The NEA Initiative on Fukushima Daiichi Waste Management

Hiroshi Rindo
Vice-Chair of the NEA Expert Group on Fukushima Waste Management and Decommissioning R&D

ICRP Workshop on Surface Disposal on Radioactive Waste
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Expert Group on Fukushima Waste Management and Decommissioning R&D (EGFWMD)

- **Established under NEA RWMC in March 2014**
- **Objectives**
  - Evaluate management of post-accident waste, with focus on characterization and categorization
  - Provide a strategic approach to Japanese government to manage waste characterization
- **Participation**
  - France, Norway, Russian Federation, UK, Ukraine, US, and Japan (NRA, JAEA, TEPCO)

EGFWMD members

- 8 international experts with experience in;
  - Waste management after Three Mile Island accident
  - Waste management after Chernobyl accident
  - Management of damaged spent fuel and radioactive waste in Kola Peninsula
  - Radioactive waste management after fire at Windscale Pile No 1, Sellafield
  - Waste management and decommissioning R&D for nuclear facilities
- 3 Japanese experts from
  - Nuclear Regulation Authority of Japan (NRA)
  - Japan Atomic Energy Agency (JAEA)
  - TEPCO

Meetings and Site-visits

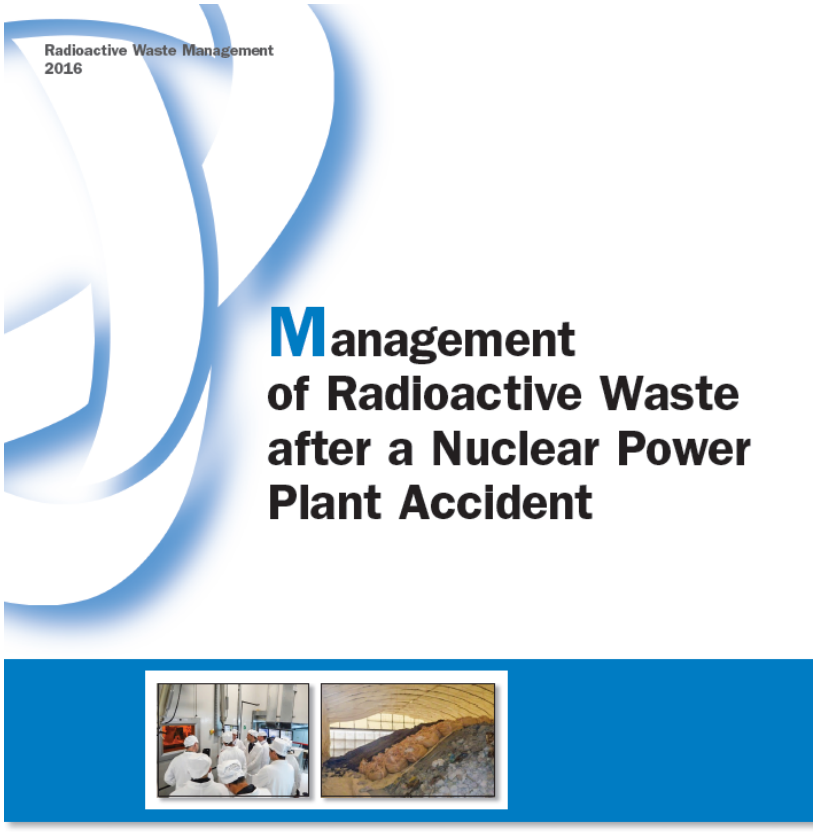
1st meeting	1 - 4 July 2014, Fukushima, Japan
2nd meeting	27 - 28 November 2014, Paris, France
3rd meeting	23 - 24 March 2015, Paris, France
4th meeting	29 September - 1 October 2015, Kiev, Ukraine
5th meeting (Final)	20 - 22 January 2016, Paris, France
Workshop	6 – 7 July 2016, Tokyo, Japan

Fukushima Daiichi NPP
Waste storage facility (July 2014)

Chernobyl NPP
Waste treatment facility (Oct 2015)

Table of Contents of final report

1. General Description of Case Studies
2. Regulator / Implementer Interaction
3. Stakeholder Involvement
4. Physical and Chemical Nature of the Waste
5. Radiological Characterisation
6. Waste Classification and Categorization
7. Waste Conditioning, decontamination, and reduction
8. Destination (storage / disposal)



OECD BETTER POLICIES FOR BETTER LIVES
NEA NUCLEAR ENERGY AGENCY

https://www.oecd-nea.org/rwm/pubs/2016/7305-mgmt-rwm-npp-2016.pdf

Presentation and Publication

Results presented at: **NEA Workshop on Fukushima Waste Management and Decommissioning R&D 6-7 July 2016**

- Shared results and recommendations of EGFWMD report
- Discussed waste management and decommissioning issues to be addressed at Fukushima Daiichi NPS

Main conclusions presented (1)

- **Case studies:** provide substantial information on history of accident waste characterisation and helpful recommendations
- **Strategic objectives and planning** Plan is necessary for a series of tasks designed to meet the publicly stated strategic objectives:
  - identifying who is responsible for implementing each task, and
  - providing legal powers and resources necessary to implement
- **Storage and disposal**: Waste needs to be characterised, stabilized and safely stored until a final disposal solution is available
- **Optimisation**
  - radiological and non-radiological impacts
  - social and economic factors
  - stakeholder engagement
  - **Regulation:** Most efficient to use existing standards, techniques and procedures, ***but often necessary to modify for abnormal conditions***

Main conclusions presented (2)

- **Waste separation**
  - Efficient methods are needed to identify and separate waste as non-radioactive, VLLW, LLW, ILW and HLW
  - Especially important to efficiently identify clearable waste, to minimise volume of waste that is treated as radioactive waste
  - Likely to require substantial investment in monitoring and equipment that measures and separates at same time, all in one process

Further International Cooperation needs(1)

- Improved international guidance needed on application of international recommendations, standards and guidance in post-emergency phase of major nuclear accident
- All accidents are different! But further international cooperation is needed on pre-planning post-accident decommissioning and radioactive waste management on:
  - planning that can be done in advance
  - planning that cannot be performed until the parameters of the accident are understood
  - scope for sharing of characterisation resources, staff and equipment nationally and internationally

Further International Cooperation needs(2)

- Improved international guidance needed on:
  - transition from regulation as emergency to existing or planned exposure situation leading to final recovery
  - stakeholder engagement, with emphasis on later stages of recovery
  - risk communication processes
  - how to characterise, control and regulate chemical risks alongside the radiological risks

Main feedback to Japanese Programme

- Application of international recommendations, standards and guidance
  - ⇨ Strategic Plan
- Appropriate storage and stabilization until final disposal
  - ⇨ TEPCO (Improvement of waste storage method)
- Waste description: physical and chemical nature
  - ⇨ R&D Plan for Next Phase
- Optimisation
  - ⇨ Strategic Plan
- How to improve communication between stakeholders
  - ⇨ The International Forum on the Decommissioning of the Fukushima Daiichi NPS, Communication with regulator

What's Next?

New Proposal from Japanese organizations

Key feature of Fukushima Daiichi RW is that various type of unknown radioactive wastes were generated.

■ **Objective**

- Develop integrated management methodology for large amount of unknown waste, through;
  - Sharing international expertise and experience
  - Discussing about relevant issues and challenges
  - Focusing on "methodology of characterization, segregation, long-term storage and processing"

→ Supported by RWMC-50, detail will discussed in RWMC-51

Thank you for your attention!

Any questions?

Also contact to NEA Secretariat
Ichiro Otsuka (Ichiro.Otsuka@oecd.org)