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MAGNOX DECOMMISSIONING DIALOGUE

TIMESCALES WORKING TWG

REVIEW OF IAEA TR 395

STATE OF THE ART TECHNOLOGY FOR DECONTAMINATION AND DISMANTLING OF NUCLEAR FACILITIES

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REVIEW OF THE IAEA TR 395

This report (~200pp) identifies and describes the technologies developed and applied to date (1999) for the decontamination, dismantling and decommissioning of nuclear facilities. It focuses on the practical aspects of decommissioning and less emphasis is given to the associated topics of radioactive waste management, planning and organisation, and the regulatory framework.

The contents comprise:

CHAPTER	NO OF PAGES	RELEVANCE TO TWG
FACTORS INFLUENCING THE STRATEGY FOR DECOMMISSIONING	13	Useful background but topics are generally known to TWG
SAFETY AND RADIATION PROTECTION	4	Somewhat limited and does not provide any new knowledge to TWG
METHODS AND TECHNOLOGIES FOR DECOMMISSIONING	105	Very detailed coverage of techniques, ie strippable paints, etc., perhaps too detailed for TWG purposes
GENERAL LESSONS LEARNED	4	Nothing specifically relevant to Magnox of similar reactor decommissioning programmes
CONCLUSIONS	4	Very generalised – see following
APPENDIX – LESSONS LEARNT FROM DECOMMISSIONING	18	Does not relate to Magnox reactor plant

Although the text content of major chapter on decommissioning methods and technologies is very detailed the conclusions are surprisingly general. Being in full as follows:-

" . . .

8. CONCLUSIONS

A significant amount of practical experience has been gained over the last 15 years in the wide range of technologies used in decommissioning nuclear facilities. Beginning with the decommissioning or dismantling of smaller plants and facilities, such as pilot or test reactors and small nuclear fuel cycle facilities or their constituent parts, there has developed a broad range of:

- *Decontamination techniques,*
- *Dismantling and cutting techniques for metal and concrete,*
- *Options for segmenting or shipping intact large components,*
- *Tool deployment and support systems,*

- *Waste management approaches.*

Over the last few years it has become apparent that an increasing number of large nuclear facilities worldwide have become candidates for decommissioning in the short term. For these kinds of facilities, a wide spectrum of measures and means are available which have been proven in previous decommissioning projects. However, for some nuclear facilities it is still necessary to have solutions related to special problems such as the management of graphite and sodium materials or alpha contaminated waste. Future R&D work will also be helpful in enhancing public acceptance before selecting any of the technologies identified in this report or before taking any course of action. Development in the field of international standards for clearance levels of materials and final site clearance is promising and will be of considerable assistance to practitioners. For planning decommissioning work, strategic factors should be taken into account, such as:

- *Policies and regulations*
- *Future use of the site*
- *Availability of a waste storage or disposal site*
- *Impact on other decommissioning operations.*

Preparatory work should be done before any planning or execution of decommissioning operations. This includes:

- *Assessing the availability and operational status of items such as cranes, radiation monitoring systems, ventilation systems and waste treatment facilities;*
- *Undertaking a survey of dose rates and contamination levels and their radionuclide composition.*

Only after this work has been carried out should the project staff consider the following items, which are the focus of this report:

- *Which methods are available and able to be used;*
- *Whether any additional R&D work is necessary for a given method;*
- *What the advantages and disadvantages of a measure or method are (e.g. the choice of a certain decontamination method based on its production of secondary waste and its cost effectiveness).*

Current technologies can cope with almost all the needs of decommissioning. This report helps familiarize the reader with the state of the art in such technologies. Some techniques still need R&D to enable them to reach maturity or to reduce dose uptake or the amounts of waste generated or the costs. Lessons learned through current or completed projects advise the reader of specific actions to take, or to avoid, when selecting or using technologies for particular applications.

. . ."

Overall this IAEA technical report is not particularly relevant to the general aims of the Timescales Working Group, although it includes an extremely comprehensive and up to date (1999) bibliography that covers most aspects of decommissioning. I have included the reference listing in this Review and emboldened **thus** those references that may be of interest to the TWG.

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