Job Title: Mechanical Engineer TCWS-47-48-49

Req ID **2000** - Posted **05/10/2020** - (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.

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: 15/11/2020
Domain: Construction
Department: Machine Construction
Division: Tokamak Complex
Section: Tokamak Cooling Water System
Job Family: Project Engineering
Job Role: Engineer - 1
Job Grade: P2
Language requirements: Fluent in English (written & spoken)
Contract duration: Up to 5 years

Purpose

Three positions

As a Mechanical Engineer, you will perform and revise structural analyses for the ITER Tokamak Cooling Water System (TCWS) piping/supports/components as per applicable regulations and codes. You will also be responsible for designing detailed supports and steel frames, whilst ensuring that the construction design is compatible with all applicable interfaces and available space in the layout. The main objective of these positions is to make sure that the construction design of the TCWS is done on schedule for construction/installation needs.

Background

The ITER TCWS has three separate primary heat transport systems supported by three additional systems, with a requirement to remove approximately 1,000 Megawatts 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.

Major Duties/Roles & Responsibilities

- Performs and reviews detailed piping stress analysis as required for the construction/installation of the TCWS;
- Performs and reviews the design of detailed supports/steel frames and assesses their structural qualification for the construction/installation of the TCWS;
- Performs constructability assessments of the proposed design for the TCWS piping and supports;
- Reviews the detailed design of the TCWS equipment (heat exchangers, pumps, etc.) which may interface with the piping/supports/steel frames;
- Ensures that the proposed construction design respects all interfaces (notably the loads on the equipment nozzles and the embedded plates in the building), and is optimized from layout standpoint by working in close collaboration with CAD draftsmen and is compliant with the applicable codes (ASME B31.3, ASME VIII, etc.) and regulations (Pressure Equipment Directive and Nuclear Pressure Equipment Directive);
- Issues and reviews reports related to TCWS piping and support qualification;
- Develops the EWP for construction needs and monitors their progress;
- Issues accurate documentation and updates it required for the Engineering Work Packages (EWP) such as Bill of Materials (BoMs), isometrics, support drawings, etc.;
- 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

- Issues and verifies accurate piping stress documentation, reports and drawings in a timely manner for piping, supports, steel frames, etc.;
- Ensures that EWPs are issued to construction as per the schedule to minimize delays;
- Ensures that the proposed layout is issued in good time, according to the integration and construction schedule;
- Anticipates or resolves interface and integration issues related to the layout promptly to minimize disruption to the schedule.
- Complies with applicable codes (ASME B31.3, ASME VIII, etc.) and regulations (Pressure Equipment Directive and Nuclear Pressure Equipment Directive) and propagates their use where necessary;
- Maintains effective communication and excellent relations with interfacing teams within ITER and with external contractors;
- Strives to ensure the installation and construction activities of the TCWS piping/supports are in line with safety and quality standards and requirements;

Experience & Profile

- ***Professional Experience:***
  - At least 5 years' experience working as a Mechanical Engineer, specifically on piping and supports, preferably for Nuclear systems.
- ***Education:***
  - Master's degree or equivalent 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:***
- Systems Engineering and Design:
  - Design and structural qualification of (high pressure and temperature) piping and supports is required;
  - Writing and reviewing technical documentation packages, instructions and guidance;

  - Issuing/revising structural qualification reports and supports drawings and isometrics is required and contributing or leading design review;
  - Performing constructability assessments for piping/supports;
- Interface Management:
  - Identifying, resolving and maintaining functional interfaces;
  - Analyzing and proposing solutions for interface or challenging technical issues;
- The use of Caesar II, GT-Strudl, Ansys, etc.;
- The use and application of QA/QC standards and codes such as ASME B31.3, ASME VIII, etc. is required;
- The use and application of Pressure and Nuclear Pressure Equipment directives is considered an advantage.
- ***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, **r**adioprotection 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 lline management and that may jeopardize the achievement of the Project’s objectives.