

Lessons Learned on Human & Organizational Factors for Nuclear Decommissioning

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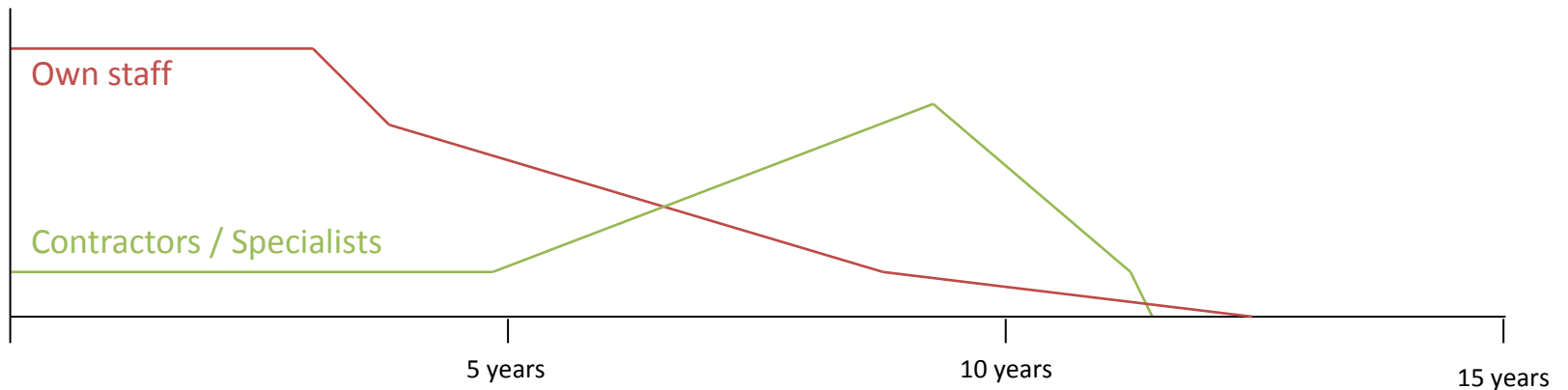
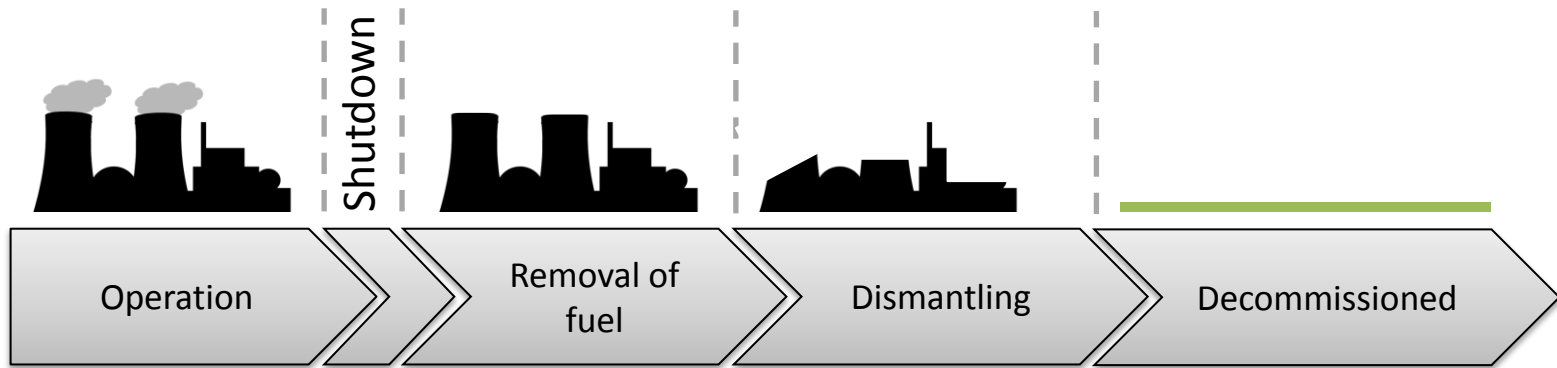


The decommissioning challenge

Worldwide experience of decommissioning nuclear power plants continues to grow

- Better sharing of experiences and lessons learned
- But still a tendency to focus on technical aspects of the work
 - Development and implementation of better technologies (both hardware and software)
- Therefore, human & organizational factors still present challenges to decommissioning organizations
- Continuing to have a significant impact on the success of decommissioning projects

A typical decommissioning process

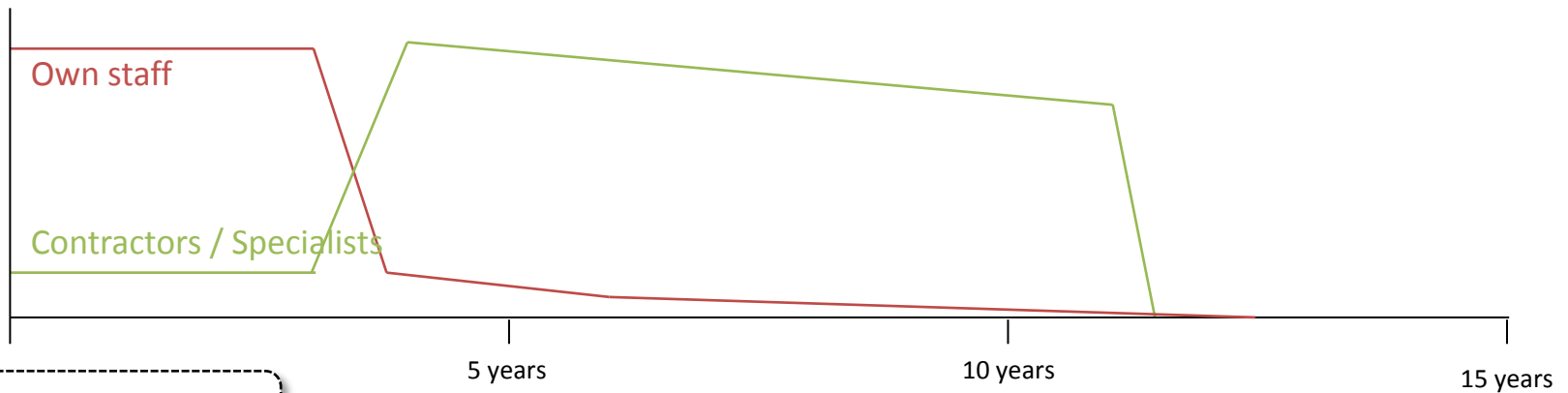
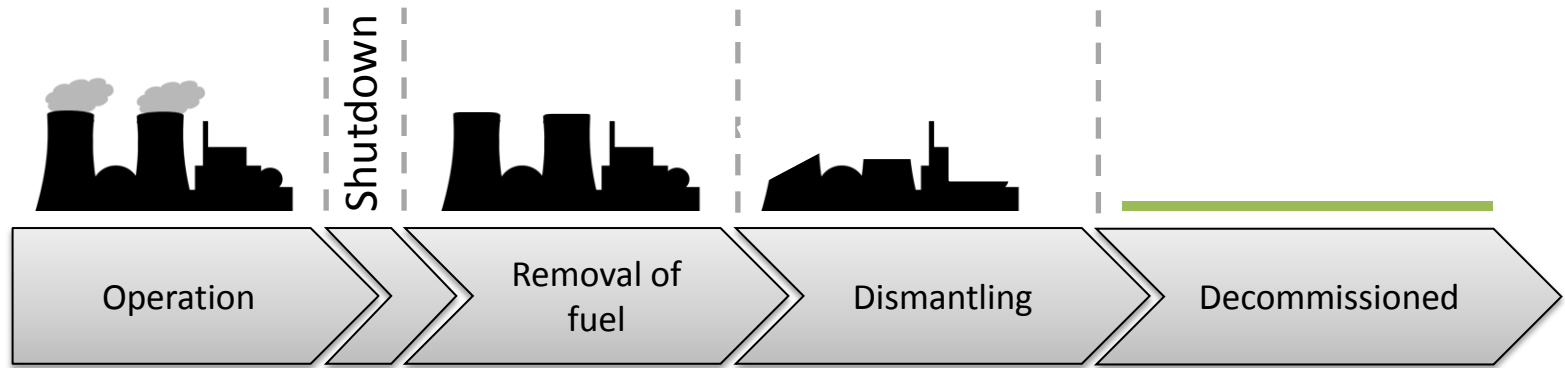


Changes to the staff profile through decommissioning

Typical human & organizational issues



The risk of failing to plan for decommissioning



Resulting in:

- Significant cost increases
- Additional burden on training
- Loss of operating experience
- Loss of “tacit” plant knowledge
- Adverse impact on risk awareness
- Adverse impact on safety culture

Principal factors affecting success - 1



Inadequate planning and management of decommissioning projects [IAEA]

- This includes unclear identification of roles and responsibilities
- Decommissioning is fundamentally different from operation
 - Must be carefully planned and managed
- Decommissioning is a period of great uncertainty and unease for staff and management
 - The plant loses its mission, which is to generate electricity
 - The staff lose their primary function, which is to operate the plant

Principal factors affecting success - 2



Management of the transition from operation to decommissioning

- Key issues affecting safe and successful transition to decommissioning include:
 - Uncertainty about the future
 - Maintaining adequate competence for decommissioning
 - Maintaining a good safety culture
 - Retaining organizational memory
- Failure to manage these factors during the transitional stage can result in loss of staff, loss of plant expertise and knowledge, degradation of the safety culture and increased costs

Strategies for transition management - 1

You must know where you are before you can know where you're going

- Combining a capability management approach and a gap analysis approach
 - Identify key capabilities for the entire decommissioning process, including evaluation of the maturity of these
 - Perform a gap analysis to assess the difference between the current and future decommissioning capabilities
 - Develop a road map to address the gap and plan for the future

Strategies for transition management - 2

Communicating and working with staff is key

- “Right-sizing” your organization
 - Retaining the right staff for your decommissioning project
 - Financial incentives are often not enough to make staff want to stay
- Involve staff in the planning and organization of the decommissioning process
 - Reduce uncertainty & rumors
 - Increase engagement, buy-in and ownership of the process
 - Capitalize on staff experience and knowledge
 - Identify opportunities for competence development & retraining

Benefits of transition management

Ensure safe, efficient decommissioning & avoid unnecessary costs

- Transition management is the first step towards better planning and management of the decommissioning project
 - Demonstrates that plant management have systematically prepared for decommissioning
 - Provides reassurance to external stakeholders (owners, regulators, public)
 - Provide reassurance to staff – motivated and engaged staff are more likely to uphold safety culture standards and be motivated to work towards successful decommissioning

Adopting a safety case approach

A safety case is “a collection of arguments and evidence to demonstrate the safety of a facility or activity” [OECD]

- Adopting a safety case approach can ensure adequate inclusion and integration of all relevant disciplines, including human & organizational factors.
- Other benefits of the safety case approach include:
 - It is a holistic tool, which is updated throughout the decommissioning process and therefore can be used to support planning and management of decommissioning;
 - It ensures a safety focus and identifies the safety boundaries within which all activities must take place;
 - It demonstrates control of the process and compliance with regulatory and other stakeholder requirements.

Thank you!

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