# Challenges at the Waste Isolation Pilot Plant (WIPP) & Impacts on DOE sites

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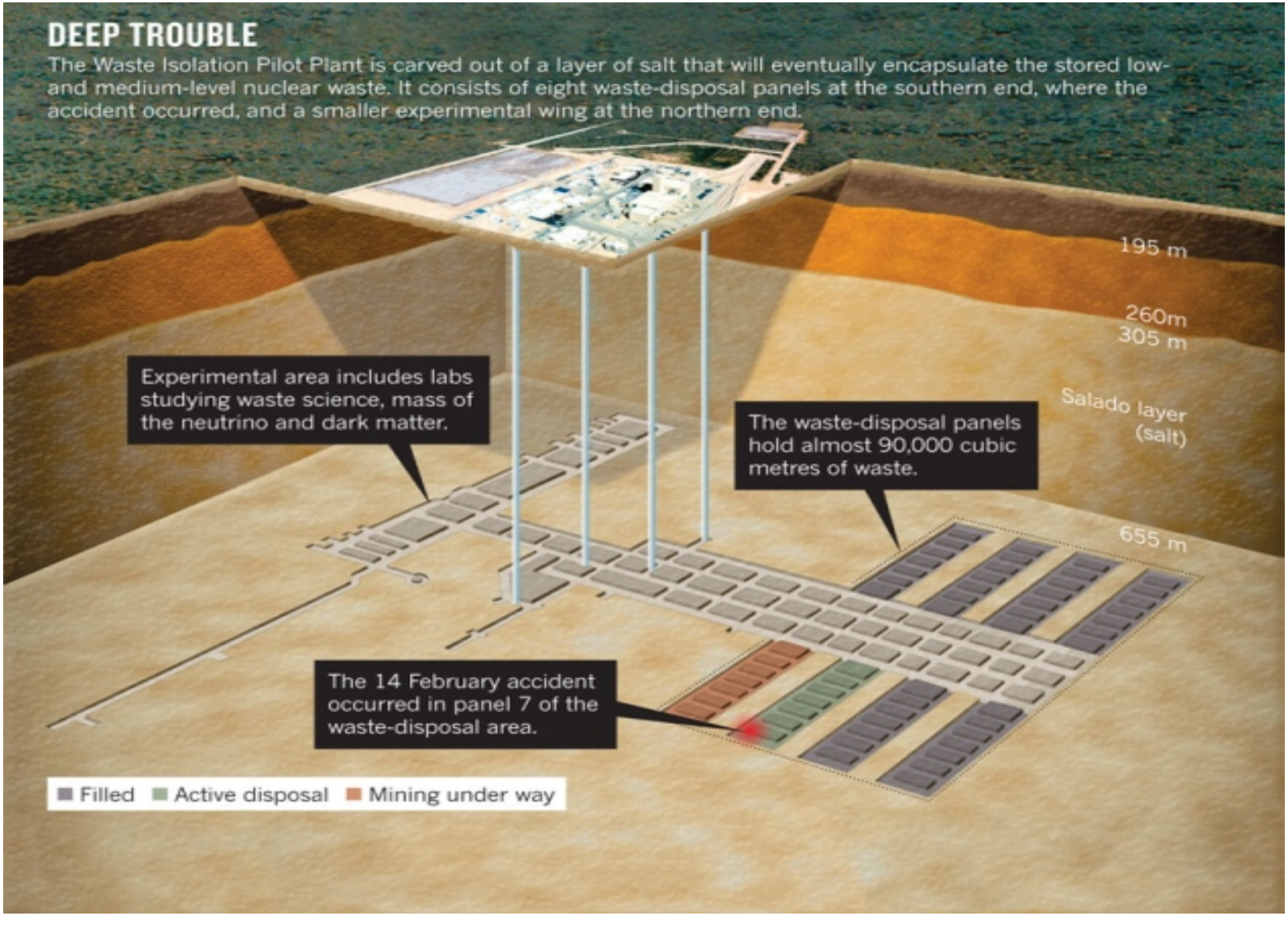
Additional funding from:
Community Involvement Fund
of the New Mexico Community Foundation


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.
195 m
260m
305 m
Salado layer (salt)
655 m
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 TRU 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 2033 or earlier

# WIPP - 3/26/1999 - 2/5/2014

- 11,894 truck shipments from 12 sites
  (1,654 from SRS or 14%)
- 2 shipments returned (INL and LANL)
- 90,627 $m^3$ of CH waste emplaced
  (SRS 17,507 $m^3$ or 19%)
- 641 $m^3$ of RH waste emplaced
  (SRS 38.3 $m^3$ or 6%)
- 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

# WIPP Transportation Routes

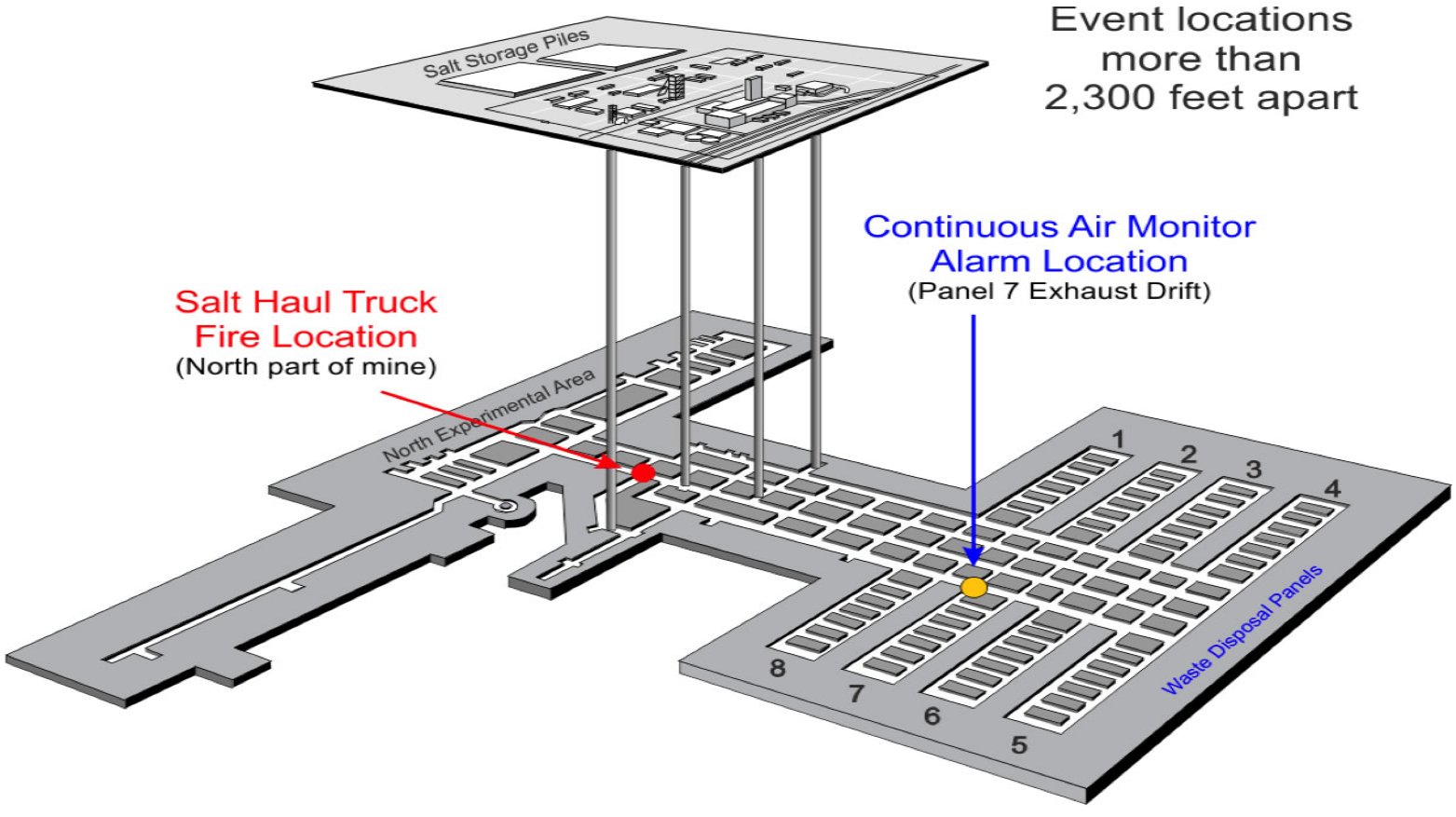
# Fire on February 5, 2014

Feb. 5. 2014 Smoke comes out the Salt Shaft

# Fire Results

- 13 workers treated for smoke inhalation of 86 underground
- At least 1 worker still being treated; disabled & suing the contractors
- Waste Hoist out of service because of soot; 11 months+ to clean
- Pervasive lack of maintenance, equipment replacement, worker training, emergency response, and mine safety practices

# Radiation release



# DOE stated

- “No personnel contamination has been identified” - 2/15 at 2:49 pm
- “No contamination has been found on any equipment, personnel, or facilities” - 2/15 at 9:17 pm
- “No surface contamination has been found on any equipment, personnel or facilities” - 2/16 at 6:32 pm
- “DOE emphasizes there is no danger to human health or the environment” - 2/16 at 6:32 pm

# Night Workers on Valentine's Day

- 13 on the surface - all internally contaminated
- Bioassay testing requested on February 19; Workers notified of contamination on February 26
- No more urine, fecal, and whole body count testing
- Apparently, no medical treatment being provided
- No screening of vehicles, homes, family members

# Workers on February 15

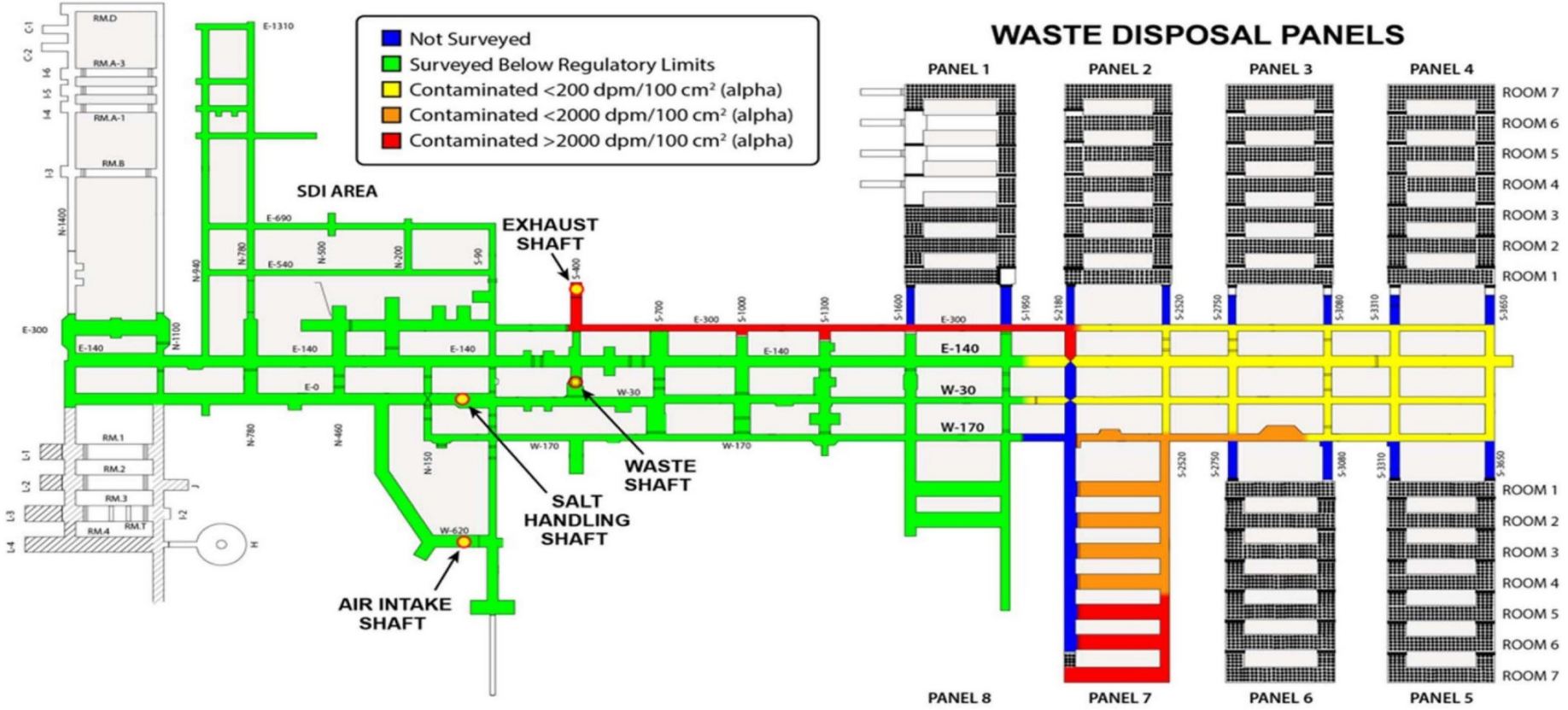
- More than 135 reported for work
- Four were notified of contamination on March 9
- Four others were notified on March 27
- On May 15, DOE announced that 22 workers were contaminated as determined by fecal tests (21) and urine sampling (1) with < 10 millirem
- Apparently no medical treatment being provided
- No screening of vehicles, homes, family members

# Room 7, Panel 7 in May 2014

# Breached drum LA68660 in Room 7, Panel 7


All workers in contaminated areas must wear full personal protection equipment (PPE)

# More than 8,000 feet of contaminated tunnels



# Among the many things unknown

- What caused the release
- What caused some contaminants to travel more than 1.5 miles
- What radionuclides and what toxic chemicals in what amounts were released
- What decontamination is needed of the underground if WIPP is to re-open
- How would workers be protected in the contaminated underground
- How would future releases be prevented

# Volume Discrepancies of TRU Waste at SRS to go to WIPP

537 $m^3$ of TRU legacy waste stored
3,980 $m^3$ (estimated) of newly generated TRU = 4,497 $m^3$ total
- Olsen Presentation to SRS CAB, January 27, 2015

842.1 $m^3$ of TRU legacy waste stored
7,516.6 $m^3$ TRU waste projected = 8,358.7 $m^3$ total
which includes:
3,948.7 - SR-T001-WSB-1
2,729.4 - SR-W026-MFFF-1
515.4 - SR-W026-WSB-2
- WIPP Annual TRU Waste Inventory Report - 2014
(Data as of December 31, 2013)

# CH-TRU Waste at other DOE sites

| | |
|---|---|
| INL – ID | 24,100 $m^3$ |
| Hanford – WA | 19,800 $m^3$ |
| Los Alamos – NM | 6,520 $m^3$ |
| Oak Ridge – TN | 1,150 $m^3$ |
| Livermore - CA | 996 $m^3$ |
| Knolls – TN | 771 $m^3$ |
| Argonne – IL | 175 $m^3$ |
| Nevada NSS | 143 $m^3$ |
| Sandia – NM | 51 $m^3$ |
| Material & Fuels – IL | 31 $m^3$ |
| NRD – NY | 3 $m^3$ |
| Lawrence Berkeley - CA | <1 $m^3$ |

Total = 53,740 $m^3$

- WIPP Annual TRU Waste Inventory Report - 2014
(Data as of December 31, 2013)

# RH-TRU Waste at other DOE sites

| | |
|---|---|
| Hanford - WA | 2,860 $m^3$ |
| Oak Ridge - TN | 432 $m^3$ |
| Idaho National Lab | 208 $m^3$ |
| Material & Fuels - IL | 93 $m^3$ |
| Argonne - IL | 84 $m^3$ |
| Los Alamos - NM | 79 $m^3$ |
| Knolls - NY | 15 $m^3$ |
| Sandia - NM | 9 $m^3$ |
| Bettis - PA | 5 $m^3$ |

Total = 3,785 $m^3$

- WIPP Annual TRU Waste Inventory Report - 2014 (Data as of December 31, 2013)

# WIPP Capacity in Panels 7 & 8

Panel 7
CH-TRU = ~ 16,000 $m^3$
RH-TRU = 0 in canisters

Panel 8
CH-TRU = 18,750 $m^3$
RH-TRU = 650 $m^3$ in canisters

Total CH-TRU = 34,750 $m^3$
Capacity shortfall = 27,310 $m^3$
Total RH-TRU = 650 $m^3$
Capacity shortfall = 2,971 $m^3$ or 4,941 $m^3$

# Idaho TRU waste dumping - 1954-1970

# Idaho TRU Waste Complex

# Idaho Digging up Waste

# WIPP New Mexico Regulator

New Mexico Environment Department (NMED)

Operating Permit issued to the DOE and Contractor Washington TRU Solutions [now Nuclear Waste Partnership] on October 27, 1999

Renewal Permit approved on November 30, 2010

"The Permittees shall not accept shipments of any off-site generated waste until normal operating status of the Facility is resumed…. Under no circumstances will the Permittees commence normal operating status without prior inspection and approval of the Department." Order, 2/27/2014, #12a & 17.

# WIPP Permit

Waste Characterization Requirements:

"The Permittees shall not manage, store, or dispose TRU mixed waste at WIPP which fails to meet the characterization requirements..., as specified by this Permit." Part 2.3.1.

"The Permittees shall require that generator/storage sites implement applicable waste characterization requirements of the WAP, … prior to the Permittees' receipt of TRU mixed waste at WIPP."

"The Permittees or the co-Permittee DOE shall implement applicable waste confirmation requirements of the WAP, … prior to shipment of TRU mixed waste from generator/storage sites to WIPP." Part 2.3.1.1.(i & ii)

# New Mexico Proposed Fines

• December 6, 2014 - Gov. Martinez hand-delivers Compliance Order to DOE Secretary Moniz
• More than a dozen permit violations assessed at $17,746,250
• January 9, 2015 - DOE/NWP refuse to pay fines, state that New Mexico does not have authority, and that the Order "unconstitutionally discriminates against the United States."
• Hearing is scheduled from July 27-31, 2015

•DOE Recovery Plan includes on-going permit violations for several years

# Recovery Plan Schedule

| Activity | Schedule | Contract Bonus | Actual |
|---|---|---|---|
| Panel 6 initial closure | 12/31/14 | 8/30/15 | ??? |
| EPA re-certification | 3/31/15 | | ??? |
| Re-open for on-site waste | 4/1/16 | | ??? |
| Re-open for off-site waste | 7/1/16 | | ??? |
| Full operations | 2/15/18 | | ??? |

# Cost

"Also, it is too early to estimate the total cost of reopening WIPP to once again receive shipments of transuranic waste."

- DOE FY 2016 Budget Request, p. 6, 2/2/2015

FY 2013 WIPP Budget = $197.838 million

FY 2014 WIPP Budget = $221.170 million

FY 2015 WIPP Budget = $324.455 million

FY 2016 WIPP Request = $248.178 million

- DOE FY 2016 & FY 2015 Budget Requests

# What You Can Do

Request accurate, timely information about:

- the schedule for SRS waste to go to WIPP
- the amounts of “newly generated” TRU waste, including from plutonium disposition
- whether NNSA or EM “owns” TRU waste generated by the MOX program
- on-site disposal of any TRU waste from the MOX program by reclassifying such waste as “low level waste”

# Website Information Sources

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

NM Environment Dept. WIPP Documents:
http://www.nmenv.state.nm.us/NMED/Issues/WIPP2014.html

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

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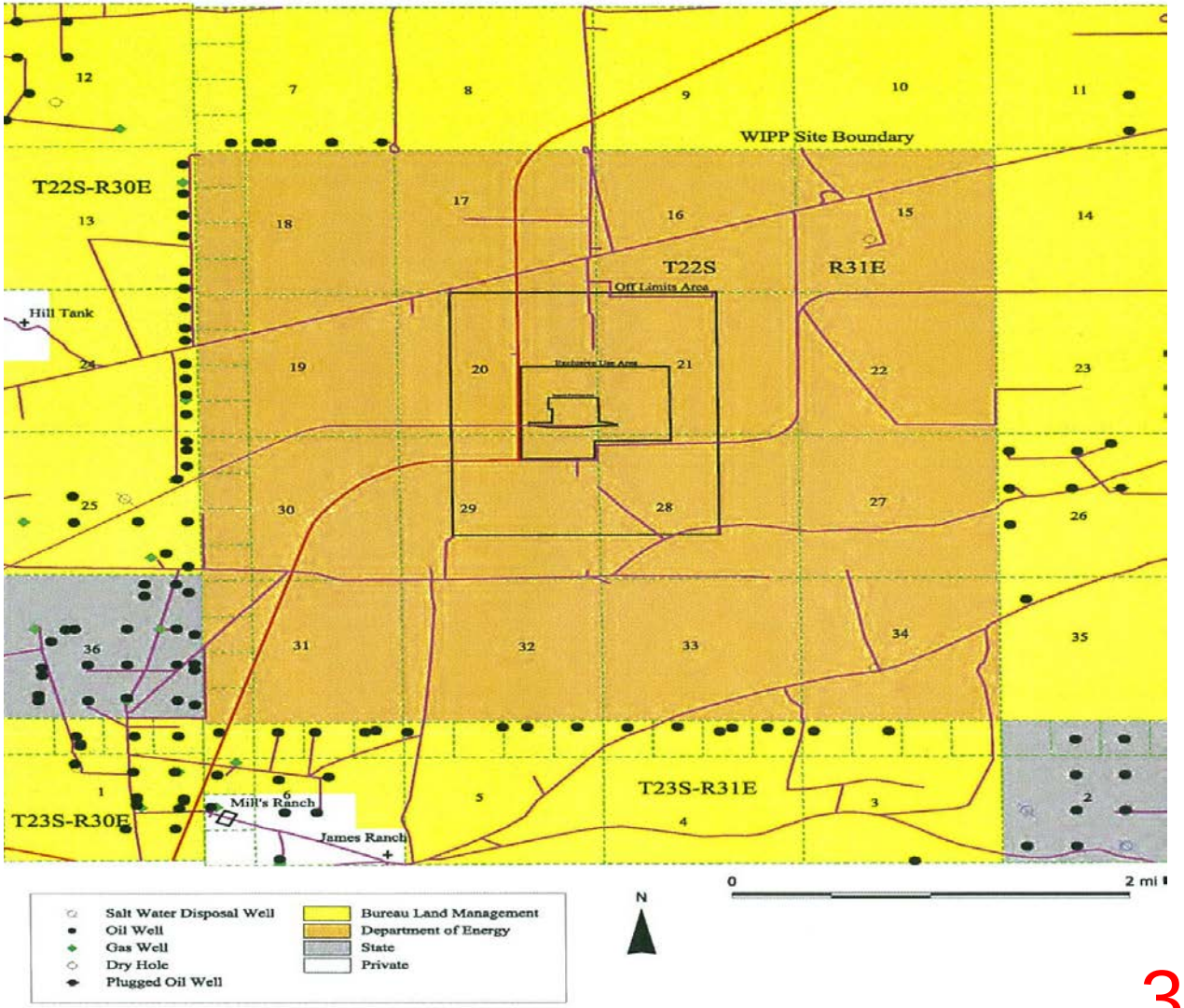
# WIPP Capacity Limits

| WIPP PERMITTED VS. ACTUAL CAPACITY | | | | | | Chart 1 |
|---|---|---|---|---|---|---|
| (in cubic meters) - As February 5, 2014 | | | | | | |
| | CH-Permitted | Actual | % Used | RH-Permitted | Actual | % Used |
| Panel 1 | 18,000 | 10,497 | 58.32% | 0 | | |
| Panel 2 | 18,000 | 17,998 | 99.99% | 0 | | |
| Panel 3 | 18,750 | 17,092 | 91.16% | 0 | | |
| Panel 4 | 18,750 | 14,258 | 76.04% | 356 | 176 | 49.44% |
| Panel 5 | 18,750 | 15,927 | 84.94% | 445 | 235 | 52.81% |
| Panel 6 | 18,750 | 14,468 | 77.16% | 534 | 214 | 40.07% |
| Panel 7 | 18,750 | 387 | | 650 | 16 | |
| Panel 8 | 18,750 | | | 650 | | |
| Totals | 148,500 | 90,627 | | 2,635 | 641 | |
| Panels 1-6 | **111,000** | **90,240** | **81.30%** | **1,335** | **625** | **46.82%** |
| Panels 1-8** | 148,500 | 127,740 | 86.02% | 2,635 | 1,925 | 73.06% |
| Legal Capacity | 168,485 | | | 7,079 | | |
| Panel 9* | *18,750* | | | *650* | | |
| Panel 10* | *18,750* | | | *650* | | |
| Panels 9-10*** | **186,000** | **165,240** | **98.07%** | **3,935** | **3,225** | **45.56%** |

Notes: *Panels 9 and 10 proposed capacities. ** If Panels 7-8 are filled to capacity.
***Total capacity if Panels 9 and 10 filled to proposed capacities.
"CH" is Contact-Handled waste; "RH" is Remote-Handled
"Permitted" refers to the capacity limits in the New Mexico WIPP permit

There are more than 100 active oil and gas wells within one mile of the WIPP Site




STATUS OF HYDROCARBON ACTIVITY
WITHIN ONE MILE OF THE WIPP SITE
September 1, 2012

# WIPP Permit Modification Process

Draft modification distributed

Pre-submittal meeting held

Modification request submitted to NMED

60-day public comment

NMED makes a decision in 30 or 60 days (class 2)

NMED issues draft permit for public comment (class 3)

Negotiations with NMED, DOE, NWP, NGOs

Settlement agreement or not

Public hearings - expert testimony, cross-examination

Hearing Officer recommended decision

NMED Secretary issues Final Order

# CH-TRU Waste at Waste Control Specialists

39 shipments from LANL to WCS from April 2 to May 8, 2014

372 $m^3$ of waste

Apparently, first priority for waste to be shipped to WIPP, when it re-opens.