

IAEA Recommendations on a Decommissioning Plan (DP)



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Review of a Decommissioning Plan
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Contents

- Background
- Hierarchy of legal framework / IAEA Safety Standards
- Requirements for a Decommissioning Plan (DP)
- Contents of a DP
- Overall approach to the preparation of a DP
- Overall approach to the review of a DP
- Overall decommissioning approach
- Elements of a licensing system
- Summary
- References

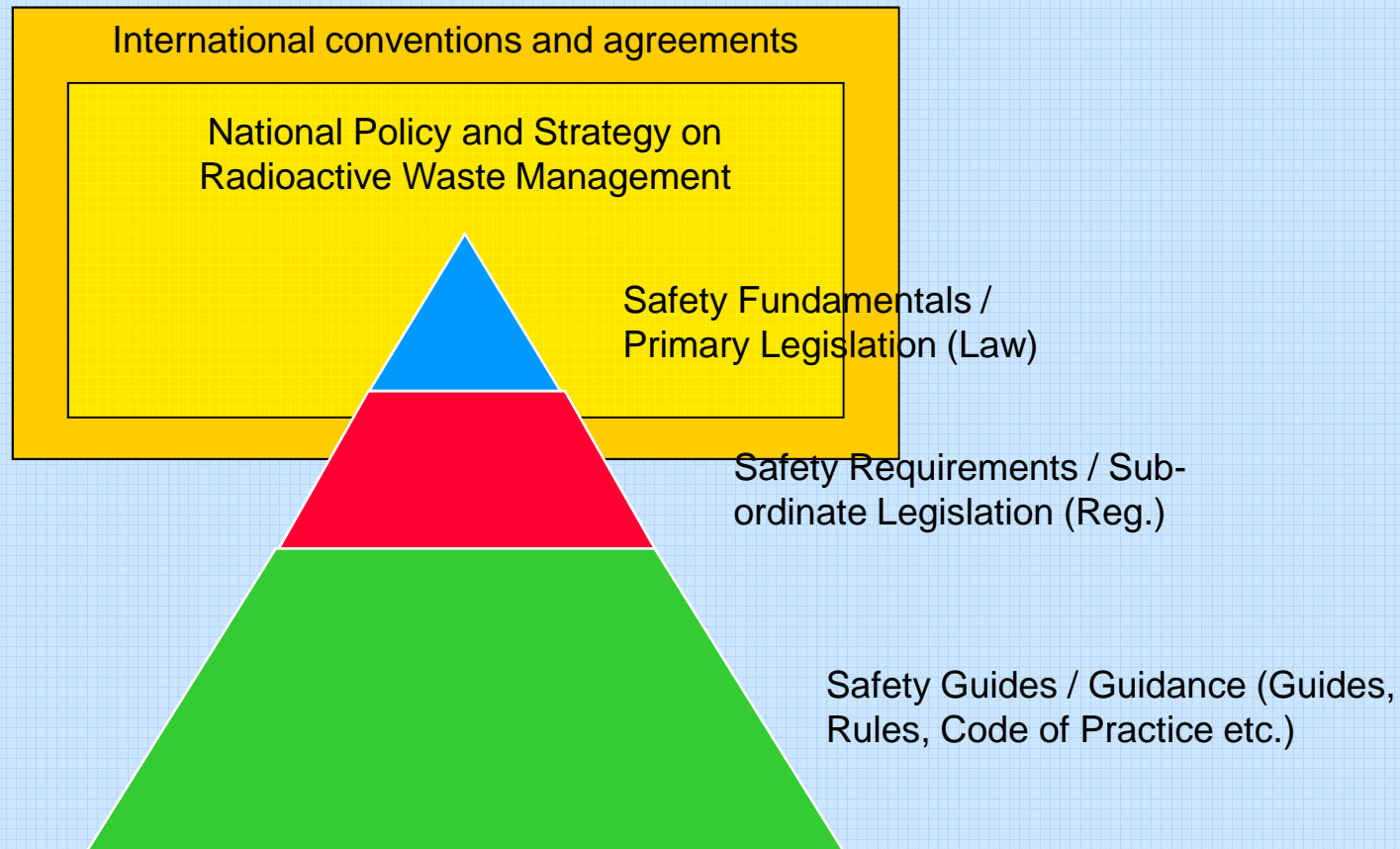


Background

- IAEA recommends to have a decommissioning plan (DP) for each nuclear facility
- Planning for decommissioning should already begin at the design stage, continue during operation and become final at the end of operation (initial / updated / final DP)
- A DP, including a safety assessment, is the central licensing document
- Recommendations on the preparation of a DP and its contents are given in IAEA SRS 45
- The level of detail of a DP will depend, e.g. on the type of reactor + the actual information available
- Information may only become available during the dismantling
- A proper way out of this situation can be found in a stepwise execution of the licensing process



Hierarchy of Legal Framework / IAEA Safety Standards



Requirements for a DP (1)

- Prepare a DP and maintain it throughout the lifetime of a facility
- The DP shall be supported by an appropriate safety assessment
- Apply a 'graded approach' according to the type of facility and the hazards involved
- Prepare and submit a DP with the application for an operational license (initial plan)
- Update the DP during operations (on-going plan)
- Existing facilities without a DP: Prepare it a.s.a.p.
- Prior to implementation: Prepare final / detailed DP
- Deferred dismantling: Demonstrate safety in a DP

Source:

- Safety requirements WS-R-5 (October 2006)



Requirements for a DP (2)

- The requirements of the 'Joint Convention' are in line with WS-R-5
- The IAEA Safety Guide WS-G-2.1 (October 1999) provides further details
- Details on format and content of a DP are provided in IAEA Safety Report Series No. 45

Contents of a DP (1)

- DECOMMISSIONING PLAN DETAILS
- 1. Introduction
- 2. Facility description
- 3. Decommissioning strategy
- 4. Project management
- 5. Decommissioning activities
- 6. Surveillance and maintenance
- 7. Waste (and materials) management
- 8. Cost estimate and funding mechanisms
- 9. Safety assessment
- 10. Environmental assessment
- 11. Health and safety



Contents of a DP (2)

- 12. Quality assurance
- 13. Emergency planning
- 14. Physical security and safeguards
- 15. Final radiation survey

RELATED DOCUMENTS

- 1. Characterization plan
- 2. Characterization survey report
- 3. Final radiological survey plan
- 4. Final radiological survey report
- 5. Public relations plan
- 6. Site policies and procedures
- 7. Final decommissioning report



Contents of a DP (3)

Please note:

- Apply a 'graded approach': The DP and its contents depends on the size and complexity of the facility and the associated hazards
- IAEA does not provide recommendations on non-nuclear activities / hazards, e.g. chemically toxic substances; civil engineering; clean air, water + soil; noise; dust; traffic ...
- Please refer to national standards or international standards of other organisations, e.g. EU

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1985L0337:20090625:EN:PDF>



Contents of a DP (4)

- How much detail is necessary in a DP?
 - No simple “yes/no” answer possible
 - As much as possible and as much as necessary
 - Depends on size and complexity of the facility
- In the case of insufficient information the regulator
 - Should ask for additional information
 - Could introduce clauses / requirements / limits / conditions ... into a license
 - Could take special actions in the execution of decommissioning activities (set hold points, e.g. for review and authorisation of work procedures or for the supervision of activities by an expert)
- Unresolved licensing issues result in a deferral of such issues into the implementation phase



Overall Approach to the DP Preparation (1)

- It is important that a DP is complete and includes all the relevant information
- It is not of primary importance whether a DP is organised in one single document or in a number of documents (as long as it is complete)
- Topics with large amounts of information may be arranged in such a way that key results are given in the DP and that details, e.g. calculations / input data or results of measurements, are provided in an appendix / annex / attachment / supplement ... or whatever it may be termed
- The operator has to prepare the DP and submit it to the regulator as part of the license application



Overall Approach to the DP Preparation (2)

- A particular challenge is the fact that not all the necessary information may be available at the time of application
- Such information may become available during dismantling
- If data are not available historical information, calculations, assumptions, best estimates etc. may be used
- Such data would need a later reconfirmation
- Another challenge is the constant change that will occur in the dismantling of a nuclear facility



Overall Approach to the Review of a DP

- The regulator has to check the submission primarily for completeness and correctness
- In the case that information is missing, unclear, contradictory ... additional information will be requested
- Information may not be available when a DP is being prepared
- In such situations the regulator may put clauses into a license on how to proceed in obtaining any missing information (e.g. special actions during the supervision of the license implementation)
- Such clauses should ensure that safety will not be compromised



Overall Decommissioning Approach (1)

- Decommissioning of a nuclear facility may be carried out in one single step with one single license
- In general, the decommissioning of a nuclear facility is carried out in a logical sequence of steps (sometimes also called stages, phases ...)
- In such a case an overall DP will be prepared which provides complete information on how to reach the anticipated end state safely
- The overall DP should identify individual steps ...
- More detailed plans will then be prepared for each individual step ...

Overall Decommissioning Approach (2)

- This allows the operator and the regulator to learn from each step and to obtain information that may be missing at the beginning
- All the individual steps need to be licensed by the regulator

Elements of a Licensing System (1)

- Operator: To apply for a license with a complete application (DP), incl. safety assessment
- Regulator: To review the application with independent means and experts (No expert shall review his / her own work!)
- Interaction between regulator and operator to clarify open issues of the application
- Regulator: Decision on the license application (approval, approval with clauses, rejection ...)
- Operator: To implement the license
- Regulator: To supervise and enforce the implementation of a license; require corrective action or suspend / cancel a license, if necessary



Elements of a Licensing System (2)

- Such a sequence of steps in the licensing system provides the necessary flexibility to manage the constant change in the dismantling of a nuclear facility
- It also allows the dealing with missing information without compromising safety

Summary (1)

- A Decommissioning plan (DP) is to be prepared for each nuclear facility
- It should be prepared a.s.a.p. if it is not available
- The operator has to prepare the DP, including safety assessment and submit it to the regulator with the license application
- If data are not available, historical information, calculations, assumptions or best estimates may be used which would need a later reconfirmation
- The regulator will review the DP, involving experts independent of the operator and with independent means
- The review is primarily for completeness and correctness of the DP
- A license can be issued if the regulator is satisfied with the DP



Summary (2)

- The license may contain clauses ... if information is not available
- Such clauses ... need to be implemented during dismantling
- In principle, such clauses ... defer licensing issues into the project implementation phase
- The Working with clauses ... is a possible way to overcome the lack of information without compromising safety



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Thank you for your attention!

