Low Level and Mixed Low Level Waste Treatment Technology Identification

U.S. Department of Energy
Environmental Management Office of Waste Management

The mission of the U.S. Department of Energy (DOE) Office of Environmental Management (EM) is to complete the safe cleanup of the environmental legacy brought about by five decades of nuclear weapons development and government-sponsored nuclear energy research.

To support DOE-EM in its mission, the Office of Waste Management (EM-30):
• Performs program management functions to identify and advance strategies to plan and optimize EM waste management projects and processes.
• Identifies and implements strategies and technical practices that improve the performance, costs and schedule and reduce the technical risk of EM projects.
• Supports implementation of EM waste and materials disposition activities and provides the complex-wide integration of operational disposition activities.
• Ensures safe and efficient packaging and transportation systems necessary to achieve waste and materials disposition EM-wide.

Objective

Develop concise information describing current and historical United States (U.S.) commercial low-level waste (LLW) and mixed low-level waste (MLLW) treatment capabilities to support exchanges on U.S. and international treatment capabilities, with a particular focus on technologies to address orphan (challenging) waste streams that lack a disposition path.

Historical Companies & Their Technologies

The 1996 report "Review of Private Sector and Department of Energy Treatment, Storage, and Disposal Capabilities for Low-Level and Mixed Low-Level Waste" summarized the current and near-term private sector vendor capability for the treatment, storage, and disposal of low-level and mixed low-level waste in 1996. The table shows the information currently available regarding each of those private sector vendors.

Present Technologies

Surveys were sent out to the 5 private sector vendors to gather specific details on available technologies.
1. Pema-Fix Environmental Services, Inc.
2. EnergySolutions
3. Studsvik, Inc.
4. Waste Control Specialists LLC
5. PhiloTechs

A list of the U.S. waste categories and international waste categories were provided. The vendor marked off which waste categories they would have the means to treat on site.

Conclusion

• This information will be useful for future collaborations with international partners to determine common challenging untreatable waste streams and to work together to develop technologies to treat and continue disposal.
• The U.S. has been able to learn from past challenges and improve the development of new technologies. Many countries can benefit from our lessons learned.
• The five companies surveyed provide the main treatment options for the U.S. DOE waste streams. It is vital that as disposal of LLW and MLLW continues, these companies take part in the collaboration of technology development to meet U.S. DOE waste treatment and disposal demands.

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