DEMO Plant Safety Design Integration Engineer

Background

The complexity of the DEMO fusion power plant demands that early attention is given to ensure that the safety principles and requirements are properly incorporated in the DEMO plant conceptual design process in all the design iterations. The plant safety design integration engineer works in the DEMO Central team (DCT)[1] and has to ensure that the design complies with the overall safety and environment targets and that thorough safety analyses are conducted and properly documented to justify design choices and/or changes. The post holder must liaise with the Work Package Safety (WPSAE).

Main duties and responsibilities

- Ensure that safety guidelines, requirements (to be provided by WPSAE) are coherently integrated in the DCT design process,
- Define safety functions (to be provided by WPSAE) for all DEMO systems, structures and components (SSCs) and updated them during all the design iterations; verify the classification of SSCs according to the adopted safety importance classification criteria.
- Ensure that overall release limits on the main systems are defined and properly tracked during all design iterations in order to maximize the use of passive safety measures: (e.g. maximum enthalpy of the cooling systems; inventory limits for He cryogenic system, in-vessel tritium and dust, tritium in fuel cycle components, etc.
- Ensure that safety design requirements are well defined for each system together with the load combinations with the relevant category (likelihood of occurrence).
- Verify that the safety room-book of nuclear buildings is aligned with design progress reporting, among others, the normal and accidental conditions as results of the safety analyses.
- Check consistency among systems design requirements, e.g. maximum stresses and deformations for the load combinations (e.g. short circuit of a TF coil); ALARA criterion for the annual occupational radiation dose to the DEMO staff (operation and maintenance); power supply needs of SIC systems and components and Emergency Diesel Generator capability-feasibility.
- Establish and maintain and effective dialogue with WPSAE.
- Contribute to establish a nuclear safety culture in the DCT.

Required / desired qualifications and competencies

- University degree in a relevant Engineering / technical discipline.
- Minimum 10 years' experience in safety of fusion plants and in nuclear power plants design, construction, assembly, commissioning and operation.
- Broad understanding of nuclear facility design, qualification, manufacturing, testing and inspection processes and related codes and standards and industry best practice.
- Ability to work effectively both independently and as part of a team.
- Good interpersonal skills and excellent written and verbal communication skills in English

The post holder will work in Garching (Germany) and will report to the Head of the DCT Plant Architecture & System Design Division. In the initial phase before the Head of that Division is installed, reporting will be directly to the FTD Head.

[1] In FP9, the DCT is foreseen to advance the design basis (physics and technology) of a DEMO fusion power plant, by implementing and agile architectural design capability, impartial analysis of options, and quick access to the expertise distributed in the EU fusion laboratories, universities and industry. This is needed to ensure the rapid convergence towards a feasible DEMO plant architecture (see G. Federici, C. Baylard, DEMO Project Charter Proposal, IDM reference: 2P3ZEP. April 2020).

DEMO Central Team (DCT): Fusion Technology Department (FTD)

Date of Job Vacancy: January 1st, 2021

Application Deadline: September 15th, 2020

The applicant will ideally already have a work contract with a EUROfusion Beneficiary and will be seconded to the EUROfusion Programme Management Unit (PMU) in Garching. Otherwise, she/he will have to secure a work contract with one of the Beneficiaries, to be seconded to the PMU in Garching.

The EUROfusion secondment will ideally run until the end of the Horizon Europe framework period (31 December 2027), but the actual labour contract might be subject to the rules, regulations and conditions of the Beneficiary that employs the applicant.

EUROfusion strives for diversity and inclusion, and explicitly encourages members of minority groups, and females, to apply for this position.

In case the candidate is shortlisted, the interviews will take place by the mid of October.
Please send your completed application including CV, cover letter and examples of your past-related work experience to: anne.graebner@euro-fusion.org.

CONTACT: Gianfranco Federici
Tel: + 49 (0)89 3299 4228
E-mail: gianfranco.federici@euro-fusion.org