(8) The NEA initiative on Fukushima Daiichi waste management

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Abstract–Following the accident at the Fukushima Daiichi nuclear power plant (NPP) in March 2011, different types of post-accident radioactive waste were generated. For example from on-site decontamination activities, there is the management of contaminated water, decommissioning of the four reactors and from the hydrogen explosions that occurred. Radioactive waste resulted from the accident has different properties when compared with waste generated by nuclear power plants operating under normal conditions. Specific management methods or strategies will therefore be needed to manage the post-accident waste. After the accident, the NEA Radioactive Waste Management Committee (RWMC) underlined the importance of including post-accident waste management and co-operation on decommissioning techniques for the Fukushima Daiichi NPP in the strategic areas of the NEA Programme of Work as it relates to radioactive waste management. In 2014, the RWMC established the Expert Group on Fukushima Waste Management and Decommissioning R&D (EGFWMD) with the primary aim of offering advice on the management of large quantities of Fukushima Daiichi on-site waste that has complex properties, and of sharing experiences with the international community and NEA member countries. The EGFWMD consisted of international experts who have gained experience in waste management, in radiological contamination or in decommissioning and waste management R&D after the Three Mile Island accident and the Chernobyl accident, and also Japanese experts from government organizations, research institutes and TEPCO who are involved in radioactive waste management generated in Fukushima Daiichi NPS. The EGFWMD focused on technical issues of waste management, such as radiological characterisation and categorisation of post-accident radioactive waste and contaminated materials, but also on social issues such as stakeholder engagement and interactions between regulator and implementer. The group published its final report in 2016 which provides advice on post-accident waste management, particularly to research and development (R&D) institutions in Japan on their overall strategy for managing the waste generated on-site by the accident. It also provides information on strategies to be implemented in case of an unplanned, unexpected accident in the future. The case studies in the report present substantial information on the history of accident site management and lessons learnt, leading to many potentially helpful recommendations. The report includes information on (i) state-of-the-art techniques and experiences with waste characterisation and classification, including application after major accidents, (ii) regulatory supervision: regulations, regulatory guidance and regulatory procedures (e.g. review of safety cases), and (iii) application of international recommendations, standards and guidance. Every accident is different. The post-accident (after emergency) scenario is unpredictable and often specific to the prevailing circumstances. Post accident waste management requires knowledge and information that are not within the usual experience of conventional utility and service management organisations. Managing decommissioning and radioactive waste after a major accident requires a different approach from those that are used in normal nuclear plant operations.