

# Optimized determination of the radiological inventory during different phases of decommissioning



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## Characterization within licensing procedure

#### limited characterization of **Operational Phase** radiological inventory Final shutdown Initial / rough characterization of radiological inventory Licence: Full System (relevant nuclides + dismantling activities) Decontamination (FSD) other hazards Assessment criteria: Atomic Energy Act, RPO Guidelines, Directives operationa concept of concept of Documents ISO, DIN .. sampling clearance Concepts have to be: **Application** optimized Post comprehensive concept concept of verifiable of radiol. waste characterimanagement zation

Supervision by competent authority:

 compliance with terms and conditions of licence

Licence: Decommissioning

Licence:

Dismantling of systems and

components – Parts I ...X

- compliance with state of the scientific and technical knowledge
- assessment of relevant documents

by independent

suppor

authority,

competent

Supervision by

tling

- supervision at the site
- supervision of procedures
- supported by independent experts

Licence:

Clearance of buildings and

withdrawal procedure

concepts for decontamination & clearance of buildings

Application Documents

detailed characterization according

Radiation Protection of the

personnel and the public

for release of material and

(Implementation of concepts)

waste management

with respect to

to concepts of radiological inventory

Nuclear fingerprint (nuclide vector)

Supervision by competent authority:

- as above and
- special supervision for procedures concerning release of concrete and rubble

release of site from nuclear regulatory control (≠ release of licensee from nuclear regulatory control because of e.g. radioactive waste stored elsewhere) detailed characterization / Determination of the radiological inventory

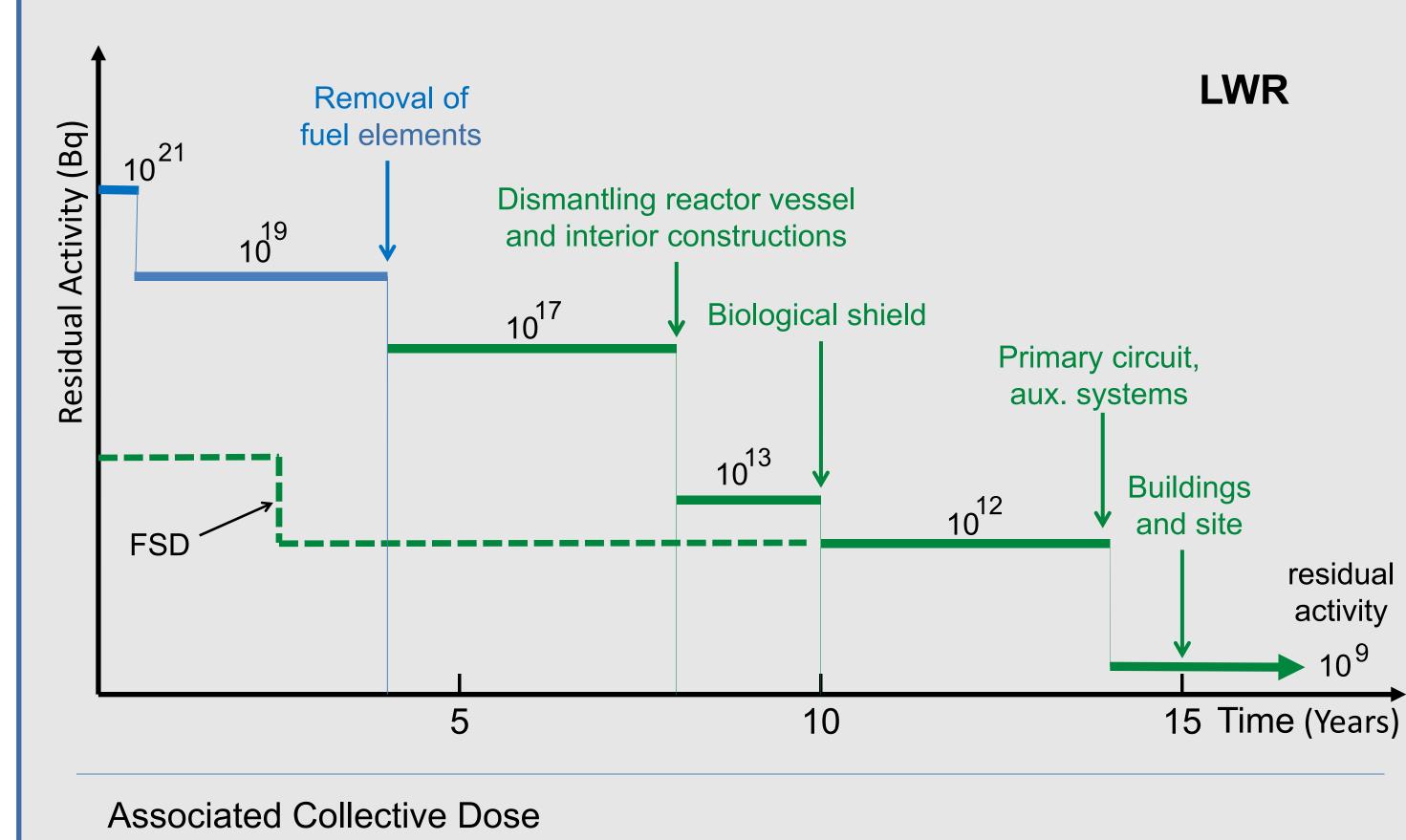
- Assess impact to personnel (radiological and non radiological hazards)
- Choose <u>clearance option</u> (reuse or demolition)
- Decide on appropriate measurement technique (detect penetrated activity)
- Determine optimal preparation of rooms
- Configure best withdrawal procedure

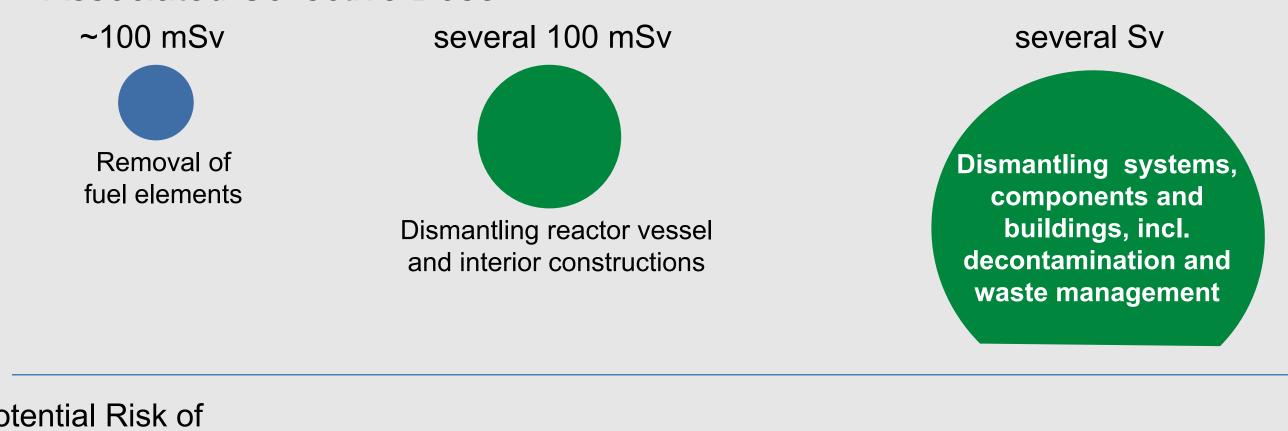
detailed characterization / Determination of the radiological inventory

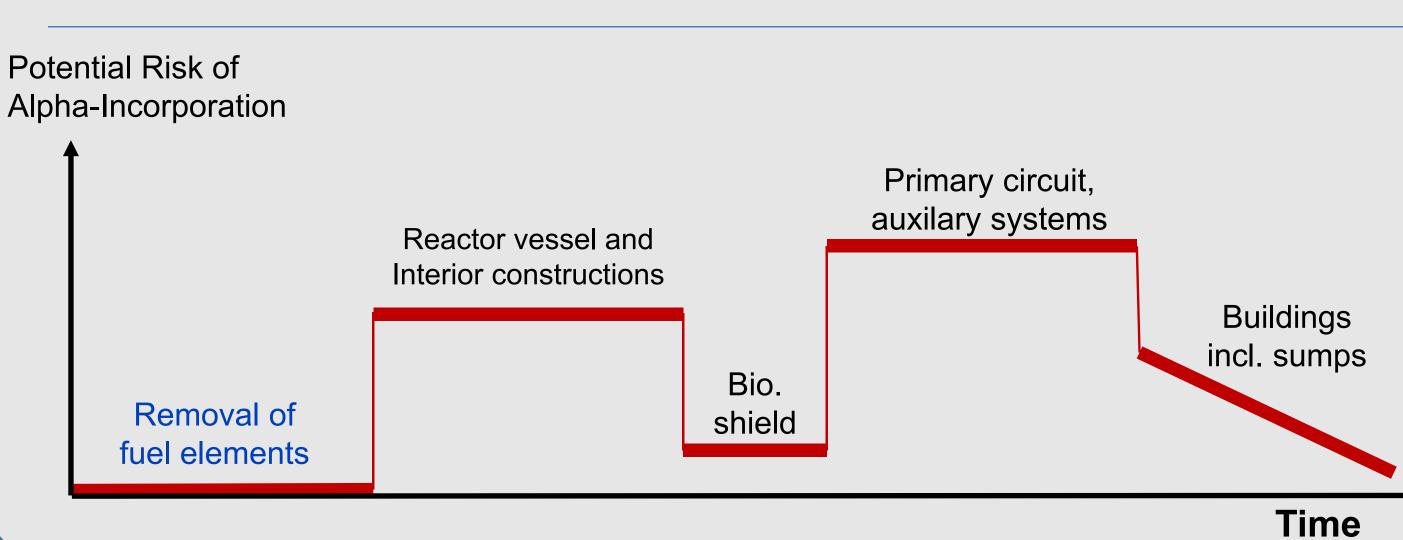
- Description of the site
- (e.g. system boundaries, buildings, groundwater) Description of historic and current usage
- (use of radioactive material, relevant occurrences) Description of potential contaminants
- (radiological and non radiological hazards)

#### Determine optimal preparation of the <u>site</u>

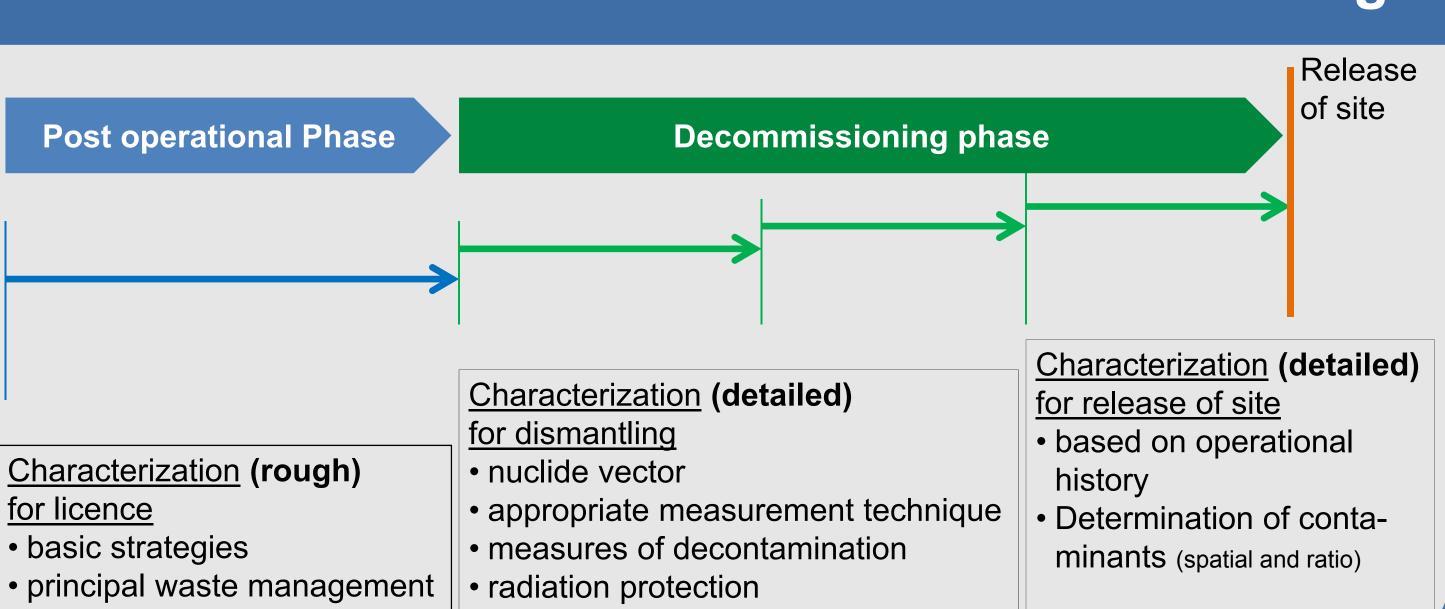
### Radiological framework during decommissioning Post operational **Decommissioning phase** Phase







# Characterization over time for decommissioning



#### Conclusion

- The specific requirements for characterization are associated with the milestones during decommissioning
- The amount of activity do not directly correspond to the radiological hazard potential of the facility