



Defense National Stockpile Center

Asia Mercury Storage Project Inception Workshop

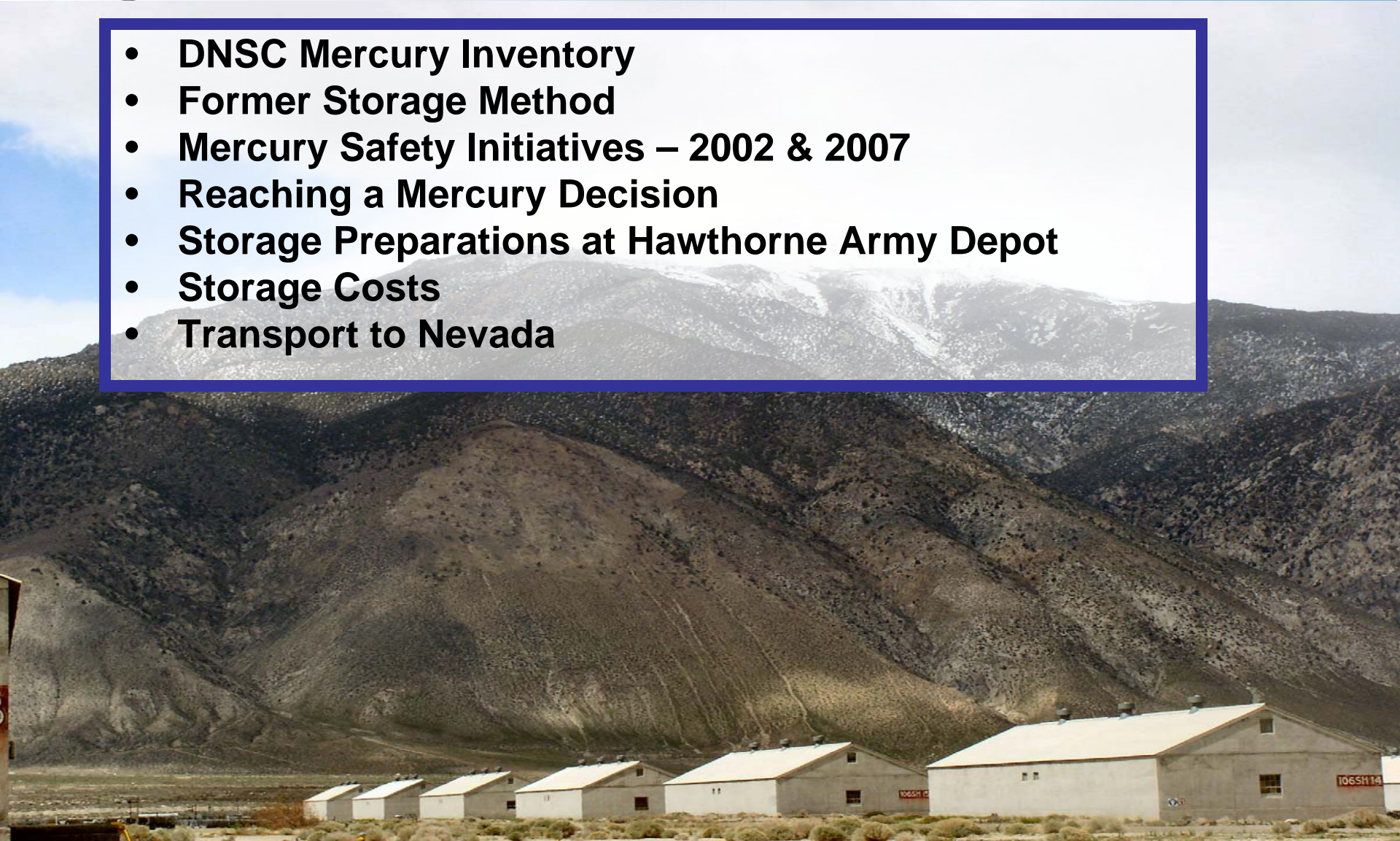
March 4, 2009
Bangkok, Thailand

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Agenda

- **DNCS Mercury Inventory**
- **Former Storage Method**
- **Mercury Safety Initiatives – 2002 & 2007**
- **Reaching a Mercury Decision**
- **Storage Preparations at Hawthorne Army Depot**
- **Storage Costs**
- **Transport to Nevada**





Defense National Stockpile Center Mercury Inventory

- **Commodity grade elemental mercury**

- **4, 436 metric tons stockpiled**

– Somerville, New Jersey	2, 617	MT
– Warren, Ohio	1, 262	MT
– New Haven, Indiana	557	MT

- **Safely stored for over 50 years**

- Sales discontinued in 1994

ISO 14001:2004 conformant



Previous Storage Method





Previous Storage Method





Mercury Safety Initiatives

Mercury Over-packing Project - 2002

- Over-packed 128,660 flasks
- Flasks inspected/cleaned
- Epoxy-coated steel drums
- Layered protection
 - Absorbent pads
 - Plastic liners
 - Half inch rubber gasket
 - Air & liquid tight/locking ring





Mercury Safety Initiatives

Mercury Flask Inspection Project (Nevada) - 2007

- Inspected 128,660 flasks
- Tightened 100 stoppers





Reaching a Mercury Decision

- 2001 – DNSC initiated an Environmental Impact Statement (EIS) process
 - Evaluated alternatives for long-term management of the mercury
- 2002 – Conducted visits to potential storage sites
 - Selected three for analysis in EIS
- 2004 – A Record of Decision reached for the EIS
 - Announced the decision to consolidate the mercury at one location
 - Did not identify specific location at that time



Reaching a Mercury Decision

- 2006 – Hawthorne Army Depot (Hawthorne, Nev.) was chosen as the consolidation site





Storage Preparations at Hawthorne Army Depot

- Facility upgrades to meet DNSC mercury storage standards
 - Installation of electrical service, lighting, fire detection and security systems
 - Installation of Terra-Nap flooring and ramps
 - Installation of fire suppression system





Warehouse Markings



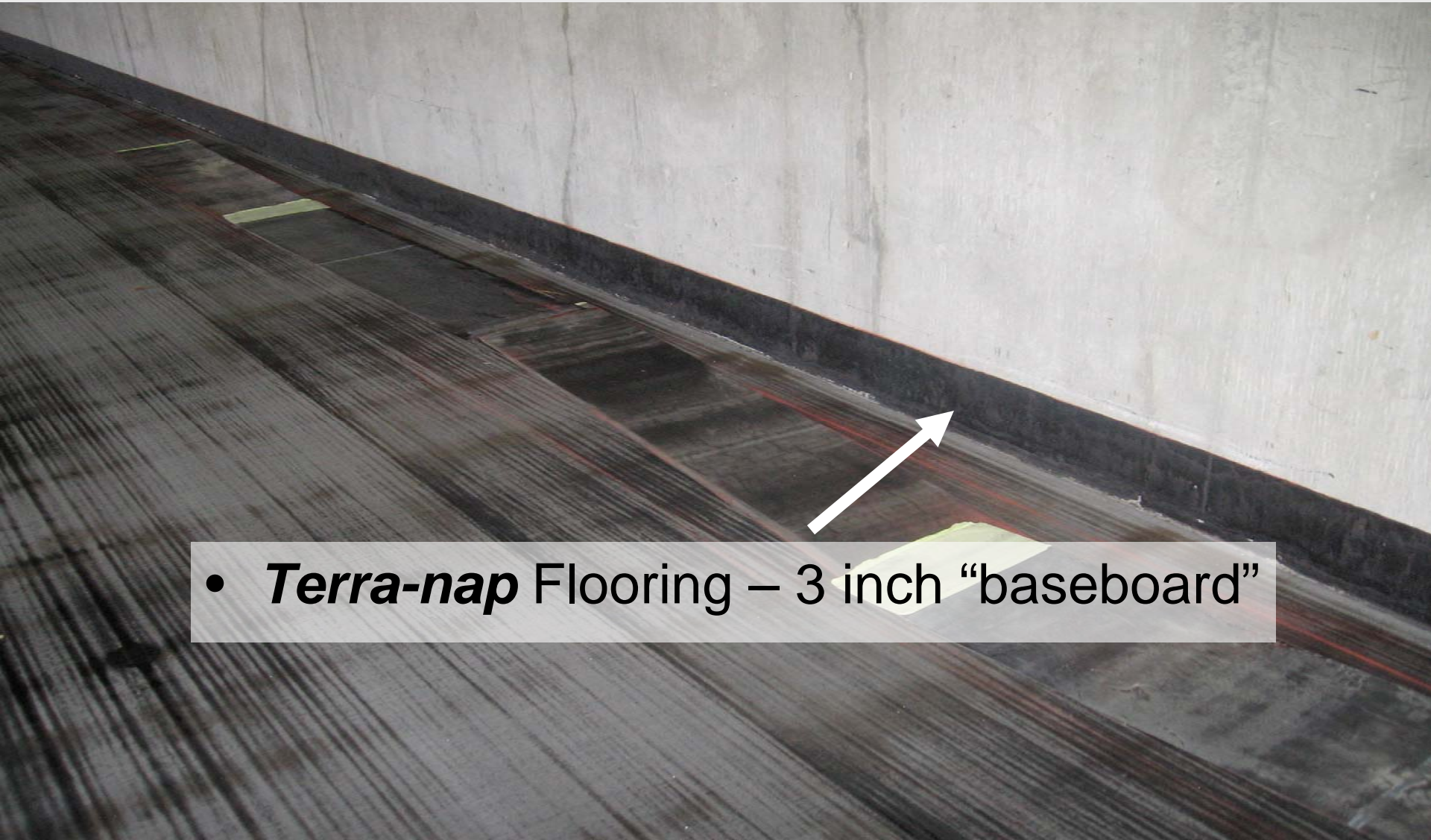


Warehouse Security





Warehouse Flooring



- ***Terra-nap*** Flooring – 3 inch “baseboard”



Warehouse Floor Markings





Safety & Storage Equipment

- Lumex RA- 915 mercury vapor detection instruments
- Jerome 431-X mercury vapor detection instruments
- Spark-proof forklifts
- Spill response kits





Storage Costs

Current Rental Costs

Location	\$/Year	\$/Sq. Ft.	\$/Lb.
• Somerville, NJ	442,055	5.53	0.0766
• Warren, OH	292,356	3.65	0.1050
• New Haven, IN	271,841	6.80	0.2215
TOTAL	\$1,006,252		

Consolidated Rental Costs

• Hawthorne, NV	\$547,904	3.91	0.0561
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Start-up Storage Costs

• Warehouse Improvements	\$3,875,000
• Material Receipt/Stock Positioning	692,000
• Fire Suppression System	4,200,000



Transport to Hawthorne

- **In compliance with applicable rules and regulations**
- **Loaded, blocked and braced in carrier's conveyance**
- **Sampling, Inspection and Testing**
 - **Each pallet subject to sampling, inspection and testing**



Transport to Hawthorne

- All shipments will comply with U.S. Department of Transportation requirements for shipment of hazardous materials
- Transportation to start in 2009
- Certified hazardous material haulers
 - GPS tracking
 - CB radios
 - Cellular telephones
- Transport cost \$1.3 million





DNSC's Commitment

**We are committed to
the safety of our employees,
our communities,
and the protection of the environment.**



QUESTIONS?

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BACKUP CHARTS



Technical Standards

National Stockpile Purchase Specifications, Mercury:

- Issued by Department of Commerce
- Identified chemical and physical requirements
- Mercury content by percentage (0.995 – 0.999)

Packaging

- In flasks of “certified quality”
- Deep-drawn, spun wrought iron, low-carbon steel

Marking

- Metal tag, permanently metal-stamped, engraved, or punched in English

Identification

- Identifying documents with chemical analysis, number of flasks, and lot number



Costs

One-Time Costs at Hawthorne (\$)

• Construction	3,875,000
• Process Hazard Analysis *	383,000
• Material Receipt/Stock Positioning	692,000
• Install Fire Suppression	4,200,000
• Mercury Flask Inspection *	7,000,000
• Transportation	1,300,000
• Total Costs	17,450,000

*** Required by State of Nevada**



Recurring Storage Costs

Recurring Costs at Hawthorne*

- **Storage** – Includes inspections and normal facility maintenance
- **Restoration** – Major repairs, minor construction for buildings
- **Maintenance** – For the equipment DNSC installed in the warehouses including the fire detection and suppression systems, flooring, ramps, testing equipment and material handling
- **Inspection** – periodic for leakage

* $(\$547,904/\text{yr} + \text{inspection}) \times \text{acceleration at } 3.5\%/\text{yr}$