

Department of
**Environment &
Conservation**


Division of Radiological Health

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NRC Regulatory Information Conference

Evaluation and Release of Extremely
Low Levels of Material to Solid Waste
Class 1 (Subtitle D) Landfills




TN Licensed Process

Tennessee has a Licensed Process That Has Been Approved By
The Tennessee Department Of Environment And
Conservation (TDEC) Division of Radiological Health To Allow
The Disposal Of Materials With
**EXTREMELY LOW LEVELS OF
RADIOACTIVE MATERIAL**
In Class I (Subtitle D) Landfills




The term used generically in Tennessee for this process is

BULK SURVEY FOR RELEASE (BSFR)




TN Licensed Process

- Tennessee's Bulk Survey for Release (BSFR) program was developed in order to have a standardized process to analyze materials with extremely low levels of radioactive contamination for disposal in specified Class I landfills.
- By allowing waste that does not pose any significant risk to be disposed of under the BSFR program, space in the limited number of LLW disposal facilities can be conserved for the material that truly requires that type of disposal.



TN Licensed Process

- State Regulations for Protection Against Radiation (SRPAR) 0400-20-05-.121 - Methods for Granting Approval of Alternative Disposal Procedures
- Based on NRC rule 10 CFR 20.2002.
- These levels of contamination, while detectable with modern equipment, pose no hazard to human health or the environment by being disposed of in this manner.



TN Licensed Process - Computer Modeling

- For each radionuclide and concentration requested, perform and submit an analysis verifying that the dose, to the maximally exposed individual, will not exceed **1 millirem per year (mrem/yr) total effective dose equivalent (TEDE)**.
- At a minimum, the external, inhalation, and soil pathways shall be analyzed and it shall be assumed that working face employees are on the landfill 25% of the year



TN Licensed Process - Computer Modeling

- A separate analysis shall be submitted for each operation identified above and shall include the delivery driver, landfill workers affected and post landfill use, as outlined, using the most current RESRAD computer code.
- For each analysis, use the entire useable disposal area of the landfill beginning when the conditional disposal program started.



Special Waste classification

TN Division of Solid Waste Management regulates landfills

The Extremely Low Material waste is "special waste"

- Approval process:
 - Applicant identifies proposed disposal facility
 - Applicant provides information/data on waste (volume/analytical)
 - Receive written approval from TN Division of Solid Waste Management



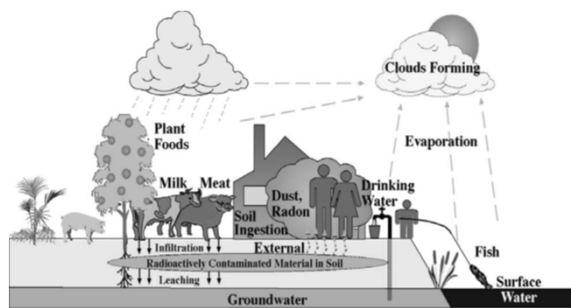
The Process – Computer Modeling

Computer Modeling

Computer Modeling

RESRAD Is A Computer Program Used To Evaluate The Potential Doses From Radioactive Material In The Ground

RESRAD



The Process

How Does the Evaluation Process Work?



The Process

1. Material Is Analyzed At Each Generator's Site For The Chemical Constituencies And To Identify Each Radionuclide And Its Activity (pCi/g).
2. The Material Is Then Shipped According To U.S. Department Of Transportation (USDOT) Regulations To A Processor.



The Process

3. At The Processor Each Package Is Analyzed Again To Verify The Radionuclides And Their Associated Activities (pCi/g).
4. This Analysis Allows The Processor To Determine If The Material Meets The Predetermined Limits Authorized In Their Radioactive Material License For Evaluation and Release for Disposal.



The Process

5. If The Material Meets The Predetermined Licensed Authorized Limits And The Container Surface Dose Rate Limits And Does **Not** Meet The USDOT Definition For Radioactive Material It Is Then Shipped To The Preauthorized Landfill.



The Process

6. At the Landfill The Material Goes Through A Final Check.

Only After It Passes The Final Check Is It Disposed In The Landfill.



