

2004 Scientific Forum - Session 2 Summary

The growth of nuclear power, while providing many benefits, has also contributed to an increasing global challenge over safe and secure waste and spent fuel management. Over the past fifty years, the world has come to better understand the strong interplay between all elements of the nuclear fuel cycle, global economics, and global security. The nuclear fuel cycle can no longer be managed as a simple sequence of technological, economic and political challenges. Rather it must be managed as a system of strongly related issues...waste and spent fuel management cannot be relegated to the back-end of the fuel cycle as only a disposal or storage issue. There exists a wealth of success and experience with waste and spent fuel management that can be forged together with a global systems perspective to lay the framework for the future.

The three keynote speakers and four panellists for session 2 (waste and spent fuel management issues) of the 2004 Scientific Forum reviewed related experience to date, including approaches from direct disposal to the closed cycle. Regarding the latter, reprocessing of irradiated power reactor fuel was noted to be a mature, commercially available technology. Experience to date has demonstrated that commercial reprocessing can be compatible with security and non-proliferation requirements. There has also been a continuing reduction in the volume of waste arising from reprocessing. This trend will continue with the implementation of improved technology and operating practices. R&D programmes to study the partitioning and transmutation of environmentally significant radionuclides are being pursued to further enhance the effectiveness of waste minimization programmes.

Regarding direct disposal, session 2 participants described significant progress to date. As described in the Director General's statement to the 48th session of the General Conference, Finland, the USA, and Sweden have all moved forward with their geologic disposal programmes. The majority of technological issues were noted to have been satisfactorily addressed, but social issues, including public acceptance and political endorsement remain problematic. Participants noted that safe and robust interim storage technologies are available to provide system flexibility while addressing longer term waste and spent fuel management issues.

Issues raised by the audience during the discussion period following the session presentations included the following:

-