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| **WPPWIE Deliverables Status Report** | | | | | **Date:** | | | 01-Sep-2022 | | |
| **Subproject:** | SP E / PWI with Be, T and neutrons: focus on JET post-mortem analysis and its interpretation | | | | **Deliverable ID** | | | PWIE-SP E.2.T-T002-D002 | | |
| **Deliverable owner:** | T. Dittmar (FZJ) | | | | **Deliverable due date** | | | 31-12-2022 | | |
| **WP Leader:**  **SP Coordinator:** | S. Brezinsek (FZJ)  J. Likonen (VTT) | | | |  | | |  | | |
| **Task title:** | SP E.2 Comparison of hydrogenic retention quantification by different techniques and fuel removal assessment | | | | | | | | | |
| **Deliverable title:** | FZJ: Characterization of JET divertor tiles 0 and 1 with LIBS, LID-QMS, TDS and metallography. | | | | | | | | | |
| **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 Task will concentrate on comparison of hydrogenic retention quantification by different techniques and fuel removal assessment. At JET main deposition occurs at the top part of the inner divertor, i.e. on tiles 0 and 1 with the highest fuel content. The scope of this task is post-mortem analysis of samples from the tiles 0 and 1 exposed over an extended period (ILW1-ILW3), and also from divertor floor tiles 4 and 6 using various surface analysis techniques. In addition, LID-QMS will be used to analyse fuel content on tiles 0 and 1 both in toroidal and poloidal direction providing a prediction for JET DTE2 and information on fuel removal assessment. Comparison will be made with previous results obtained for single campaign tiles.  In addition, the baking cycle in JET C39 should be simulated in laboratory experiments in order to independently access the removal capabilities. Residual samples should be treated by LID-QMS, NRA, etc. subsequently to investigate the success of removal. | | | | | | | | | | |
| **Inputs required:**  Samples sectioned from JET divertor tiles 0 and 1. | | | | | | | | | | |
| **Tasks to be performed:**   * Participation in LIBS, LID-QMS analysis of JET plasma facing components (CU) * LIBS, LID-QMS, TDS analysis and metallography of JET plasma facing components (FZJ) * Sectioning and preparation of samples from metallic components. TDS and GDOES analysis of JET plasma facing components (IAP) * TDS and FC analysis of JET plasma facing components including depth profiling of tritium with dissolution method (ISSP-UL) * Ion beam analysis of JET plasma facing and diagnostic components (IST) * Ion beam analysis of JET plasma facing components (MPG) * Ion beam analysis of JET plasma facing components (NCSRD) * Ion beam analysis of JET plasma facing and diagnostic components (VR)   Sectioning and preparation of samples from JET divertor tiles. SIMS analysis and metallography of JET plasma facing components. Participation in TDS analysis. (VTT) | | | | | | | | | | |
| **Deliverables:**   |  |  | | --- | --- | | **Deliverable ID:** | **Deliverable Title:** | | D001 | CU: LIBS, LID-QMS analysis of JET divertor tiles 0 and 1 jointly with FZJ and VTT. | | D002 | FZJ: Characterization of JET divertor tiles 0 and 1 with LIBS, LID-QMS, TDS and metallography. | | D003 | IAP: Analysis of samples from JET divertor tiles 0 and 1 with TDS and GDOES. | | D004 | ISSP-UL: Analysis of samples from JET divertor tiles 0 and 1 with TDS, FC and dissolution method. | | D005 | IST: Characterization of JET divertor tiles 0 and 1 using ion beam analysis (RBS, NRA). | | D006 | MPG: Characterization of samples from JET divertor tiles 0 and 1 using ion beam analysis (RBS, NRA). | | D007 | NCSRD: Analysis of samples from JET divertor tiles 0 and 1 with µbeam NRA. | | D008 | VR: Characterization of samples from JET divertor tiles 0 and 1 using ion beam analysis (HIERDA). | | D009 | VTT: Sectioning and preparation of samples from JET divertor tiles 0 and 1. Characterization of samples from JET divertor tiles 0 and 1 using SIMS, optical microscopy and TDS (jointly with CCFE). | | | | | | | | | | | |
| **Management Information**  **Human Resources (2022):**   |  |  |  |  | | --- | --- | --- | --- | | **Deliverable Owner** | **Beneficiary** | **PM** | **Deliverable (Team)** | | P. Veis | CU | 3 | D001 (P. Veis, A. Marín Roldán) | | T. Dittmar | FZJ | 7 | D002 (T. Dittmar, M. Zlobinski …) | | E. Grigore | IAP | 6 | D003 (E. Grigore, C. Lungu…) | | E. Pajuste | ISSPUL | 6 | D004 (E. Pajuste, A. Vitins…) | | E. Alves | IST | 6 | D005 (E. Alves, N. Catarino…) | | M. Mayer | MPG | 2 | D006 (M. Mayer) | | A. Lagoyannis | NCSRD | 2 | D007 (A. Lagoyannis, P. Tsavalas…) | | D. Primetzhofer | VR | 3 | D008 (D. Primetzhofer, M. Rubel…) | | J. Likonen | VTT | 7 | D009 (J. Likonen, R. Bes…) | | **Total** |  | 42 |  |     **Machine Resources (2022):**   |  |  |  |  | | --- | --- | --- | --- | | **Device** | **Beneficiary** | **Days** | **Related Deliverable** | | Accelerator | NCSRD | 5 | D007 | | Accelerator | VR | 3 | D008 | | **Total** |  | 8 |  |     **Other resources:**  Modelling of material migration in various diagnostic objects to be performed under SP D.  **Collaborations:**  UKAEA, ITER, WPTE, EU-JAPAN (Broader Approach Phase II)  **Other information:**  Connected to TSVVs associated with WPPWIE | | | | | | | | | | |