

Tennessee House of Representatives
Summer Study Session on
Radioactive Waste in Landfills
November 16, 2009

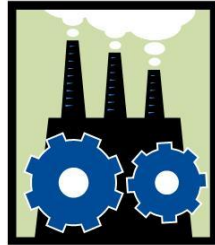
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for
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Citizens to ENDIT— End Nuclear Dumping in Tennessee
Tennessee Conservation Voters



FROM U.S. AND INTERNATIONAL
NUCLEAR REACTORS



TO NUCLEAR PROCESSORS
IN TENNESSEE



INTO TENNESSEE'S
AIR, SOIL, AND WATER



TO THE
FAMILIES OF TENNESSEE



Radioactive Waste

- **High Level Radioactive Waste**

Irradiated (spent) Fuel

Liquid and Sludge from Reprocessing

Solidified Reprocessing Liquid

-- can give a lethal dose unshielded in seconds.

- **So-called “Low-Level” Radioactive Waste, not “low risk”**

Filters, resins and sludges from cleaning the cooling water

-- can give a lethal dose unshielded in 20 minutes.

Activated metal pipes and components

Control rods, poison curtains, racks that hold the fuel and entire reactors

Concrete basemats and containment domes

Dry radioactive waste

The same **plutonium, cesium, strontium, iodine and other atoms** are high level in the fuel but “low-level” when they leak out.

Who makes “low-level” radioactive waste?

- The majority of RADIOACTIVITY in “low-level” radioactive waste comes from nuclear power and the **nuclear power** fuel chain. It is long-lasting.
- Department of Energy **nuclear weapons** wastes are also called “low-level.”
- Commercial wastes from industry, mining, research and medicine comprise a much smaller portion of the radioactivity in commercial “low level” waste. Medical wastes are generally very short lasting and very low amounts.

“Low-Level” Radioactive Waste Classes

- Commercial “low-level” radioactive waste is broken down into Classes A, B, C and Greater-Than-Class-C (GTCC or >C), based on concentrations designated in federal regulation.
- **Class A is least concentrated** but includes all the radionuclides.
- **Class B and C** are more concentrated than A.
- **Greater-Than-Class-C** is even more concentrated.

Where Nuclear Waste Goes/Went

→ 4 closed waste disposal sites (NV, IL, KY, NY)

→ 2 open waste disposal sites (SC, WA) -accept waste from generators in the Northwest, Rocky Mountain and Atlantic compacts...Not from TN.

→ All 6 have leaked and/or are leaking.

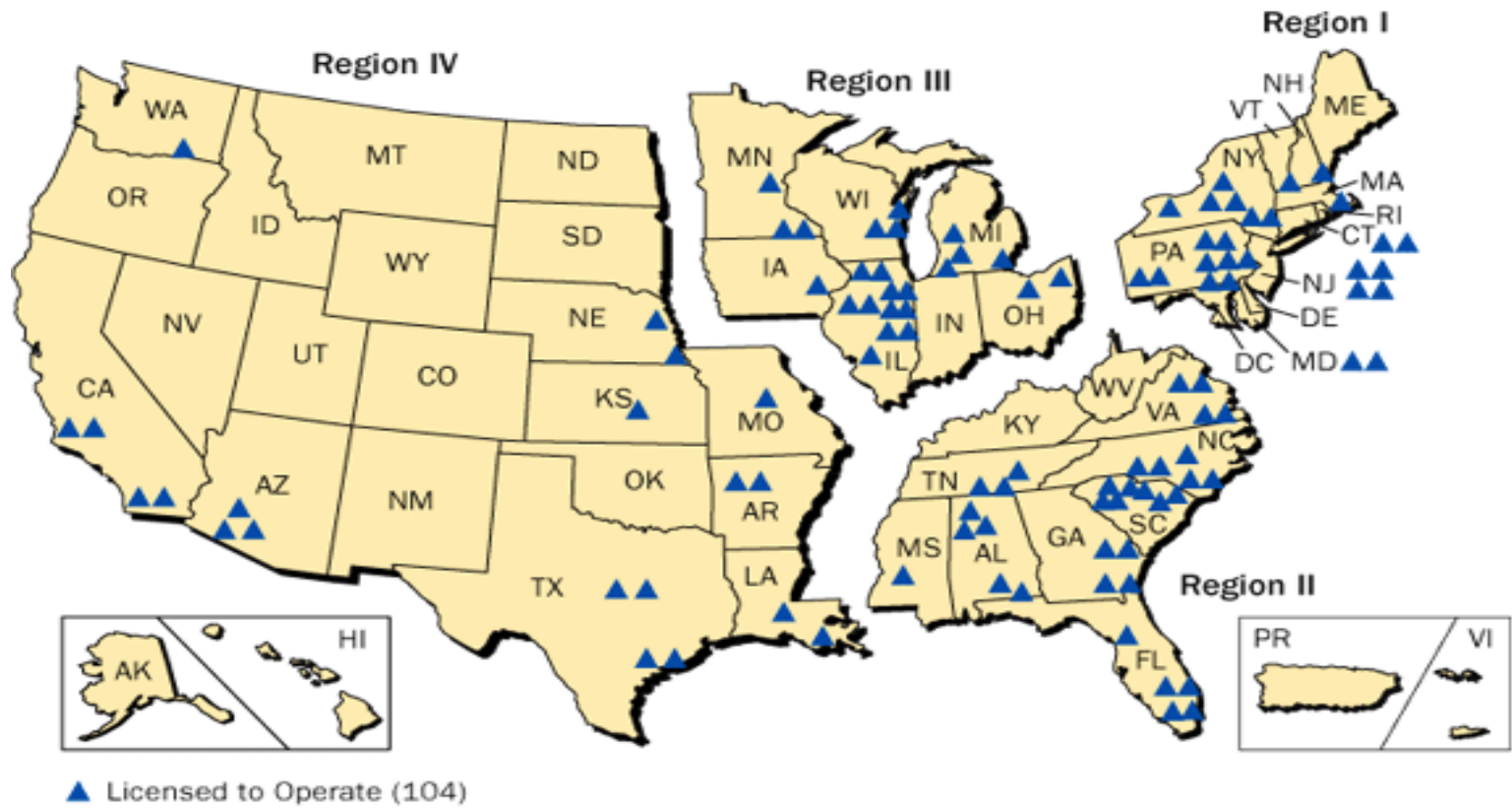
→ 1 open waste disposal site in Clive, Utah - accepts essentially Class A waste from all states except the Northwest Compact; TN can send A waste

→ Tennessee nuclear waste processors.

TN Radioactive Waste Processors across the state

- EnergySolutions, Oak Ridge and Memphis
- Studsvik and Studsvik RACE Erwin and Memphis
- Impact Oak Ridge
- ToxCo Oak Ridge
- PermaFix Kingston and Oak Ridge
- Aerojet Jonesborough
- Nuclear Fuel Services Erwin
- Philotechnics Oak Ridge
- Bionomics Oak Ridge
- And several others

51 of the 103 operating US nuclear power reactors are now contracted to send their nuclear waste to Studsvik in Erwin &/or Memphis Tennessee. Studsvik is also contracting to take ownership to waste from proposed new reactors starting with Calvert Cliffs in Maryland.



- EnergySolutions, Oak Ridge and Memphis
 - Imports waste to “downblend” to lower concentration so it can be disposed in Utah which only takes Class A
 - Physically and chemically processes waste
 - Has permits to send to solid waste landfills
- Studsvik and Studsvik RACE, Erwin and Memphis
 - Physically process and PYROPROCESS all classes of radioactive waste
 - Have permits to send to solid waste landfills

Both reportedly **take Title to and Liability** for the nuclear waste they bring in and process even though some has no guaranteed disposal pathway.

Processors that Heat Treat

- EnergySolutions in Oak Ridge 2 incinerators
- DSSI PermaFix in Kingston radioactive and mixed waste boiler
- Aerojet in Jonesborough DU burning
- Studsvik in Erwin pyroprocessing
- IMPACT in Oak Ridge -Proposed pyroprocessing

- In addition the Dept of Energy runs the DOE's only radioactive and mixed waste incinerator (TSCA incinerator) at Oak Ridge

Processors with TDEC permits to FREE RELEASE radioactive waste to unregulated places

- Studsvik
- EnergySolutions
- Impact
- ToxCo
- Philotechnics
- Need update from TDEC re possible others

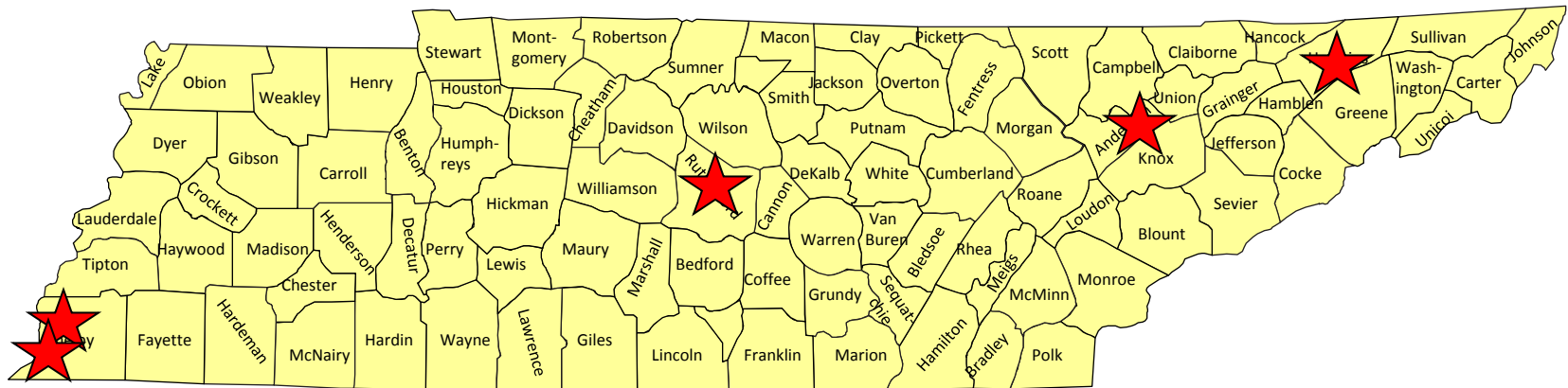
Nuclear Waste Can Get into Landfills via Processors

- Approx a dozen Processors, bringing waste in to TN to be burned, heat treated, grit blasted, chopped, mashed, shredded, melted, and otherwise “processed” and/or deregulated via BSFR BWAP VCD
- TDEC developed procedures to streamline nuclear waste release from control
- BSFR Bulk Survey for Release; BWAP Bulk Waste Assay Program; VCD Volumetric Clearance for Disposal are some of the ways TDEC lets processors send nuclear waste to destinations not regulated for nuclear—like landfills
- 5 Landfills licensing taking the deregulated radioactive waste

Landfills taking Nuclear Waste Permitted by TDEC Solid Waste Division

- Middle Point, BFI Allied, Rutherford County
(reportedly not taking nuclear waste for now)
- North Shelby, BFI Allied, Shelby County
- South Shelby, BFI Allied, Shelby County
- Chestnut Ridge, Waste Management,
Anderson County
- Carters Valley, BFI Allied, Hawkins County

TDEC currently allows nuclear waste to be routinely dumped into five* TN solid waste landfills.



* One of these is voluntarily not taking BSFR for now.

What is going into TN landfills?

There is **no limit** on the kind of radionuclides that can go to the solid waste landfills in TN (can be Pu, Sr, Cs etc). Presumably the wastes are from Class A.

Some of the wastes that went in 2007 were:

- blasting grit used to clean reactor head studs in nuclear power plants; blasting grit from nuclear facilities
- water treatment resins from nuclear power plants
- C&D/Low-Level Soil from nuke facilities
- waste generated w/in radiological restricted areas
- dry radioactive waste
- Poly Ion Exchange Resin

Origin of Nuclear Waste Coming to TN Processors and/or Landfills

Nuclear waste has come to TN from generators in (including but not limited to):

California, Washington, Michigan, Connecticut, New York, many others

Possibly from all nuclear reactors in the US
PROPOSED to come from Italy, and if approved, from other foreign countries.

Action Needed

- Review and stop TDEC licensing and permitting that opens the state to nuclear waste from across the country and around the world.

More information

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- Tennessee Environmental Council
- Tennessee Conservation Voters
- Citizens to End Nuclear Dumping In Tennessee