



Summary Session I: Impact of P&T on Waste Management and Geological Disposal

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Summary

(Impact of P&T on Waste Management) (1/3)

4 orals : H. Oigawa, E. Gonzalez, J-O. Liljenzin
+ R. Moore (was canceled)
3 posters : CIEMAT, FZD, Tohoku U.

Progress and Prospects

- **Separation of main heavy metals (U, Pu) and heat bearing components (e.g. Cs, Sr, Am) before disposal increases the repository capacity (3-100 times) in certain geological media.**
- **Storage of Cs and Sr for 100-300 years in specialized (calcinated) waste forms is recommended. Due to the long-lived Cs-135 isotope, after storage, disposal would be required.**
- **Transmutation/burning of separated MA (in ADS or FR) reduces the 'long-term burden' on repositories. This may aid the GD community in securing a 'broadly agreed political consensus' of waste disposal in geological repositories.**
- **Transmutation of MA has also a favorable impact in the unlikely occurrence of 'human intrusion scenarios'.**
- **The maximum eventual dose to human beings from geological repository in 'normal scenarios' is likely to be due to fission products though evidence is appearing that MA also can be mobile under certain conditions.**



Summary

(Impact of P&T on Waste Management) (2/3)

Challenges

- **Advanced partitioning processes are to be reinforced towards pilot and test facilities for optimized separation processes leading ultimately to industrial facilities requiring strong political support and huge financial and human resources.**
- **Dedicated efforts have to be made in developing and selecting low activation materials in reducing the intermediate level waste and reducing secondary waste streams in the processes of P&T so that it does not put undue burden on the safe disposal of additional waste produced.**
- **Cooperation of GD community in accepting the fact that P&T community exists and achieving a close cooperation between the two communities in defining unified and coherent systems is the biggest challenge on the horizon.**



Summary

(Impact of P&T on Waste Management) (3/3)

Recommendations

- **The GD community should take into account the requirements and accommodate the waste streams emanating from the advanced (MA) reprocessing systems and support development of appropriate waste forms for geological disposal.**
- **Keeping in mind the natural decay of nuclear material, a careful roadmap and planning (taking account of the time needed for regulatory authority approvals) should be made so that there is no mismatch between the schedules of partitioning, transmutation and disposal technologies.**