



WPSA Operations

Preparation of commissioning of EU enhancements

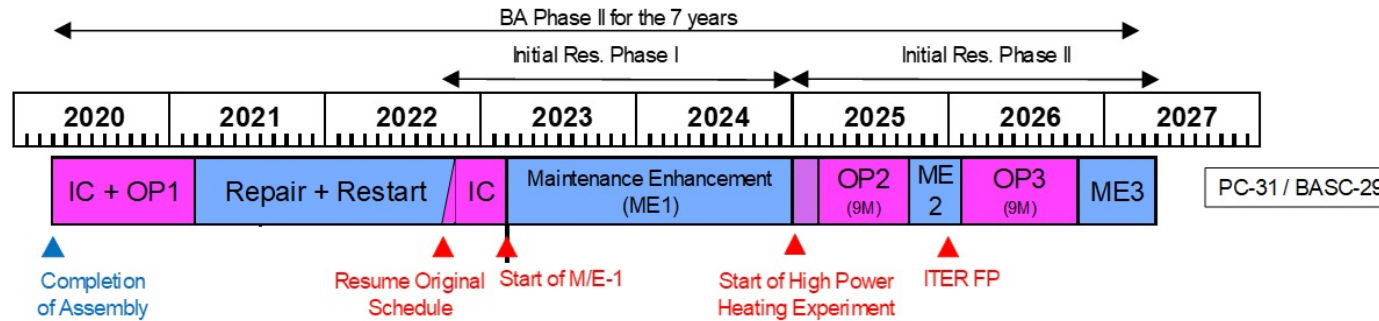
WPSA General Meeting, 4-6 May 2022

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Session Agenda:

Previous commissioning experience:

- EDICAM commissioning – T. Szepesi
- Cryo commissioning – F. Michel
- Magnet commissioning – A. Louizguiti

Preparation of the commissioning of the FP8 enhancements:

- Expected working conditions – G. Phillips
- Documentation – E. Belonohy

FP9 WPSA Operations (E. Belonohy)

[Fast Ion Loss Detector \(FILD\)](#)

[Thomson Scattering \(TS\)](#)

[VUV Spectrometer \(VUV\)](#)

[Pellet injection](#)

[Massive Gas Injection \(MGI\)](#)

[Divertor Cryopump System](#)

[Neutral Beam Injection \(NBI\)](#) (QST enhancement)

FP8 and FP9 WPSA Enhancements (J. Ayllon)

F4E Enhancements (G. Phillips)

Relevant EUROfusion wiki pages:

- [FP9 WPSA Operations Area](#)

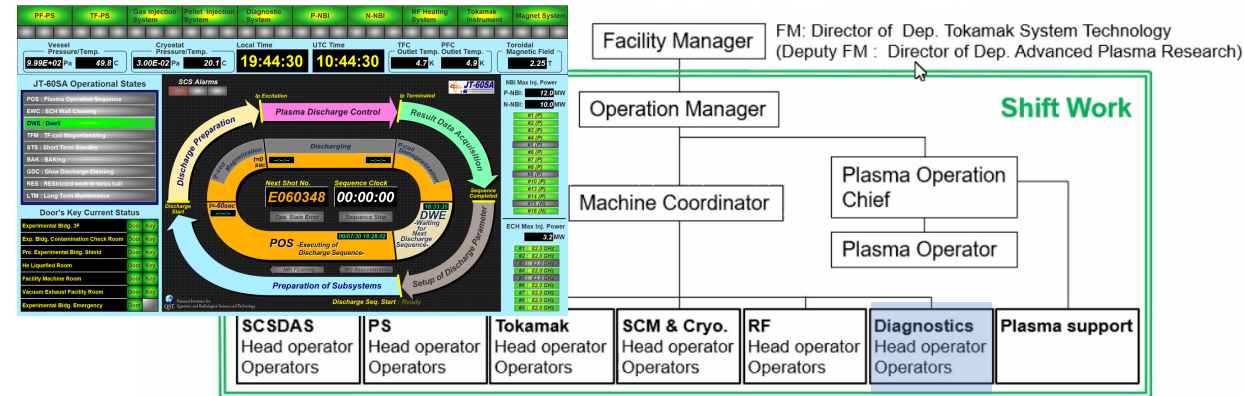
Information from the integrated commissioning phase

Get experience and understand

- Current operational processes (startup, weekly, daily, ...)
- In-person vs. remote access to plant data and control
- Control room tools and processes

Build a joint Japanese-European Team

- Build a connection
- Language barrier (operational functions in Japanese incl. operations meetings and control room roles)
- Weekly, daily status meetings and discussion in English
- Intranet pages, EU relevant logs in English, some still in Japanese



- 3-person diagnostic team only speaks Japanese
- EU contact person / diagnostician?
- Role responsible for communication with EU home team (via Microsoft Teams)



JT-60SA control room

Available documentation:

- Plant Implementation Document (PID)
- Procurement Arrangement (PAs)
- Manual, guides, etc.

Commissioning procedure: → for the EU enhancements
Draft procedure prepared based on JET and MAST-U
Circulated to project leaders for feedback

It's function:

- Clarify the people, access, equipment requirements and dependencies, interfaces, protection relevance.
- Clarify the commissioning plan
- **Record the commissioning experience, support identifying lessons learned**

Timeline: start slowly filling out, be ready 6 months before start of the commissioning process.

- Understand planned operational procedures, documentation and tools by QST
- Understand machine and personnel protection

Knowledge map or boundary conditions document:

Short document, draft to be prepared by E. Belonohy and updated/modified by the project leader and team.

It's function:

- Highlight key operational information (setup options, change options and timescales) and link available documents -> for experiment proposal preparation
 - > weekly session planning
 - > support plasma operator training

Timeline: before call for proposals for the next campaign in support of the experiment team. Prepare progressively based on discussions.

Capture and share the operations experience

Publications

- Encourage publications in collaboration with QST and F4E on the commissioning and operational experience, strategy and lessons learned
- [PPCF Special Issue on Operations](#) (QST special editor: Y. Kamada) (dedicated operations papers, published once accepted)

EUROfusion Operations Network

Starting 2022 [EON organizes events, training and seminars](#) on dedicated operational topics open to all EUROfusion experts:

- facilitate stronger connection between the operational groups of EUROfusion facilities to share operational experience, improve operational reliability and performance,
- support development and training of operators, creation of a joint knowledge base
- contribute to the EUROfusion preparation for the (integrated) commissioning and operation of ITER.

→ *Need information from other operational teams? Can organize a workshop to share commissioning or operational experience.*



PPCF Special Issue on Operations

Establish a new field on the operation of fusion devices (commissioning, operation and maintenance of tokamaks, spherical tokamaks and stellarators).

Capture the know-how, expertise and experience of current fusion facilities and commissioning of new fusion facilities.

Share the operational experience, best practices between facilities to improve their operational availability and performance.

Research the operational practices and experiences in multi-machine studies to improve our understanding and increase public acceptance.

Train the future ITER generation by providing reference training material for them.



EUROfusion Operations Network members