How does the WIPP shutdown impact New Mexico, Idaho, and South Carolina?

Don Hancock
Southwest Research and Information Center

Beatrice Brailsford
Snake River Alliance

Tom Clements
Savannah River Site Watch

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DEEP TROUBLE
The Waste Isolation Pilot Plant is carved out of a layer of salt that will eventually encapsulate the stored low- and medium-level nuclear waste. It consists of eight waste-disposal panels at the southern end, where the accident occurred, and a smaller experimental wing at the northern end.

Experimental area includes labs studying waste science, mass of the neutrino and dark matter.

The waste-disposal panels hold almost 90,000 cubic metres of waste.

The 14 February accident occurred in panel 7 of the waste-disposal area.

Filled  Active disposal  Mining under way
WIPP’s Mission

• “Start Clean, Stay Clean” to dispose of up to 175,564 m$^3$ of defense transuranic (TRU) waste
• Safely transport waste through more than 20 states without serious accidents or releases
• Safely clean up TRU waste at DOE sites
• Safely close, decontaminate, and decommission the WIPP site beginning in about 2030 or earlier
11,894 truck shipments from 12 sites
  INL-5,844 (49%); SRS-1,654 (14%); LANL-1,344 (11%)
90,627 m$^3$ of CH waste emplaced
  INL-42,744 (47%); SRS-17,507 (19%); LANL-9,162 (10%)
  641 m$^3$ of RH waste emplaced
  INL-324 (51%); SRS-38.3 (6%); LANL-14.2 (2%)
171,064 waste containers emplaced
Panels 1-6 filled; Panel 7 - 276 containers
19 shipments from LANL, SRS, INL;
  145 m$^3$ of CH waste on surface
Idaho’s grassroots nuclear watchdog and advocate for clean energy
INL, Idaho, and Idaho’s Water
Primary Missions

Commercial nuclear reactor R&D
Nuclear navy testing and training
Nuclear weapons waste disposal
Nuclear weapons reprocessing

Cleanup
High-Level Waste
Source: Idaho National Engineering and Environmental Laboratory.
STOP THE SHIPMENTS
Idaho needs nuke waste

Like turkeys need Christmas
Savannah River Site: Nuclear Waste and Plutonium Chaos

Tom Clements, Director, Savannah River Site Watch, www.srswatch.org, Columbia, South Carolina
SRS yearly clean-up budget around $1.3 billion; on January 27, 2015, DOE revealed estimated “clean-up” cost of Savannah River Site (310-square miles) waste has soared $25 billion to total of $91 to $101 billion, with site clean-up completion delayed another 23 years, from 2042 to 2065 --- this will impact cleanup at and other DOE sites; “closure” of 51 high-level tanks at SRS is urgent and most costly aspect of the waste management program
From mid-1950s to 1988, 5 defense reactors produced 36 MT of plutonium and all the tritium for US nuclear weapons
One reprocessing plant - H-Canyon – remains operable at SRS; at 60 years old, it is the last such facility in the DOE complex
SRS stores 12.8 metric tons of “surplus” weapon-grade plutonium, in “3013” cans
SRS processes all tritium for US nuclear weapons; tritium produced in a commercial reactor in TN.
SRS had 51 high-level waste tanks, 7 now “closed;” almost 4000 canisters filled with vitrified waste
Cesium- liquid from HLW tanks to be processed through “Salt Waste Processing Facility” (SWPF) with by-product mixed with concrete and poured into large vaults and left on site.
Mixed oxide plutonium fuel (MOX) project far over budget and behind schedule
Surplus weapons plutonium packaged at SRS, for disposal in WIPP
SRS legacy TRU waste problem, created by production of 36 MT of plutonium in 5 defense reactors, has mostly been shipped to WIPP – “Reduced the legacy TRU waste stored at SRS from over 12,000 cubic meters to 615 cubic meters today” – SRS official to SRS Citizens Advisory Board, May 20, 2014
But, big trouble ahead with TRU waste at SRS as “newly generated” (future) TRU waste - much of that from plutonium disposition - could be as much as the “legacy” amount; will strain WIPP capacity and impact other DOE sites.
Failure to follow criticality procedures in H-Canyon while preparing plutonium for MOX project on Sept. 3, for 2\textsuperscript{nd} time in 2015, caused halt on Sept. 11 to all “non-essential” operations by main contractor.
Future of SRS – Import of nuclear materials under guise of non-proliferation?
Chaos at SRS

- MOX project costs estimates run to $100 billion and would not conclude until the next century if host of problems can be overcome;

  - H-Canyon closed for second time this year and no clear plan for restart;

- Salt Waste Processing Facility costs estimate has soared from $900 million to $2.3 billion, start-up delayed 5 years and unclear if it can operate;

  - Number of high-level waste canister being filled has dropped to 100/year, far below capacity and funding is at risk;

- all future tank closure “milestones” with South Carolina regulator are now on track to be missed – is DOE’s plan to do less and less “clean-up?”
Tom Clements
Director, Savannah River Site Watch (SRS Watch)
www.srswatch.org
Columbia, South Carolina
tel. 803-834-3084 --- srswatch@gmail.com
Los Alamos National Lab (LANL)

Pit 22, Area G looking southeast, January 14, 1976

Pit 24, Area G looking west, November 8, 1973

• Before the mid-1990s, the waste was typically placed into the pits in lifts; each layer of waste was covered with crushed tuff and compacted using heavy equipment.
Area G
32 pits, 194 shafts

Figure 1.0.3 Area G waste disposal units

Courtesy: Nuclear Watch New Mexico
LANL TRU WASTE

Stored CH TRU in WIPP Inventory - 6,520 m$^3$
Stored RH TRU in WIPP Inventory - 79 m$^3$
Stored at Waste Control Specialists - 372 m$^3$

LANL operations generate more TRU waste that’s not in the WIPP inventory
126 containers in FY 14 not shipped to WIPP
71 containers in FY 15
364 containers (113 m$^3$) in TA-55
More than 8,000 feet of contaminated tunnels
WIPP Capacity in Panels 7 & 8

Panel 7
CH-TRU = ~ 16,000 m³
RH-TRU = 0 in canisters

Panel 8
CH-TRU = 18,750 m³
RH-TRU = 650 m³ in canisters

Total CH-TRU = 34,750 m³
Capacity shortfall = 27,310 m³
Total RH-TRU = 650 m³
Capacity shortfall = 2,971 m³ or 4,941 m³
Why re-open WIPP?

- For all WIPP existing TRU waste
- Expand WIPP for:
  - Hanford high-level tank waste
  - Greater-Than-Class C waste
  - West Valley, NY commercial waste
  - Surplus weapons-grade plutonium
  - Mercury surface storage
  - TRU waste surface storage
  - Heater tests for high-level defense waste
What You Can Do

• Let policymakers know about your concerns about expanding WIPP’s mission and about the safety of WIPP.

• Educate and organize your friends and neighbors.

• Write letters to the editor

• Request NMED and DOE to have a public process to determine what permit modifications are required.
Website Information Sources

DOE WIPP Recovery:
http://www.wipp.energy.gov/WIPPRecovery/Recovery.html

NM Environment Dept. WIPP Documents:

EPA WIPP webpage:
http://www.epa.gov/radiation/wipp/index.html

SRIC website:
http://www.sric.org

Snake River Alliance website:
http://www.snakeriveralliance.org

SRS Watch website:
http://www.srswatch.org
Contact Information

Don Hancock
Southwest Research and Information Center
PO Box 4524
Albuquerque, NM 87196-4524
(505) 262-1862    www.sric.org
sricdon@earthlink.net

Beatrice Brailsford
Snake River Alliance
PO Box 425
Pocatello, ID 83204
(208) 233-7212
bbrailsford@snakeriveralliance.org       www.snakeriveralliance.org

Tom Clements
SRS Watch
1112 Florence Street
Columbia, SC 29201
(803) 834-3084
srswatch@gmail.com   www.srswatch.org