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| **WPPWIE Deliverables Status Report** | | | | | **Date:** | | | 01-Sep-2022 | | |
| **Subproject:** | SP-ADC /  *Advanced Divertor Solutions for Power Exhaust in DEMO* | | | | **Deliverable ID** | | | PWIE-SP ADC.G.T-T002-D003 | | |
| **Deliverable owner:** | H. Reimerdes (EPFL) | | | | **Deliverable due date** | | | 31-12-2022 | | |
| **WP Leader:**  **SP Coordinator:** | S. Brezinsek (FZJ)  G. Calabrò (ENEA) | | | |  | | |  | | |
| **Task title:** | SP-ADC.G / *Experimental assessment of PEX solutions and modelling interpretation* | | | | | | | | | |
| **Deliverable title:** | Comparison of experimental results and experimentally validated detachment models with SP-ADC.F simulations (EFPL, CEA, MPG) | | | | | | | | | |
| **Status:** |  | **Completed** |  | **Partially completed** | |  | **Delayed** | |  | **Cancelled** |
| Please write a short status report (max. ½ pages) here.  Please check the status of the deliverable(s) with a “x” in the row above.  If the deliverable(s) are delayed, please also indicate an estimated completion date in the report text.  If the deliverable(s) include machine time, please indicate the number of days that have been used for the deliverable(s) in the report text.  For reference, the specification of this task from the PMP is given below. | | | | | | | | | | |
| **Reference from PMP:** | | | | | | | | | | |
| The SP-ADC are addressing the physics work regarding the advanced divertor solutions for DEMO and the compatibility with engineering constraints. The physics part is covering predictive modelling of the most favorable solutions post an assessment end of 2020 by WPADC-DTT. Moreover, experimental assessment of these solutions in present-day devices as well as in future PEX facilities in collaboration with WPTE is explored. Subproject SP-ADC.G will develop reduced models from existing WPTE simulations or experimental data to try to obtain scaling laws applicable also for DEMO size and compare these with scaling laws extracted from all existing DEMO scale simulations. Experimental results and experimentally validated detachment models will be compared to the results from SP-ADC.F**.** This will support the validation of DEMO simulations and increase understanding of how the PEX solutions scale to the reactor size. Strong link with WPDES, WPTE and TSVVs is foreseen. | | | | | | | | | | |
| **Inputs required:**   * ADC edge interpretative simulations (WP TE) * ADC experimental data ( WP TE)   MST1/WP TE include = TCV, MAST-U, WEST and AUG | | | | | | | | | | |
| **Tasks to be performed:**   * Initial reduced model from existing WPTE simulations or experimental data in view of scaling laws applicable to DEMO size machine   Comparison of experimental results and experimentally validated detachment models with SP-ADC.F simulations | | | | | | | | | | |
| **Deliverables:**   |  |  | | --- | --- | | **Deliverable ID:** | **Deliverable Title:** | | D001, D002 | Initial reduced model from experimental ADC (WPTE) 3D edge simulations and experimental data to scaling laws applicable to DEMO size machine (EFPL, CEA, MPG) | | D003 | Comparison of experimental results and experimentally validated detachment models with SP-ADC.F simulations (EFPL, CEA, MPG) | | | | | | | | | | | |
| **Management Information**  **Human Resources (2022)**:   |  |  |  |  | | --- | --- | --- | --- | | **Deliverable Owner** | **Beneficiary** | **PM** | **Deliverable (Team)** | | T. Lunt | MPG | 6 | D001 (N. Fedorczak, H. Reimerdes) | | N. Fedorczak | CEA | 2 | D002 (T. Lunt, H. Reimerdes) | | H. Reimerdes | EPFL\* | 2 | D003 (T. Lunt, N. Fedorczak) | | **Total** |  | 10 |  |   \* only when EPFL participates in EUROfusion  **Machine Resources (2022):**   |  |  |  |  | | --- | --- | --- | --- | | **Device** | **Beneficiary** | **Days** | **Related Deliverable** | |  |  |  |  | |  |  |  |  |   **Other resources:**   * HPC request   **Collaborations:**   * WPTE, WPDES * EU-CHINA   **Other information:**  Connected to TSVVs associated with WPPWIE | | | | | | | | | | |