Additional Perspective on the Continuing WIPP Experience

Blue Ribbon Commission on America’s Nuclear Future
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Southwest Research and Information Center
WIPP’s mission

• “Start Clean, Stay Clean” to dispose of up to 175,564 m³ of 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 site beginning in about 2030 or earlier
WIPP’s mission is not

- Storage, transportation, disposal of high-level waste
- Storage, transportation, disposal of spent nuclear fuel or any commercial waste
Mission success involves

• Repository design and use
• TRU waste inventory
• DOE and contractor performance
Repository design and use

- Panel 1 Stability - use less than 59% of capacity

Mine other panels closer to the time they will be used
# Permitted capacity vs. actual disposal

(in cubic meters)

<table>
<thead>
<tr>
<th>Panel</th>
<th>CH-Permitted</th>
<th>Actual</th>
<th>% Used</th>
<th>RH-Permitted</th>
<th>Actual</th>
<th>% Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel 1</td>
<td>18,000</td>
<td>10,497</td>
<td>58.32%</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel 2</td>
<td>18,000</td>
<td>17,998</td>
<td>99.99%</td>
<td>0</td>
<td></td>
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<tr>
<td>Panel 3</td>
<td>18,750</td>
<td>17,092</td>
<td>91.16%</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel 4</td>
<td>18,750</td>
<td>14,258</td>
<td>76.04%</td>
<td>356</td>
<td>176</td>
<td>49.44%</td>
</tr>
<tr>
<td>Panel 5</td>
<td>18,750</td>
<td>12,354</td>
<td>65.89%</td>
<td>445</td>
<td>221</td>
<td>49.6</td>
</tr>
<tr>
<td>Panel 6</td>
<td>18,750</td>
<td></td>
<td></td>
<td>534</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel 7</td>
<td>18,750</td>
<td></td>
<td></td>
<td>650</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel 8</td>
<td>18,750</td>
<td></td>
<td></td>
<td>650</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Totals</td>
<td>148,500</td>
<td>72,199</td>
<td>48.62%</td>
<td>2,635</td>
<td>397</td>
<td>15.07%</td>
</tr>
<tr>
<td>Panels 1-4</td>
<td>73,500</td>
<td>59,845</td>
<td>81.42%</td>
<td>356</td>
<td>176</td>
<td>49.44%</td>
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<tr>
<td>Capacity</td>
<td>168,485</td>
<td>72,199</td>
<td>42.85%</td>
<td>7,079</td>
<td>397</td>
<td>5.61%</td>
</tr>
</tbody>
</table>

*Note: Italics indicates open panel, still being filled*
WIPP Disposal Operations

- Salt Shaft
- Waste Disposal Shaft
- Air Intake Shaft
- Air Exhaust Shaft

Panel 1-4: Filled
Panel 5: Disposal underway
Panel 6: Mining complete
Panel 7: Mining underway
Panel 8: Future Mining

Each salt pillar left in place is about the same size as a football field.
Panels 9 and 10

May not use planned panels

Need new panels?
Rocky Flats waste dumped in Idaho
10/07/69  NRTS BURIAL GROUND WASTE DISPOSAL
Current TRU Inventory

CH waste - 140,800 m³

RH waste - 5,420 m³
"Dispositioned" is waste managed as TRU. If assayed as low-level waste, it is not shipped to WIPP, but is counted as waste removed from the storage site.
Concentration Differences Between VOC A and VOC B

TA Concentration of Concern 630 ppbv
Concentration of Concern 412.5 ppbv
Concentration of Concern 165 ppbv
Carbon Tetrachloride Lessons

• After a decade, VOC monitoring provided erroneous results for more than 6 months
• Carbon tetrachloride problem was not adequately addressed for months, resulting in significant operational changes
• Independent regulation was necessary to detect the problem and address it
Cost & Schedule

• 1997 EIS - $6.89 billion for 35 years of transportation and operations, 10 years of decommissioning
• 2002 PMP - Lifecycle cost ~ $16 billion. Save ~ $8 billion, by disposing most CH waste by end of FY 2012; all CH waste by FY 2015 (save 20 years of CH operations)
<table>
<thead>
<tr>
<th></th>
<th>2003-2010</th>
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</thead>
<tbody>
<tr>
<td><strong>DOE REQUEST</strong> (in $000)</td>
<td>$1,716,557</td>
</tr>
<tr>
<td><strong>APPROPRIATION</strong> (in $000)</td>
<td>$1,815,969</td>
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<tr>
<td>% of Request</td>
<td>105.8%</td>
</tr>
<tr>
<td><strong>PERF. MEASURE</strong>* (cubic meters)</td>
<td>79,378</td>
</tr>
<tr>
<td><strong>ACTUAL DISPOSAL</strong>** (cubic meters)</td>
<td>63,055</td>
</tr>
<tr>
<td>% of Perf. Measure</td>
<td>79.4%</td>
</tr>
<tr>
<td><strong>WIPP PMP</strong>*</td>
<td>88,469</td>
</tr>
<tr>
<td>% of PMP</td>
<td>71.3%</td>
</tr>
</tbody>
</table>

Sources:  *Presidential Requests to Congress, **WIPP WASTE INFORMATION SYSTEM  *** WIPP Performance Management Plan, August 2002
WIPP PMP Goals

• 10,034 m$^3$ of LANL CH waste disposed by September 30, 2010. Actual amount was less than 4,700 m$^3$ - four years behind the schedule.

• Virtually all CH waste disposed by September 30, 2012 - years behind schedule

• All CH waste disposed by September 30, 2015 - years behind schedule
American Recovery and Reinvestment Act

- $172.375 million for FY 2009 - 2011
- Additional CH disposal of 6,476 m$^3$ (or 8,031 m$^3$)
- Additional RH disposal of 431 m$^3$ (or 487 m$^3$)
Cost & Schedule Lessons

• Waste disposal costs more than estimated
• Waste disposal takes longer than planned, even with extra funds for “acceleration”
• Capacity space can be lost because of trying to meet schedules, rather than optimizing emplacement
Recommendations to the Commission

• Federal policy should continue the prohibitions on high-level waste and spent nuclear fuel at WIPP and in New Mexico.
• WIPP operational and decommissioning phases should be completed before other geologic disposal sites are selected.
• If the federal government builds nuclear weapons for decades in the future, it must develop a new program for TRU waste, not expand WIPP’s lifetime.
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