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P2.205 IFMIF-DONES Systems Engineering Approach

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In the framework of the EU fusion roadmap implementing activities, an accelerator-based Li(d,n) neutron source called DONES (Demo-Oriented early NEutron Source) is being designed as an essential irradiation facility for testing candidate materials for DEMO reactor and future fusion power plants. DONES facility is being developed within the EUROfusion workpackage WPENS which main objective is to be ready for IFMIF-DONES construction in 2020. Fourteen Research Units around Europe, as well as industry Third Parties, are involved working in different aspects of DONES.

Taking into account the complexity of the facility and the geographical dispersion of the partners involved, it is of a paramount importance to properly develop the DONES Systems Engineering, creating and executing interdisciplinary processes to ensure that the DONES defined objectives are reached and that the facility fulfils the expected criteria.

This paper presents the Systems Engineering processes that are being developed for the DONES Project as an interdisciplinary approach to enable the realization of successful Structure, Systems and Components (SSCs). In order to reach this objective (defining, controlling and documenting the requirements and interfaces) a dedicated group has been set up. A matrix for the management (traceability) of the requirements is being developed and populated. Also, a specific tool is being used for the management of the project interfaces (physical, functional, etc.). These works are to be considered as part of the development phase, started as early as possible in the project and then used in further stages (design synthesis activities, SSC validation, subcontractors' control, etc.) following the Systems Engineering works.

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