

Waste Reductions & Recycling Improvements

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AT SANDIA NATIONAL LABORATORIES
IN ALBUQUERQUE, NEW MEXICO
2009-2010

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“Zero Waste to the Landfill by 2025”

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- Goal adopted by Pollution Prevention team within Sandia/New Mexico in 2008
- Not using a landfill leaves these options:
 - ❖ Waste Reduction
 - ❖ Increased diversion
 - ❖ Reuse
 - ❖ Recycle
 - ❖ ~~Landfill~~
 - ❖ Waste-to-Energy Incineration

Scope of 2025 Goal

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- **Commercial Solid Waste**
 - ❖ Office Waste
- **Industrial Solid Waste**
 - ❖ Non-hazardous laboratory & operations waste
- **Construction & Demolition Waste**

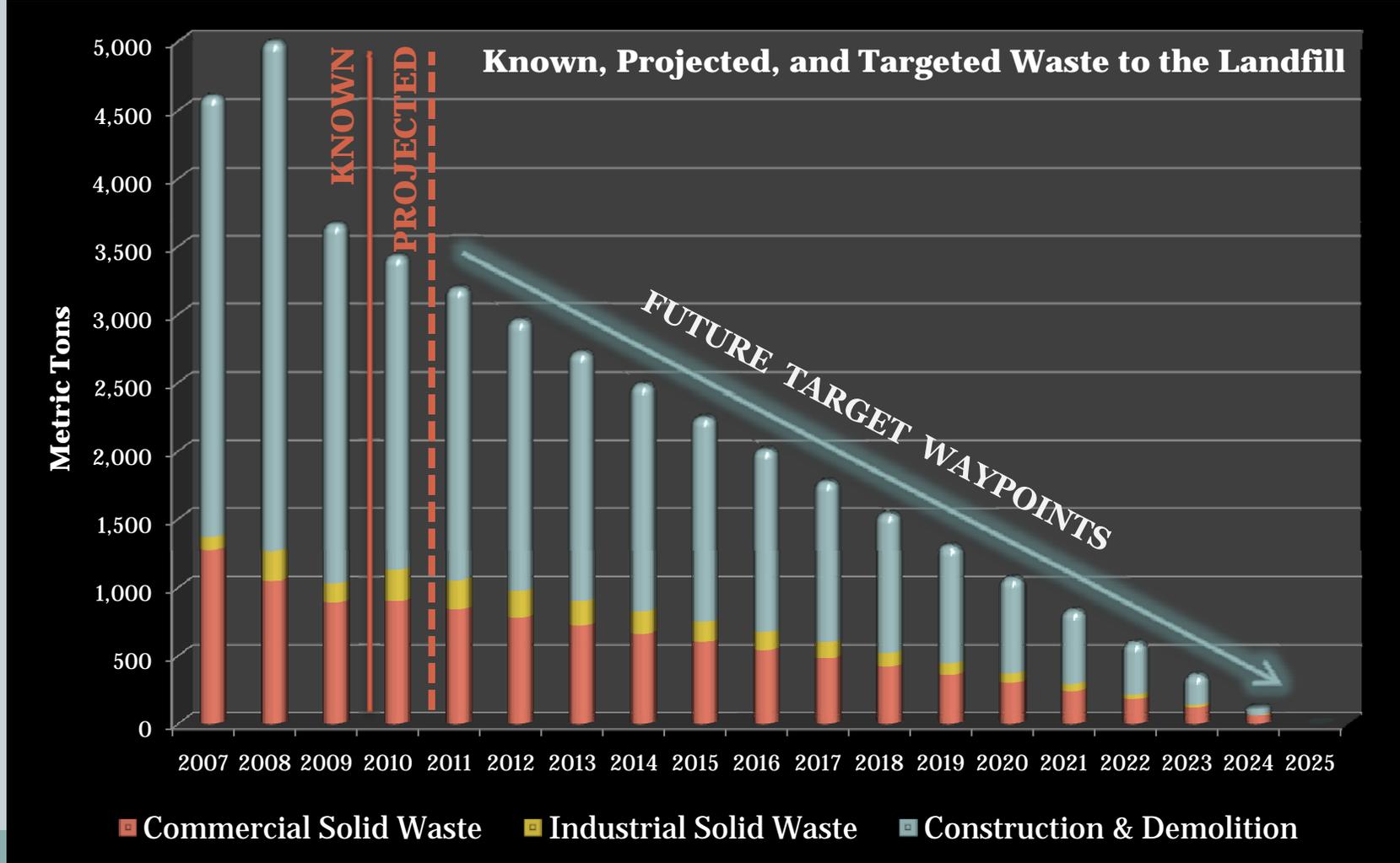


Not in Scope:

- **Hazardous Waste (RCRA)**
- **Radioactive Waste**



Status Since 2007 Baseline



Approaches

Commercial
Solid Waste

Know Thy Waste

- **Waste Audits**
 - ❖ At largest office building
 - ❖ At medium off-site office building & museum for visiting researchers
 - ❖ At small office building (for LEED®)
 - ❖ At on-site cafeteria



Approaches

Commercial
Solid Waste



Recycle Stream Assessment

● Cardboard

- ❖ 25% was being recovered from trash rather than through recycle dumpsters
... SO...
- ❖ Mapped out all dumpsters in GIS
- ❖ Removed excess trash dumpsters
- ❖ Added more cardboard where missing
- ❖ Upgraded cardboard dumpster sizes to reduce overflow to trash
- ❖ Changed dumpster styles at docks for easy loading

Approaches

Commercial
Solid Waste

Also:

#1-2 bottles

#1 transparencies

#2 natural bottles

#2 Tyvek[®]

#7 miscellaneous

Recycle Stream Assessment

● Plastics

- ❖ Identified top five generators of clean shrink wrap for collection/baling
- ❖ Collect clean, natural #5 (PP) rigid containers from a semiconductor fabrication facility
- ❖ Bought a packing foam compactor
 - ✦ #4 LDPE/EPE
 - ✦ #6 EPS/Styrofoam[®]



Approaches

Commercial
Solid Waste

Recycle Stream Assessment

- **Alkaline/Carbon Zinc Batteries**
 - ❖ Launched Earth Day 2009
 - ❖ ~190 collection points
 - ❖ ~800 pounds diverted
 - ❖ Includes: AAAA, AAA, AA, C, D, N, 9V and alkaline button cells
 - ❖ Primary Constituent: Scrap Metal



Approaches

Industrial
Solid Waste

Industrial Solid Waste (ISW)

- **What is ISW?**
 - ❖ Only 4-7% of total waste landfilled
 - ❖ 69% in FY09 was solid waste and C&D waste contaminated with beryllium
 - ❖ **Remainder:**
 - ✦ Non-regulated chemicals
 - ✦ Contaminated oils
 - ✦ Contaminated soils
 - ✦ Coolants
- =1,320 semi-unique waste streams

Approaches

Industrial
Solid Waste

Be Beryllium

Atomic Number: 4
Atomic Mass: 9.01

Path Forward

- Become educated about beryllium
- Prioritize remaining waste streams
 - ❖ Soils contaminated with oil
 - ❖ Oil/water mixtures
 - ❖ Coolants
- Team with generators and waste processors to reduce quantities and improve handling

Approaches

Construction &
Demolition Waste

Building – *Rebuilding* – *Unbuilding*

- C&D Waste down 30% - 2008/09
- C&D Recycle Rate: 89% in 2009
- Remaining 11%...?



Approaches

Construction &
Demolition Waste

Major Factors

- **Green Contractual Language**
 - ❖ Better product procurement
 - ❖ Construction Specifications
 - ❖ Active monitoring on large, new construction projects
 - ❖ Thorough process for demolition
- **Known Problem**
 - ❖ Untracked small remodel jobs

Moving Forward

Problems

- **Recycling creates jobs**
 - ❖ Funding?
 - ❖ Capacity?
- **American independence**
 - ❖ You can lead a horse to water, but...
- **Undeveloped markets**
 - ❖ Refurbishment of furniture
 - ❖ Plastics