

ESS – a successful alliance contract and foundation for future needs with respect to safety

Peter Jacobsson

Head of Environment, Safety & Health
European Spallation Source ERIC

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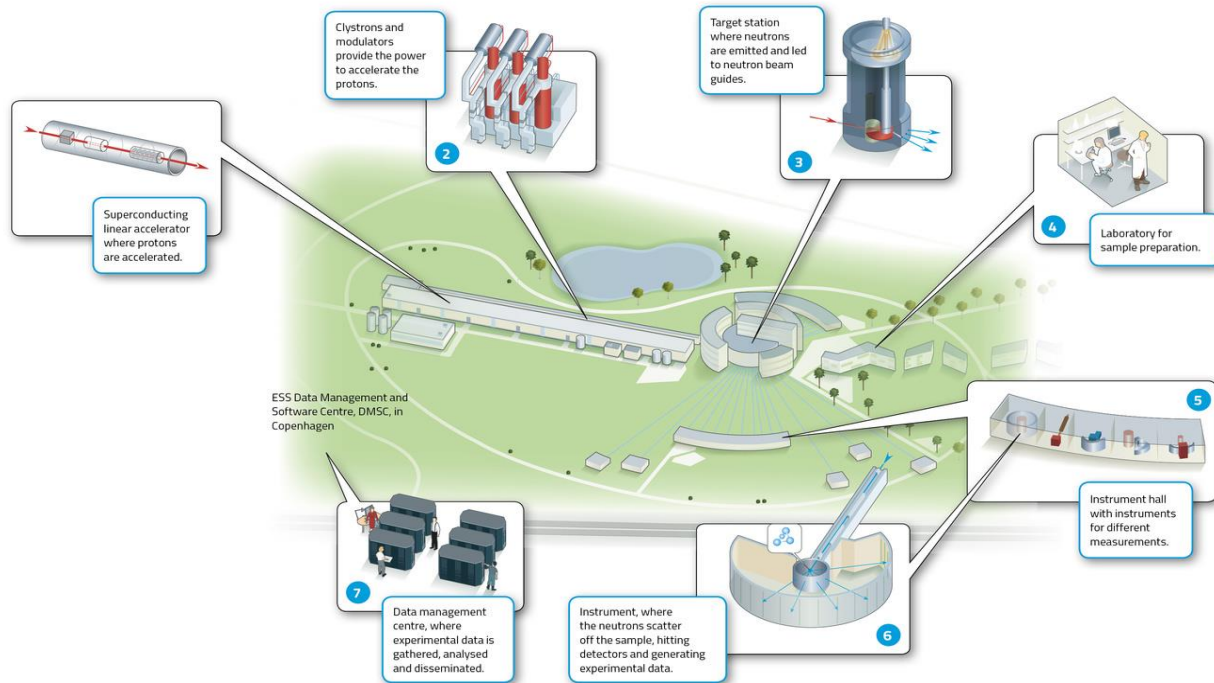


Illustration: ESS, Lönegård

- The host country (Sweden) did not have any experience of an accelerator facility of this magnitude including a spallation target. This meant that:
 - It did not exist any detailed conditions concerning radiation safety
 - There were unclear/overlapping boundaries between different authorities and the needed permits
 - There were a reluctance among the authorities to take the first step of giving a permit
- In order to keep the project schedule, construction work needed to start as soon as possible after necessary permits were received

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Safety Requirements - Issues

- Radiation Protection
 - Shielding
- External events (Environment)
 - Seismic
 - Security
- Fire Safety
 - Mitigation system
 - Cabling/Fire compartments
- Shielding of accelerator tunnel, monolith and active cell
- Seismic requirements for the monolith and active cell
- Security requirements for the monolith and active cell
- Fire Safety
 - Sprinkler system in general used
 - Placement of cable penetrations done after decision of equipment placement

Target station



The challenge of new/ revised safety requirements

- While constructing ESS, new security scenarios were given.
- The after-math of the Fukushima event resulted in “stress-tests” concerning seismic safety
- The shielding analyses of neutron beam lines turned out to give a high dose to office staff in the office building
- The amount of potentially contaminated process water requires pipelines instead of manual transport of casks
- There is no space given for handling of activated components

What is required?

- A common understanding in the project that things has to be solved during the project journey
- Immediate communication between the construction “project” and the safety organisation:
 - Set up a task force for analysing and finding a solution
 - Freedom within the whole organisation of using the staff needed
- An open communication with authorities

