IAEA Technical Meeting on Remediation Strategies and Long Term Management of Radioactive Waste after Accidental Radioactive Releases to the Environment

20th anniversary of the Goiânia accident
Mendes Convention Center
Santos, SP, Brazil
3–5 October 2007

Safety and operational considerations on the long term storage of Radioactive Wastes generated from decommissioning and decontamination activities

Benitez-Navarro J.C.; Salgado-Mojena M.

Center for Radiation Protection and Hygiene, CPHR, CUBA

Radioactive wastes from decontamination activities

Radioactive wastes in Cuba are generated from nuclear applications in medicine, industry and research. Decommissioning and decontamination (D&D) wastes constitute the mayor inventory (>60%) of solid radioactive waste stored in the facility. They are non-compressible solid wastes, mainly contaminated soil and concrete debris (around 20 m^3). They were generated during the decommissioning of a former brachytherapy facility.

Storage facility

- ✓ Located in a sparsely populated region, 25 Km from Havana city;
- ✓ Construction above the original ground surface as an earth-covered mound;
- ✓ The design includes the use of engineered barriers, according to the site-specific conditions;
- ✓ Concrete building with two compartments (21m x 6m x 4.5m).

Safety Aspects

- ✓ Licensed installation;
- ✓ Waste form, containers are stables & resistant to degradation;
- ✓ Waste storage environment adequate;
- ✓ Monitoring & maintenance (for safety) minimized;
- ✓ Need for human intervention for safety minimized;
- ✓ Storage building resistant (hurricanes, flooding, impacts);
- ✓ Waste packages are easily retrievable for inspection or reworking
- ✓ Adequacy of the storage capacity is periodically reviewed;
- ✓ Designed on the basis of the assumed conditions for its normal operation and assumed incidents or accidents;
- ✓ Safety assessment performed & will sooner be re-evaluated;
- ✓ Adequate security and access controls are implemented.

Operational Aspects

- ✓ Received wastes are carefully inspected and monitored;
- ✓ Wastes placed in the adequate containers and registered in the corresponding record;
- ✓ Waste characterization (radionuclide, exposure, contamination, activity measurement or estimation);
- ✓ Application of clearance;
- ✓ Minimizing of waste volume for long term storage;
- ✓ Visual inspection and control of radioactive contamination levels on waste packages and the storage zones;
- ✓ Quality Management System has been implemented;
- ✓ Wastes are packaged in passive, safe, monitorable and retrievable interim storage.

Conclusions

- ✓ Final option for the management of RadWaste in Cuba has not been defined yet. All RadWastes arising from nuclear applications and decontamination/decommissioning activities are being processed and stored at WTSF. There's continued reliance on interim storage;
- ✓ Radioactive wastes arisen from decontamination activities were collected, detailed characterized and stored in a safe manner;
- ✓ Sound operational practices and administrative controls are applied in the operation of the centralized storage facility for RadWaste.

CPHR
CENTRO DE PROTECCION E HIGIENE DE LAS RADIACIONES

Centre for Radiation Protection and Hygiene
Nuclear Energy Agency
Havana, Cuba
e-mail: benitez@cphr.edu.cu