

# IO1449 Tritium Plant System Engineer PSE-160

## General information

Job category	Standard
Status	Published
Department	DIP/Department for ITER Project
Division	PSE/Fuel Cycle Engineering Division
Section	PSE/ FCED/ Tritium Plant Section

## Job description

Main job	Engineering - Chemical engineering
Title of the position	Tritium Plant System Engineer PSE-160
Job family	Engineer - 2
Grade	P3
Direct employment	Not required
Purpose	<p>To develop new computer models as described below and to integrate models developed by others - pursuit of solely academic concerns is not part of this position;</p> <p>To be responsible for steady state and dynamic process modeling in order to understand performance of the Tritium Plant processes and the Fuel Cycle as a whole, to ensure that requirements are met, and to optimize the design through value engineering and trade off studies, besides considering safety important factors and integrated operation of the ITER Fuel Cycle.</p> <p>Background information:</p> <p>The ITER Fuel Cycle comprises a chemical processing plant. Multiple unit operations are used such as cryo pumping, mechanical pumping, catalytic reactions, membrane separation, cryogenic distillation, and absorption.</p> <p>A range of models are envisioned, including overall system models focused on general flow rates, compositions and system inventories, and component design models including detailed performance characteristics. Initially models will be used to guide process design, but ultimately models may be used for operator training and to guide operations.</p>
Main duties / Responsibilities	<p>Responsible for modelling individual Fuel Cycle processes such as hydrogen isotope storage &amp; delivery, fueling, vacuum pumping, hydrogen purification &amp; removal of tritium from tritiated species, separation of hydrogen isotopologues, water detritiation, and atmosphere detritiation;</p> <p>Develops the model for the overall performance of the Fuel Cycle, including dynamic performance (flow rates, compositions &amp; inventories) for various operational scenarios;</p> <p>Incorporates expertise from system responsible engineers into models &amp; communicate model results so they can be incorporated into process designs;</p> <p>Incorporates existing models into overall Fuel Cycle simulation;</p> <p>Analyzes the Fuel Cycle systems' dynamic performance for various scenarios of operations &amp; supports value engineering &amp; trade off studies;</p> <p>Uses model results to guide development of the Tritium Tracking and Accountancy Program, of operations &amp; testing plans, and of Fuel Cycle control systems;</p> <p>Coordinates integration of Tritium Plant &amp; Fuel Cycle operation modeling into design;</p> <p>Ensures implementation of Quality Assurance &amp; Quality Control procedures for his/her work;</p> <p>May be required to work shifts during the ITER assembly &amp; commissioning phase;</p> <p>Performs other duties in support of the project schedule as described in the Detailed Work Schedule or Strategic Management Plan;</p> <p>Performs other duties linked to the above purpose upon management request, as necessary;</p> <p>Maintains a strong commitment to the implementation &amp; perpetuation of the ITER Safety Program, values &amp; ethics.</p> <p>Under close functional supervision from the Plant Systems Chief Engineer, reports to the Tritium Plant Section Leader;</p> <p>Acts as an interface between all technical divisions to support integration of the Fuel Cycle;</p> <p>In response to requests from the Director-General (DG) and/or Director of Plant System Engineering (PSE) Directorate, or proactively, informs the DG/Director of any important &amp; urgent issues that cannot be handled by the concerned line management &amp; may jeopardize the</p>

Measures of effectiveness	achievement of the Project's objectives
	Clarity and thoroughness of models and documents; Quality and timeliness of work products; Quality and efficiency of communication with Fuel Cycle personnel and with pertinent interfacing systems; Ability to work effectively in teams and contribute to the overall success of the Fuel Cycle design/build project; Completion of requested modeling and support of value engineering and trade off studies; Performing work safely and with regard for safety in designs.
	Project Construction Phase

## Applicant criteria

Level of study	Master or equivalent degree
Diploma	Chemical or Nuclear Engineering.
Level of experience	At least 8 years
Technical experience	At least 8 years' experience in areas of simulation of chemical processes, preferably including handling hydrogen isotopes; At least 5 years' experience in relevant nuclear or chemical industry; Good knowledge in gas processing technology unit operations, isotope effects, vacuum technology, analytical methods, heterogeneous catalysis, gas (hydrogen) / solid interactions; Excellent knowledge of chemical processing simulation software (e.g. Aspen Plus, Aspen Dynamics and Aspen Custom Modeler); Proven ability to develop computer models and using them to guide process design, build and operation; General Understanding of ITER Fuel Cycle unit operations would be advantageous.
Social skills	Ability to work effectively in a multi-cultural environment , Ability to work in a team and to promote team spirit
Languages	English (Working)
Specific skills	MS Office standard (Word, Excel, PowerPoint, Outlook)
Others	Excellent knowledge of process modeling software, preferably including Aspen Plus, Aspen Dynamics and Aspen Custom Modeler;