

## What is GTCC LLRW and GTCC-Like Waste?

- ▶ Greater-Than-Class C Low-Level Radioactive Waste (LLRW) is generated by Nuclear Regulatory Commission (NRC) and Agreement State licensees and has radionuclide concentrations that exceed the NRC's limits for Class C LLRW.
- ▶ GTCC-like waste is generated or owned by the Department of Energy (DOE) and consists of LLRW and potential non-defense-generated transuranic waste that has characteristics similar to GTCC LLRW and for which there may be no disposal path.
- ▶ GTCC LLRW and GTCC-like waste are comprised of three waste types:
  - **Activated metals** from decommissioning of nuclear power reactors;
  - **Sealed sources** used in medical diagnostics and treatments, research, and for industrial purposes; and
  - **Other Waste** from a wide-range of activities, such as commercial production of radionuclides for cancer treatment, DOE production of radioisotope power systems for space exploration, and commercial/DOE environmental cleanup.



## How much GTCC waste is there in the United States?

- ▶ GTCC LLRW and GTCC-like waste is a relatively small volume of waste but has relatively high concentrations of radionuclides.
- ▶ 12,000 cubic meters at 160 megacuries.
- ▶ 75 percent of the waste in the Draft Environmental Impact Statement inventory is GTCC LLRW generated by NRC and Agreement State licensees.
- ▶ 25 percent is DOE GTCC-like waste.
- ▶ The total volume of GTCC waste currently in storage is approximately 1,100 cubic meters; over the next 60 years, the Draft EIS estimates that on average, an additional 175 cubic meters will be generated each year from commercial and DOE activities. There is a current need for disposal of certain disused sealed sources, which, when determined to be waste, meet the criteria for GTCC LLRW. They represent approximately 24 percent of the total GTCC inventory. The lack of disposal pathways for sealed sources presents a national security concern.



Cesium-137 irradiator

## Security Issues Associated with GTCC LLRW:

- ▶ **Certain disused sealed sources are a national security concern because of their potential to be used by terrorists in a “dirty bomb.”**
- ▶ Located in hospitals, universities, and industries throughout the United States.
- ▶ Widely used in equipment to diagnose and treat illnesses (particularly cancer), irradiate blood for transplant patients, explore geologic formations for oil and gas, and other beneficial purposes.
- ▶ Commonly consists of concentrated radioactive materials encapsulated in small metal containers.
- ▶ Radionuclides commonly used in sealed sources include cesium-137, americium-241, and plutonium-238.
- ▶ The DOE Global Threat Reduction Initiative/Offsite Source Recovery Project recovers, stores, and as appropriate, disposes of, many disused sealed sources in response to national security or public health and safety threats.
- ▶ Many disused sealed sources remain in storage at commercial licensee sites. While secure storage is a temporary measure, the longer sources remain disused or unwanted, the chances increase that they will become unsecured or abandoned. Thus, permanent disposal is essential.



*Radioactive sealed sources*



## A Permanent GTCC Disposal Capability Responds to National Security Concerns

There is high-level concern that unwanted sealed sources found at hospitals, universities, construction sites, and other locations throughout the U.S. could be used in a dirty bomb. According to the U.S. Radiation Source Protection and Security Task Force (comprised of 14 federal agencies and two state organizations), “providing disposal methods for GTCC waste will have the greatest effect on reducing the total risk of long-term storage for risk significant sources.”

<http://www.nrc.gov/security/byproduct/task-force.html>



**EM Environmental Management**

safety ❖ performance ❖ cleanup ❖ closure

[www.em.doe.gov](http://www.em.doe.gov)