

CENF Secondary Beam Work Breakdown Structure - *proposal*

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Coordination and Working Packages

- Coordination and relations to project office (3-3.1)
- FLUKA simulation studies (3.2)
 - Radioprotection calculations
 - Energy deposition
 - Target, horn 1-2 optimisation
- Layout and integration (3.3)
 - Overall layout
 - Handling of radioactive object
 - Radioactive handling cell integration
 - Alignment
 - Survey and fiducials
 - Primary and secondary beam int.
- Target unit (3.4)
 - Conceptual design
 - Technical design
 - Manufacturing
 - Installation
 - Maintenance/exchange equipment
 - Cooling station parameters
 - He-cooling station
 - Alignment strategy

Working Packages

- Horn & Reflector units (3.5)
 - Conceptual design
 - Alignment strategy
 - Mechanical system
 - Powering system
 - Cooling system
- Shielding configuration (3.6)
 - Design
 - Manufacturing & customisation
 - Handling modules
 - Installation
 - Safety systems integration

Working Packages

- Helium-tank (3.7)
 - Conceptual design
 - Technical design
 - Manufacturing
 - Beam windows
 - Installation
 - Pumping systems & methods
 - He-handling system
 - Controls/operation
- Ventilation systems (3.8)
 - Design
 - Service rooms ventilation
 - Target cavern ventilation
 - RAMSES VGM system

Working packages

■ Hadron absorber/beam dump (3.9)

- Conceptual design
- Manufacturing and procurement of:
 - Graphite/aluminium blocks
 - Cooling blocks
 - Shielding Fe blocks
- Installation
- Cooling system installation

■ μ monitoring stations (3.10)

- Design
- Manufacturing
- Detector types
- Cabling
- Readout
- Software applications (CCC)

■ Civil engineering (3.11)

- Target cavern & vault
- Decay pipe
- Hadron absorber/mu-station1
- Mu-station2
- Water drainage strategy & implementation

Working Packages

- Heavy handling & transport (3.12)
 - Target cavern crane
 - Transport handling & installation
 - Special transport, mobile cranes operations
- Technical infrastructure (3.15)
 - Low voltage distribution
 - Cables trays and passageways
 - Lighting
 - Access to service rooms and morgue
 - GSM network

Working Packages

■ General safety systems (3.13)

- Evacuation alarm
- Emergency stops
- Emergency lights
- Red phones
- AUG installation
- Fire & smoke detection systems
- CCTV monitoring

■ Access control and safety system (3.14)

- Eng. and supply of access control system
- Eng. and supply of access safety system
- Eng. and supply of the BIW
- Radiation monitors

Working Packages

- Timing system (3.16)
- Control system and supervision (3.17)
 - PVSS interfaces
 - Information collection to DB
- Interlocks concentrator (3.18)
 - Target cooling system info
 - Shielding thermocouples
 - Hadron stopper cooling station
 - Hadron stopper temperature
 - Horn/reflector interlocks