings for piping, supports, steel frames, etc. in a timely manner as per the project schedule; Delivers documents on time with clear and concise data, including technical specifications and progress reports;
- Completes work within defined timelines and contractual agreements;
- Identifies practical, cost-effective, manageable and efficient solutions to issues within constraints;
- Works effectively in teams, communicating well with all stakeholders and contributes to the overall success of the ITER project;
- Performs work within safety and quality parameters.

Experience & Profile

- ***Professional Experience:***
  - Minimum 8 years' experience working as piping/support specialist in the field of mechanical design, preferably for Nuclear systems within complex international environments or projects.
- ***Education:***
  - Master degree in Mechanical or Nuclear Engineering 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:***
  - Design and structural qualification of (high pressure and temperature) piping and supports is required;
  - Issuing/revising structural qualification reports, supports drawings and isometrics is required;
  - CAD Software: Familiarity and practical ability to use CAD software such as AVEVA E3D, CATIA Enovia, AutoCad or MS Visio;
  - Interface Management and Layout: Ensuring construction design respects necessary interfaces and layout requirements for complex projects;
  - Capability in using software to perform mechanical and structural analysis, including finite element analysis (Caesar II, GT-Strudl, Ansys, etc.) is required;
  - Knowledge of ASME B31.3, ASME VIII, Pressure and Nuclear Pressure Equipment directives is considered 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 (Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members) :
  1) Nuclear Safety, Environment, Radioprotection and Pressured Equipment
  2) Occupational Health, Safety & Security
  3) Quality Assurance Processes
- 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.
- For staff expected to perform on-call, shift hours, or other work outside ITER Organization reference working hours, including nights, weekends, and public holidays, the possession of a driving license valid in France is required. No commuting vehicle will be provided by the ITER Organization.