

Safety and Radio Protection, Consequences for the Experiments

- ELENA TDR : Chapter 6;
- Safety Files in preparation;
- Descriptive, Demonstrative (Risk Analysis);
- Operational, Record (Experience, Monitoring);
- AD EDMS 1295203/1;
- ELENA EDMS 1313189 (Draft);
- Supported by EN Dep. (Ch. Alanzeau,
J. Pedersen);
- Supervised by HSE Unit.

General Safety

- The construction, commissioning, operation and eventual dismantling of **ELENA will obey the standard CERN safety rules** and regulations applicable at any point in time during the lifecycle of the project and the facility.

Safety Provisions for TDR

- 1) General Safety
- 2) Radiation Safety Aspects
- 3) Interlock Systems (EIS)

General Safety

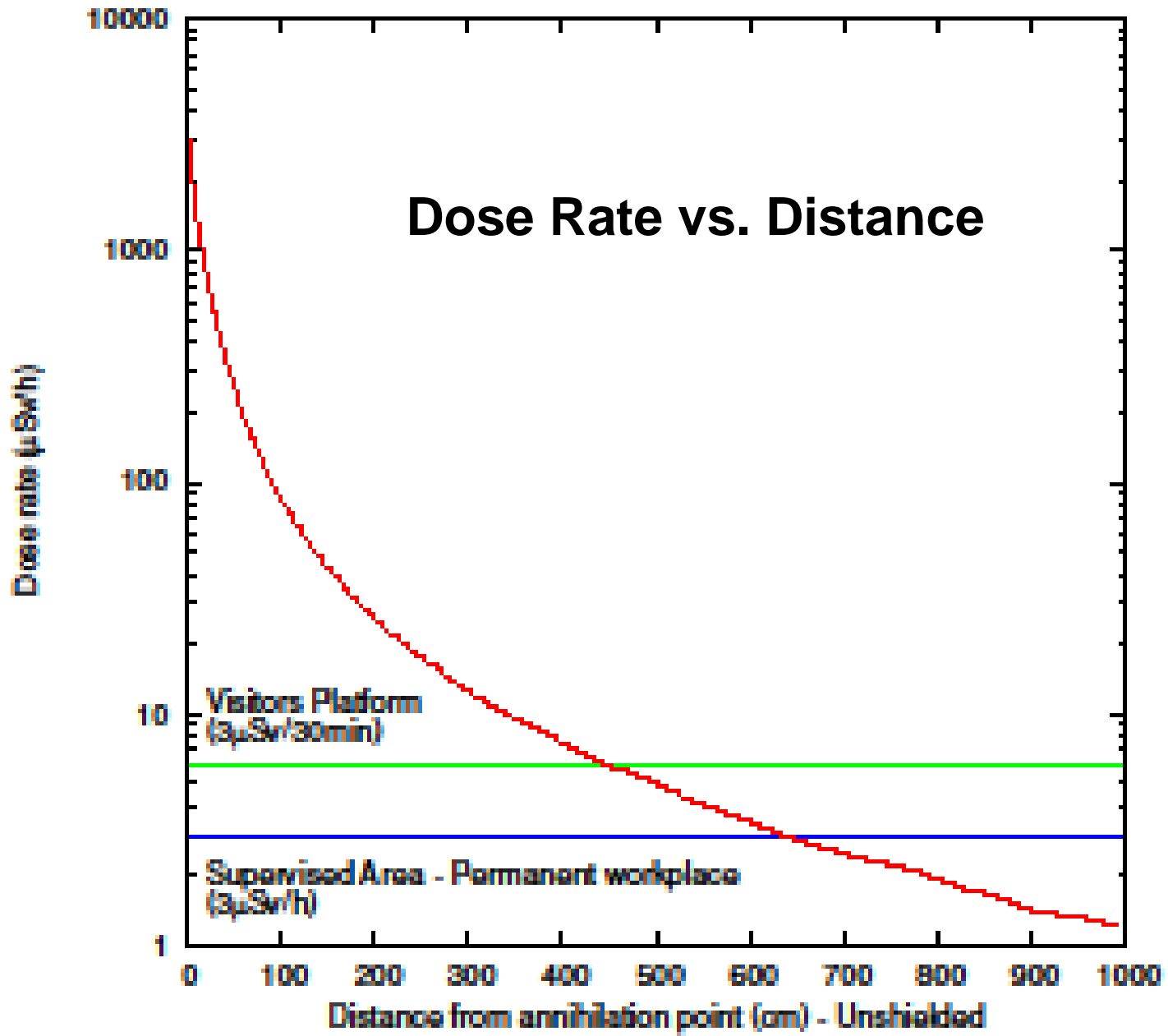
- **Power supply and electrical distribution** (Code C1 (EDMS 335725) Electrical Safety Code);
- **Vacuum** system (Code D2 (EDMS 335727) Safety Code for pressure vessels and pressurized pipelines);
- **Magnets** NORMA / EDMS database;
- **Radiofrequency** equipments;
- **Beam instrumentation**;
- **Compressed air supply**;
- **Handling** devices and operations (Code D1 (EDMS 335726) Safety Code for Lifting Equipment);

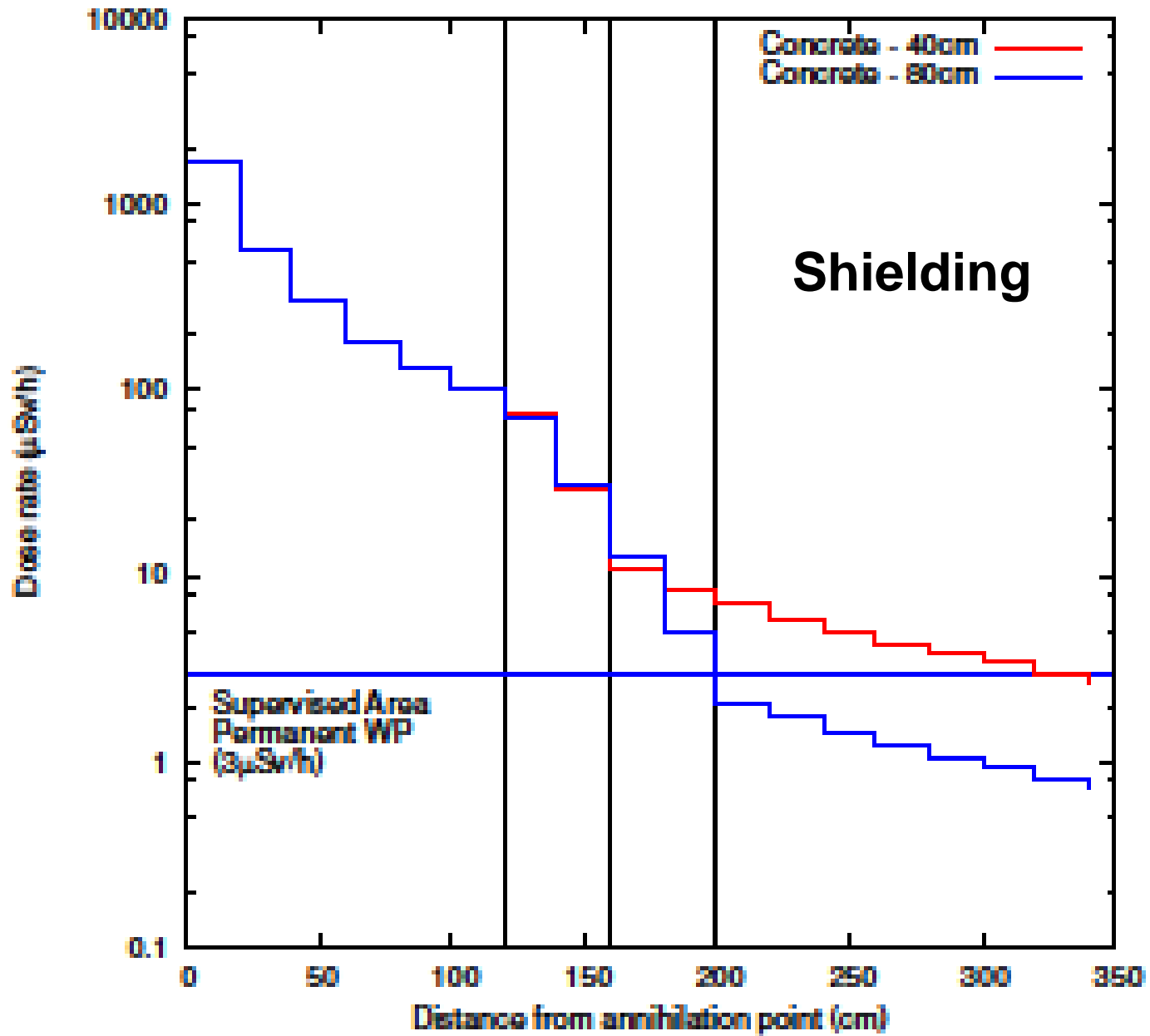
General Safety continued

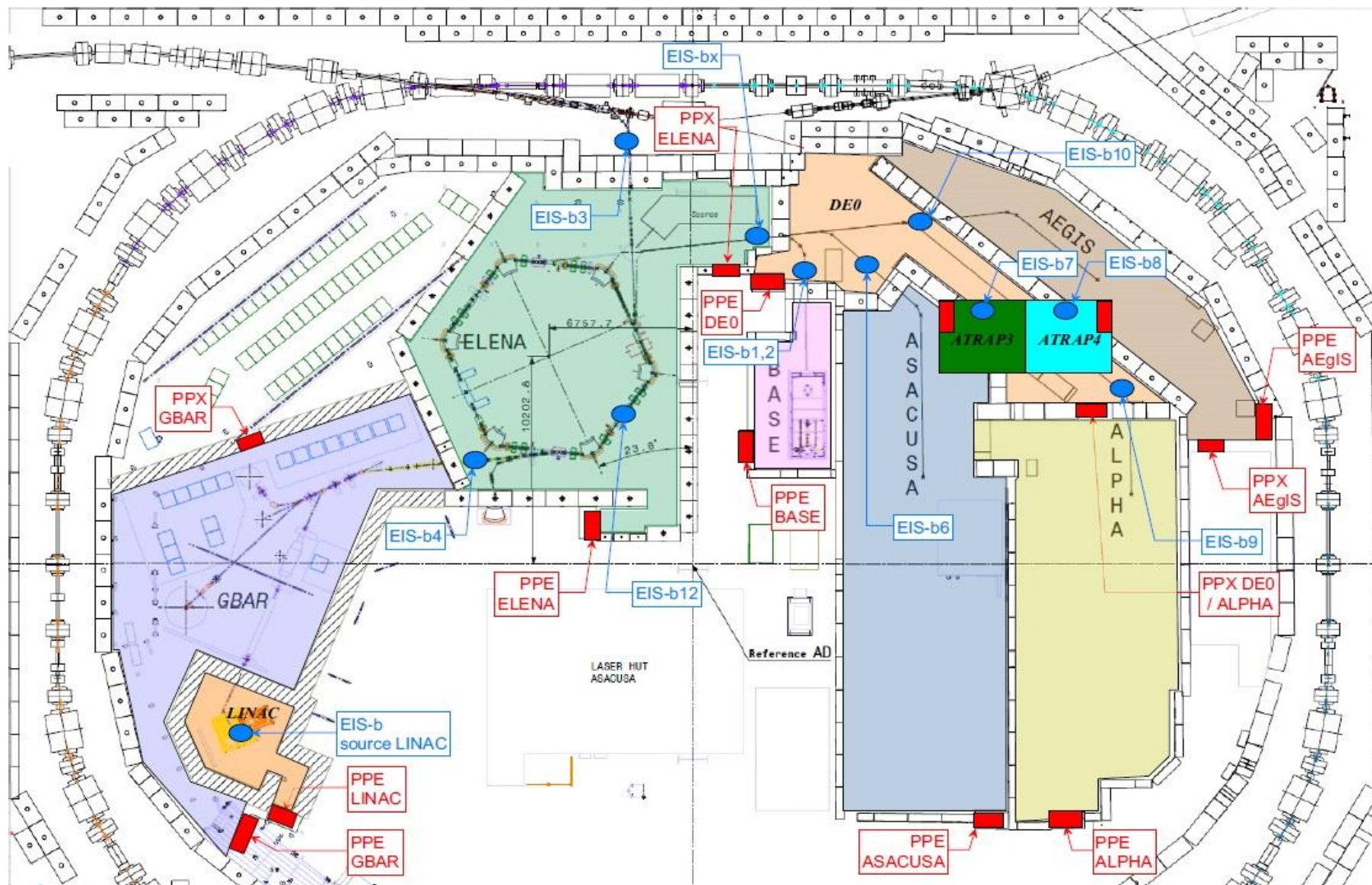
- **Passageways, footbridges and platforms** (Secondary Beam Areas (EDMS 1204546 and 1204549) Rules for Access in PS secondary beam areas);
- **Emergency devices** (alarms and evacuation);
- **Fire protection** system (Code I (EDMS 335728));
- Structure of the **construction** and its impact on the AD hall;
- **Control room** for ELENA (inside present AD control room);
- People at work (**Personal Protective Equipment**);
- Other generalities on HSE aspects (waste handling, environmental issues, foreseeable events).

Radiation Safety Aspects

- **Supervised Secondary Beam Area** with Controlled Access;
- **FLUKA Simulation** by R. Froeschl / RP EDMS 1278215;
- **ALARA** principle applied everywhere;
- Concrete **Shielding** around ELENA (0.8 x 2.4 m); 0.4 m sufficient between Experimental Areas (? Material ?);
- Less than 3 micro Sievert / hour at permanent workplaces;
- No Access to exp. Area during Operation;
- Radiation Monitor (IG5 Chamber for fast Neutrons (connected to RAMSES));
- Buffer Zone for radiological characterization, traceability.







Layout of AD / ELENA Experimental Areas

Horst Breuker ADUC Jan 15 2014

Experimental area name	EIS-access		EIS-beam protecting the area
	PPE	PPX	
ELENA	1	1	2
GBAR	1	1	2
LINAC	1	0	1
DE0	1	1	1
BASE	1	0	1
ASACUSA	1	0	1
ATRAP3	1	0	1
ATRAP4	1	0	1
ALPHA	1	1	1
AEgIS	1	1	1

EIS : Element Important de Securite;
PPE : Personal Protection Entry;
PPX : Personal Protection eXit.

Outlook

- ELENA Safety File :
- We got started and made some progress but more work is needed;
- To understand specific subsystem safety issues we will contact the work package leaders;
- Thanks for your attention !