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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.3.T-T001-D004 | | |
| **Deliverable owner:** | E. Fortuna-Zaleśna (IPPLM) | | | | **Deliverable due date** | | | 31-12-2022 | | |
| **WP Leader:**  **SP Coordinator:** | S. Brezinsek (FZJ)  J. Likonen (VTT) | | | |  | | |  | | |
| **Task title:** | SP E.3 Post-mortem analysis of PFC and other objects in JET | | | | | | | | | |
| **Deliverable title:** | IPPLM: Electron microscopy (SEM, TEM, FIB) of JET plasma facing components | | | | | | | | | |
| **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 investigation of material migration from the limiters and the main wall towards the divertor resulting in formation of co-deposited layers on the divertor tiles, and on the characterisation of eroded PFC components. A poloidal set of divertor tiles exposed over an extended period (ILW1-ILW3) will be characterised under SP E.2. In addition to the first wall and the divertor tiles, other diagnostic objects, such as rotating collectors, W sticking monitors, mirrors, mirror cassettes, tungsten lamellae, Langmuir probes and QMB covers are available for post-mortem analyses. Post-mortem analyses will be made from existing samples as there is no sample removal foreseen by the end of 2024.  Note, that new sample removal may take place only after DTE3 and clean-up campaign which need further clarification with UKAEA. | | | | | | | | | | |
| **Inputs required:**  JET components (first wall and divertor tiles, rotating collectors, W sticking monitors, mirrors, mirror cassettes, tungsten lamellae, Langmuir probes and QMB covers) to be provided by UKAEA | | | | | | | | | | |
| **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. Modelling of material migration in various diagnostics components at JET to be performed under SP D (FZJ). * Sectioning and preparation of samples from metallic components. TDS and GDOES analysis of JET plasma facing components (IAP). * Electron microscopy (SEM, TEM, FIB) of JET plasma facing components (IPPLM). * 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 diagnostics 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 diagnostics 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 plasma facing components jointly with FZJ and VTT | | D002 | FZJ: Characterization of JET plasma facing components with LIBS, LID-QMS, TDS and metallography | | D003 | IAP: Sectioning and preparation of samples from metallic JET components. Analysis of JET plasma facing components with TDS and GDOES | | D004 | IPPLM: Electron microscopy (SEM, TEM, FIB) of JET plasma facing components | | D005 | ISSP-UL: Analysis of JET plasma facing components with TDS, FC and dissolution method | | D006 | IST: Characterization of JET plasma facing and diagnostics components using ion beam analysis (RBS, NRA) | | D007 | MPG: Characterization of JET plasma facing components using ion beam analysis (RBS, NRA) | | D008 | NCSRD: Analysis of JET plasma facing components with µbeam NRA | | D009 | VR: Characterization of JET plasma facing and diagnostics components using ion beam analysis (HIERDA) | | D010 | VTT: Sectioning and preparation of samples from JET divertor tiles. Characterization of JET plasma facing components using SIMS, optical microscopy and TDS (jointly with CCFE) | | | | | | | | | | | |
| **Management Information**  **Human Resources (2022)**:   |  |  |  |  | | --- | --- | --- | --- | | **Deliverable Owner** | **Beneficiary** | **PM** | **Deliverable (Team)** | | P. Veis | CU | 1 | D001 (P. Veis, A. Marín Roldán) | | T. Dittmar | FZJ | 7 | D002 (M. Zlobinski, T. Dittmar…) | | E. Grigore | IAP | 6 | D003 (E. Grigore, C. Lungu…) | | E. Fortuna-Zaleśna | IPPLM | 6 | D004 (E. Fortuna-Zaleśna, J. Zdunek…) | | E. Pajuste | ISSP-UL | 6 | D005 (E. Pajuste, A. Vitins…) | | E. Alves | IST | 5 | D006 (E. Alves, N. Catarino…) | | M. Mayer | MPG | 1 | D007 (M. Mayer) | | A. Lagoyannis | NCSRD | 1 | D008 (A. Lagoyannis, P. Tsavalas…) | | D. Primetzhofer | VR | 7 | D009 (D. Primetzhofer, M. Rubel…) | | J. Likonen | VTT | 2 | D010 (J. Likonen, R. Bes…) | | **Total** |  | 41 |  |   **Machine Resources (2022):**   |  |  |  |  | | --- | --- | --- | --- | | **Device** | **Beneficiary** | **Days** | **Related Deliverable** | | Accelerator | IST | 7 | D006 | | Accelerator | VTT | 2 | D010 | | **Total** |  | 9 |  |     **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 SP D and TSVVs associated with WPPWIE | | | | | | | | | | |