

# LS2 Safety

Thomas Otto, LS2 Safety Coordinator

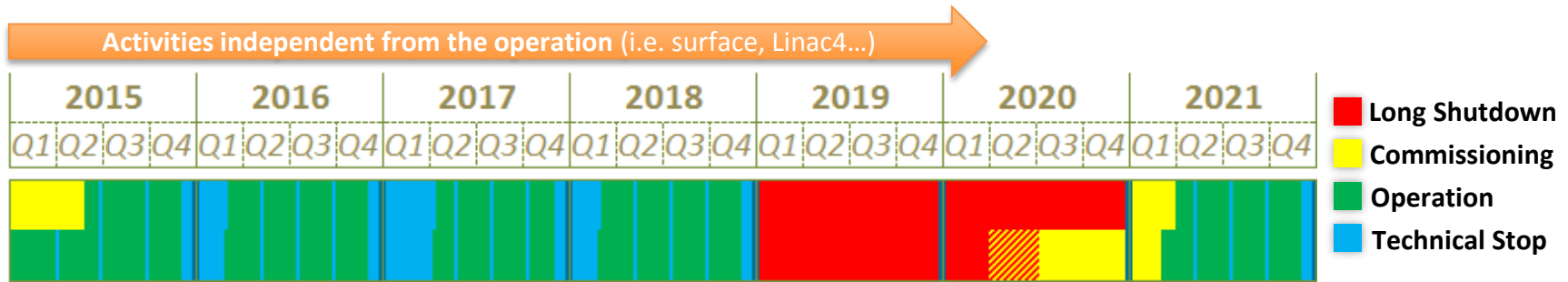


**LS2** DAYS

29-30 SEPTEMBER 2015

<http://indico.cern.ch/event/436424/>

# Setting the Scope



YETS 2015

1

\* EYETS 2016

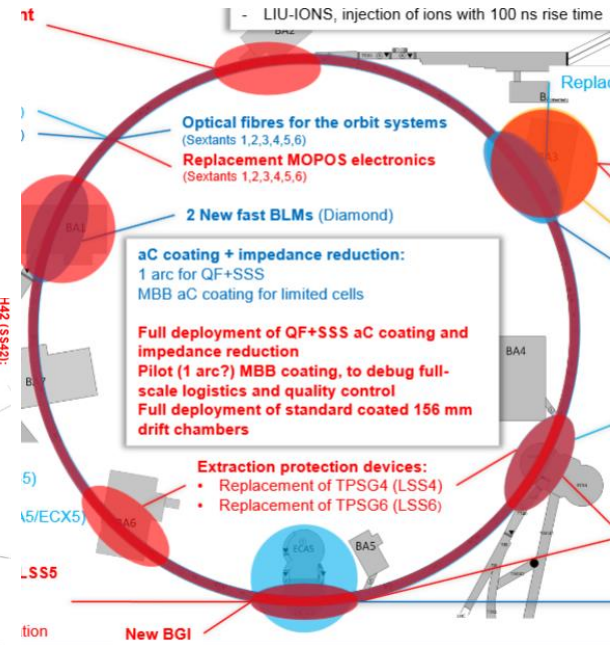
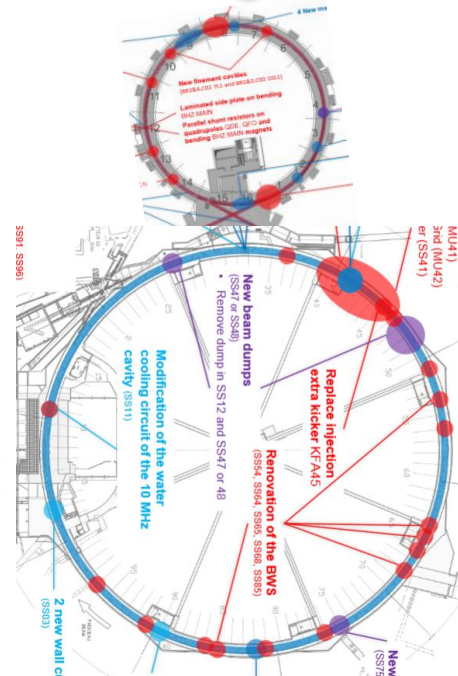
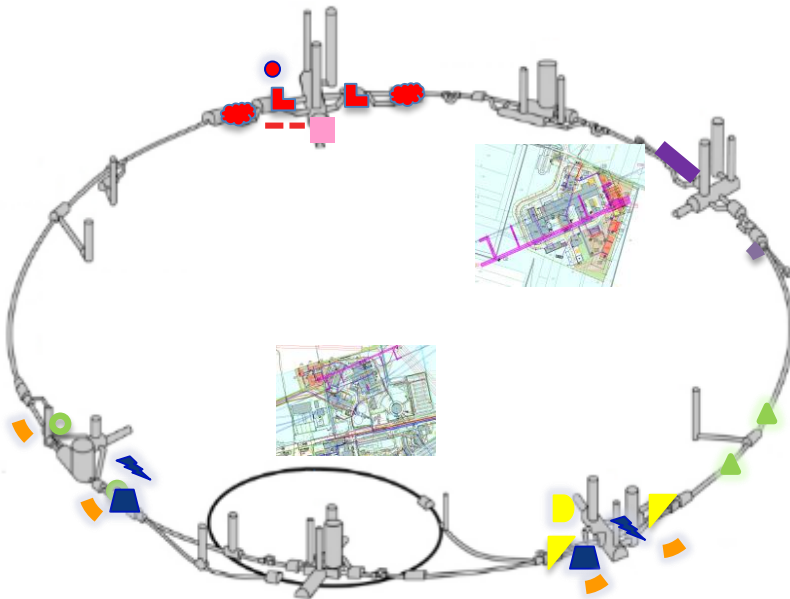
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YETS 2017

3

LS2

4



# Safety Roles in LS2 and run-up

- LS2 Safety coordinators:
  - **LHC:** ThO                      **Injectors:** Ana-Paula Bernardes
- PSOs
  - **HL-LHC:** ThO                      **LIU:** Anne Funken
- Coordination:
  - EN-MEF-OSS section
- Safety coordinators:
  - EN-MEF-COL section
- Safety Expertise, Rules, Inspections
  - HSE-SEE Group
  
- Hierarchy of Departments, Groups, Sections

# Your contribution to Safety is essential



# Roadmap for Successful Prevention

- Delimitation
  - Define the objective of the task, who works on it, where and with which equipment
- Where are potential dangers ?
  - Inspection
  - Formal Hazard Identification and Risk Assessment
- Control identified Risks and Hazards
  - Mandatory Safety rules
  - Mitigation

# Inspection – Ascertaining Safety

- The purpose of Safety inspections is to assert safe operation readiness of an equipment
  - Buildings
  - Electrical installations
  - Pressure devices
  - Machine tools
- **PLAN inspections of usually inaccessible equipment with the HSE-SEE-SI section**



# Hazard Identification and Risk Assessment

- Identify hazards and risks in your process
  - Based on knowledge of the processes and a list of typical hazards
  - Safety officers, LS Safety Coordinators and HSE experts can assist
  
- Identify options to reduce the risk
  - Mandatory Safety Rules
  - Best practice
  - **“Launch Safety Agreement” from HSE unit**



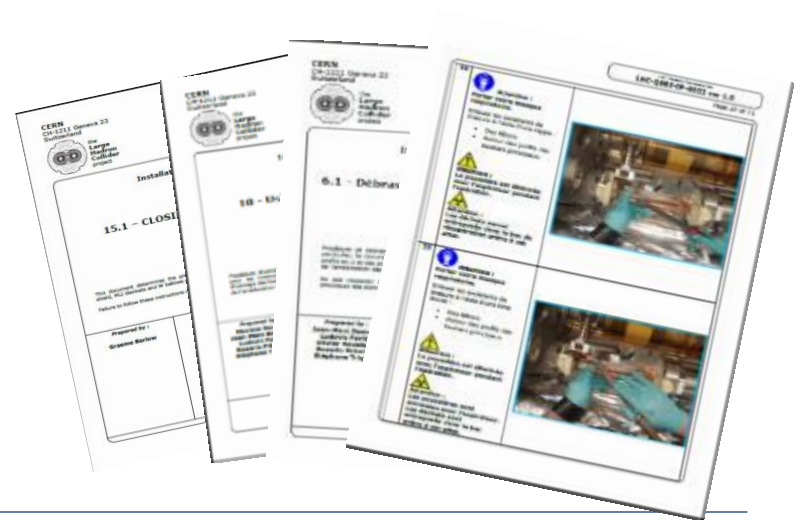
# Hazard and Risk Mitigation

- Technical measures
  - Eliminate or substitute the hazard
  - Collective “engineered” protection measures
- Organisational measures
  - Work and Safety procedures
  - Authorisation schemes, lock-out
- Personal measures
  - Safety Training
  - Personal protective equipment
- **PLAN the necessary time, manpower and budget for safety measures**



# Document your Procedures

- Comprehensive documentation
  - Achieve and maintain high quality
  - Basis for technical training
  - Facilitates the hazard and risk assessment processes
  - Include safety-relevant messages: warnings, interdictions, use of PPE
- Successful example from LS1: SMACC project



# Make the workers Safe(r) (1)

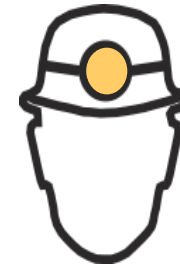
- Technical Training (by your unit)
  - Most efficient if written procedures are available
  - If possible, train in workshops, on mock-ups
  - Include safety aspects
- Formal Safety Training (by HSE unit)
  - Based on the exposition to risk of personnel, Safety training must be up-to-date
  - Remember 3-year refresher cycle of Safety training !
  - Assess safety training needs of newcomers (allow for sufficient time before 1<sup>st</sup> access in work area)
- **PLAN requirements to permit HSE-SEE-ST making available the training capacity**



# Make the workers Safe(r) (2)

- Plan ahead for newcomers
- Check Personal Protective Equipment of current personnel

- Safety shoes
- Helmets with frontal lamps
- Self-rescue masks
- Other Safety gear
- ...



- **Dosimeters: PLAN additional needs to allow procurement by HSE-RP**



# Scheduling

- Time pressure & stress are bad Safety advisors
  - Keep suitable **Safety** margin
  - you assure that the work can progress safely
  - and within the planned schedule
- The EN-MEF-OSS section can only schedule as precisely as you PLAN your job



# Managing Co-activities

- Central role of the LS2 coordination team
  - PLAN intervention of Safety Coordinators
  - Mandatory if contractors participate in the work
  - Request their assistance when uncertain
- **IMPACT discipline** will be a help:
  - Abstain from “global IMPACTs”,
  - Register each activity one-by-one
  - Remember that IMPACT assists, but does not guarantee safety

# Day-to-day coordination

- Clearly define roles in your area
  - One (and only one) person with a clear mandate shall coordinate the work
  - All work orders pass by the coordinator
  - Avoid potentially dangerous co-activities



# Safety is our common concern

- Safety needs resources
  - Time, manpower, equipment
  - External resources (Safety officers, HSE unit, ...)
- As with the other aspects of LS2, timely planning\* and preparation of Safety matters are key to



\* including flexibility for unforeseen changes and open for opportunities



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