Preparing for Decommissioning during Operation and after Final Shutdown

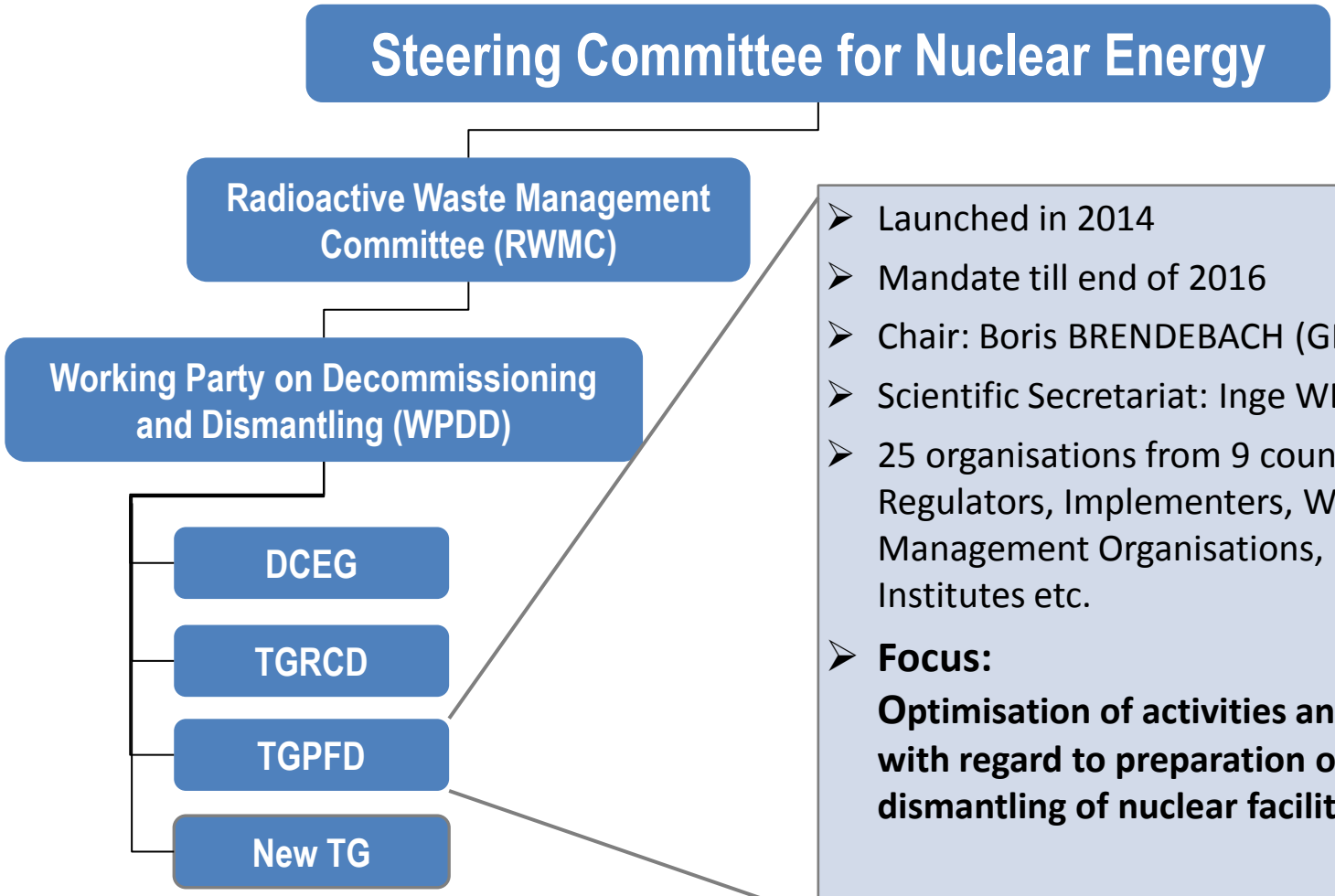
A Task Group of NEA's Working Party on Decommissioning and Dismantling (WPDD)

Dr Boris BRENDEBACH

GRS, Germany

International Symposium on Preparation for Decommissioning
Lyon, France
16-18 February 2016

Task Group on Preparing for Decommissioning during Operation and After Final Shutdown (TGPFD)



- Launched in 2014
- Mandate till end of 2016
- Chair: Boris BRENDEBACH (GRS, Germany)
- Scientific Secretariat: Inge WEBER (NEA)
- 25 organisations from 9 countries: Regulators, Implementers, Waste Management Organisations, Research Institutes etc.
- **Focus:**

  Optimisation of activities and measures with regard to preparation of the dismantling of nuclear facilities

TGPFD objectives

Objective of the activities

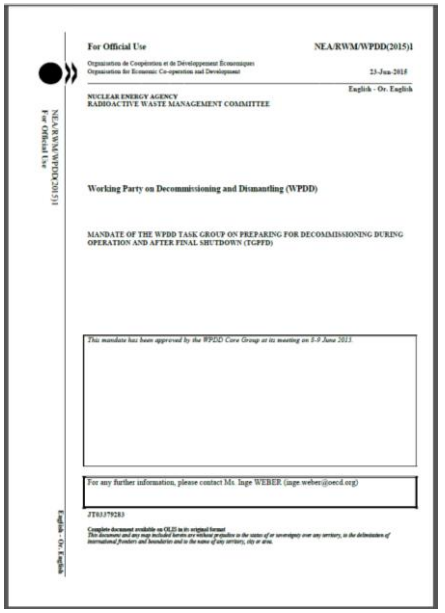
- To provide the member countries with up-to-date information regarding strategies and recommendations for optimisation of activities and measures with regard to the preparation for decommissioning and dismantling
- To summarise the results of observation and conclusions in a report

Focus of the report

- To fill identified gaps in existing relevant documents
- To identify and describe recent developments, lessons learned, good practice and new approaches
- To identify main constraints in preparing for decommissioning

Traget Audience

- Strategy makers for decommissioning
- Regulators
- Decommissioning planners


For Official Use NEA/RWM/WPDD(2015)1

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

23-Jun-2015

English - Or. English

NUCLEAR ENERGY AGENCY
RADIOACTIVE WASTE MANAGEMENT COMMITTEE

Working Party on Decommissioning and Dismantling (WPDD)

MANDATE OF THE WPDD TASK GROUP ON PREPARING FOR DECOMMISSIONING DURING OPERATION AND AFTER FINAL SHUTDOWN (TGPFD)

This mandate has been approved by the WPDD Core Group at its meeting on 8-9 June 2015.

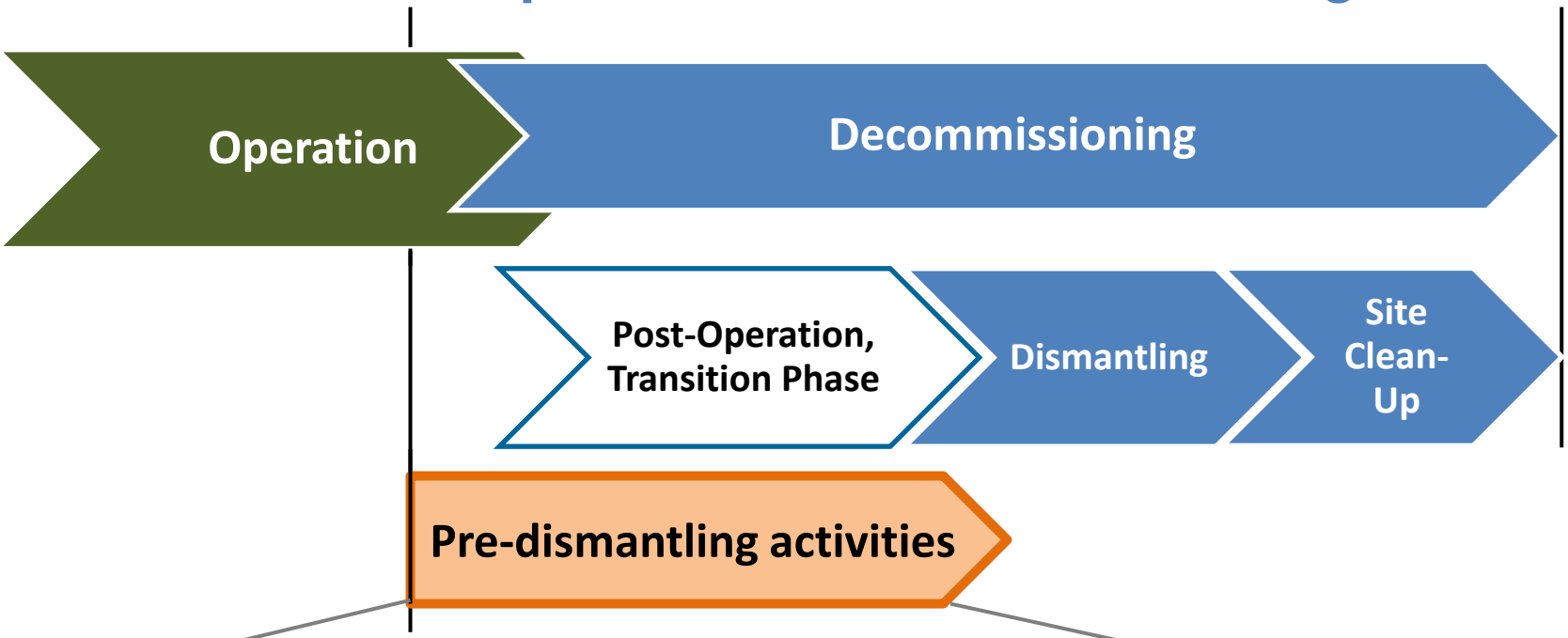
For any further information, please contact Ms. Inge WEBER (inge.weber@oecd.org)

JT03379283

Complete document available on OLIS in its original format
This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

NEA/RWM/WPDD(2015)1
For Official Use
English - Or. English

Transition from operation to decommissioning



Areas of considerations (Topic Areas)

1. Regulatory framework and licensing process
2. Decommissioning planning – Selection of strategies
3. Decommissioning organisation and staff management
4. Technical arrangements and practical activities

1. Regulatory framework and licensing process

Regulatory Framework to address changing responsibilities, work and risk context during transition to decommissioning

- Regulatory Body to provide proportioned regulatory response by establishing the requirements and the timeframe for the transition to decommissioning
- Operator to ensure the facility is maintained in a safe state
- Initiate the process of culture change or transfer of responsibility (regulator body, decommissioning authority)

Preparation for authorising decommissioning

- Selection of licensing strategy (types, process and timeframes) and schedule
- Information required
- Community and Stakeholder Engagement

2. Decommissioning planning – Selection of Strategies

Identification of the foundation of the decommissoning and firming up the key factors

- Definition of scope and objective of decommissioning
- Implications of a national or programmatic approach to decommissioning across multiple sites
- Stakeholders‘ implications

Photo: Bellefonte Nuclear Generating Station, http://en.wikipedia.org

Update / Confirm the overall strategy for decommissioning

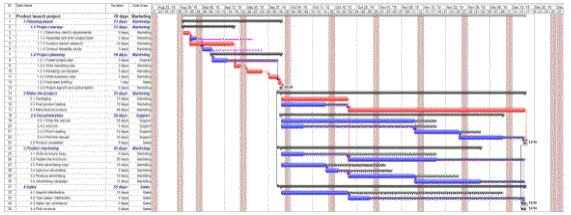
- Selection of a Decommissioning strategy (and duration)
- Developing Waste Management Strategy
- Spent Fuel Management Strategy

Selection of overall dismantling principles and approaches

- Dismantling Sequence: early reduction of main bulk of radioactivity?
- Dismantling Approach: system by system vs. room by room dismantling
- Segmentation strategy: small pieces vs. “en bloc” removal (e.g. 'rip and ship‘)
- Waste treatment/processing: outside or inside the facility, on-/off-site

Activities

- Scheduling of the decommissioning planning including structuring of dismantling in phases with defined end states
- Updating the decommissioning plan (final decommissioning plan)
- Detailed assessment of facilities & site conditions



3. Decommissioning Organisation and Staff Management

Decommissioning Organisation

- Decommissioning site and corporate organisation
- Responsibilities
- Mandates
- Accountability

Integrated Management System (IMS)

- Change Management
- Staff Management
- Experience and Knowledge Management
- Informational Infrastructure
- Governance process
- Safety Culture
- Policy changes

4. Technical arrangements and practical activities

Initial Site Characterisation

- Survey of facility documentation and historical data gathering
- Characterisation of site: Physical inventory, radiological and chemical hazards
- Selection of characterisation strategy incl. definition of of scopes and purposes

Plant Washout and Decontamination

- Selection of strategies and techniques, e.g. full system decontamination
- Plant configuration & modifications

Asset Management

- Understanding how long structures and services are needed.
- Development of a through life asset management strategy

Technology and technical requirements

- Identify gaps in technology needs or underpinning technical basis to support transition from operations into decommissioning or long term surveillance and maintenance
- Assess maturity of technical solution

Conclusions

- An early understanding of the decommissioning drivers and the target interim and end states will heavily influence the choices made approaches taken in preparation for decommissioning

- Site Characterisation: A detailed radioactive waste inventory will help to define process/treatment, packaging and disposal requirements and can help target early R+D projects.

- Immediate post-shutdown activities can reduce demand on assets through risk and hazard reduction, which will translate into significant cost savings over the remaining facility life

- A Waste Management Strategy that takes into account the full remaining lifecycle is recommended.

Some Challenges

- Understanding of the complex interrelationships in a decommissioning project and setting the right course for safe and cost efficient decommissioning
- Availability of waste management and disposal pathway
- Sufficient decommissioning funding
- Availability of resources
- Managing the change of responsibilities and culture
- Maturity of technical solutions

Way forward

- Drafting of report to be finalised by October 2016
  - First insights into report be presented at upcoming events
- Report to be published in early 2017

Thank you for your Attention!

Contact:
Inge WEBER
Nuclear Decommissioning Specialist
OECD Nuclear Energy Agency
+33 (0) 1 45 24 10 44
Inge.Weber@oecd.org

Dr Boris BRENDEBACH
Chief Expert Decommissioning
GRS
+49 (0) 221 2068 774
Boris.Brendebach@grs.de