

Tasks Progress Meeting, May/June 2024

Introduction

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Machine status

- Repair CS/EF joints ongoing. Extraction or in-situ spraying options repair technique to be qualified and selected during 2024.
- Two parallel strategy for CS repair from QST and F4E being qualified to mitigate the risks; the aim is to preserve the original schedule for OP2 without any deviation from the machine target performances
- Both activities can be partially performed in parallel with other work in the torus hall (surely except the use of the upper stage)

Progresses

- EF: epoxy for reinforcement prone to crack after fast cooling. Procedure for cooling has been optimized, now cracking avoided and Paschen conditions reached. Being further tested (5x)
- 7m high CS mock-up with sections to be reinforced in vacuum and equipped with optical window and endoscope to monitor the spraying process.
- CS3 under special attention; modification of the dump resistor under evaluation

Meetings

- TCM 41 on week of 17th June, mainly on ME1 activities
- Dedicated EU-QST co-working workshop on the cryomagnet system in July (Naka) being organized
- WPSA in person planning meeting 4-6 December



2024 – Revision of the program: WPSA changing scope

- Scientific exploitation moved under WPTE
- JIFS organization moved under TRED (WPSA part of the Advisory Board/Working Group)

In view of the significant upgrade that JT-60SA will face in the next years, WPSA shall focus on:

- preparation of the enhancements and related activities, including the relevant modeling useful to set specifications, requirements and performance limits
- scientific assistance to F4E for the procurements
- preparation and assistance for the testing, installation, integration and commissioning of the components/instrumentation
- operation of the systems until the release of validated data (commissioning with plasma) => operation in scientific campaign tbd
- development of operation-oriented tools, synthetic diagnostics, analysis tools and connected training
- assistance on the matter of remote participation and exploration/development to allow remote maintenance
- reviewing of the subsystems in preparation of the transition to W wall and proposal of the necessary upgrades and modifications, in connection with the other involved EuF WPs other
- participation/contribution to systems and machine commissioning before and during plasma operations

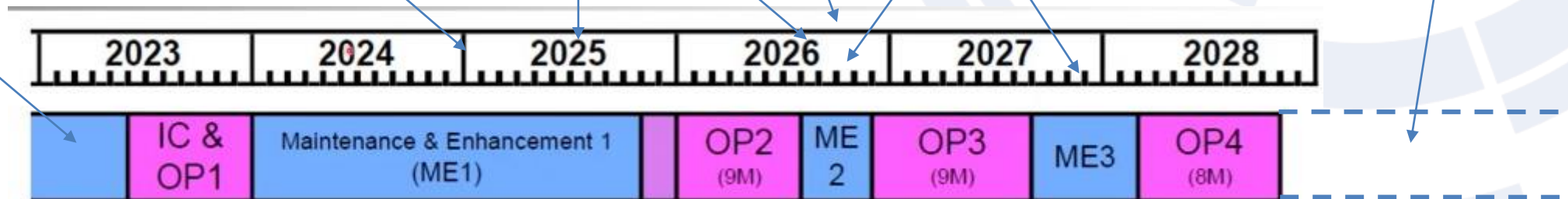
TS, VUV, MGI, Cryop

PLS (?) FIELD

Transition to W-wall (?)

Edicam#1

New enhancements



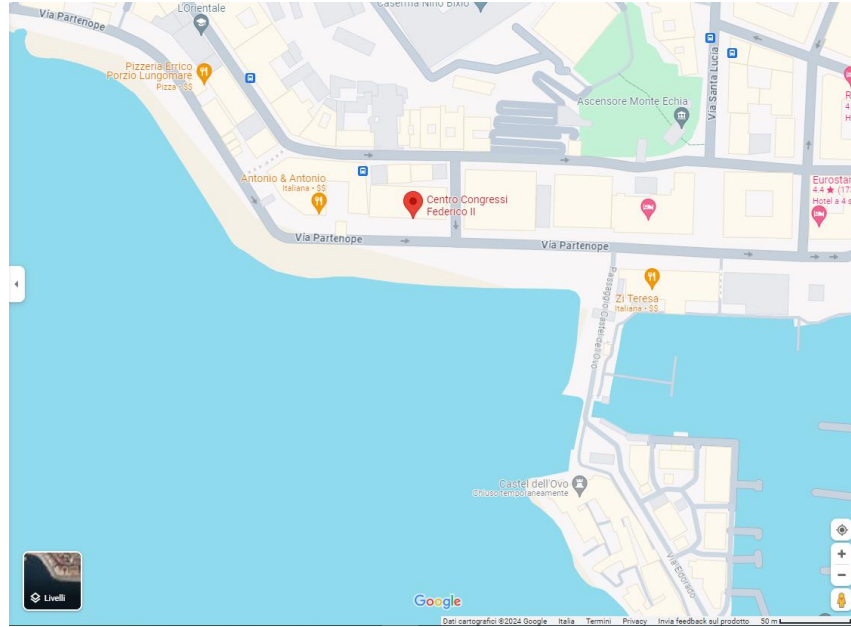


2024 – Main objectives

- Pre-assembly, acceptance test and delivery on site of the components of the remaining EU led systems under implementation for the installation in the Machine Enhancement 1 of JT-60SA (Thomson Scattering, Divertor VUV). PLS procurement being reorganized.
- Advance the preparation for EU-led system for integration and commissioning. Assess needs in terms of commissioning procedures, calibration, impact on the machine time, specifying the target plasmas for calibration/commissioning.
- Launch detailed design and start of procurement of third set of Enhancements (Tangential Phase Contrast Imaging, GAMMA diagnostics, Doppler Reflectometry, Neutron profile monitor and Neutron spectroscopy). Test of ITER prototypes of EC stray sensors.
- Advance remote data access/participation including test of remote control of a passive diagnostics (EDICAM), IMAS interface
- **Release/training of machine-oriented simulation tools and workflows, benchmarking of magnetic control tools**
- New activities being launched and acceleration towards metal wall
 - EDGE diagnostics
 - Feasibility for multiple EDICAM
 - Diagnostics feasibility: CTS
 - Hall sensors (test of ITER prototypes)
 - Assess requirements for W-PFCs in the relevant (worst case) scenario
 - W-related enhancements: diagnostics (& protection)
 - W-related enhancements: modifications of additional power
 - **Assessment of the acceptable PLS performance for the first scientific phase.**
- Overall boundary conditions under definition:
 - Activity of insulation reinforcement/repair needed to reach the nominal performance (incl. CS)
 - Strategy and time plan for W transition



WPSA in person planning meeting 4-6 December



- CREATE hosting in Naples, Centro Congressi Università Federico II
- Agenda in preparation: 6x3h slots
 - Summary Task status (PL, Area coordinators)
 - W divertor and W wall
 - Interaction with ET
 - New Enhancements: discussion on requirements, objective
 - Parallel Working session
 - Wrap-up (incl. paper plan status)
- Opportunity for discussion with F4E, ET and WPTE, PMU, WPPWIE, WPDIV

