Pollution Prevention – Striving for Environmental Sustainability

Go Full Circle

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Pollution Prevention (P2) Program
Sandia National Laboratories, NM

Reduce, Reuse, Recycle, Buy Green

Sandia is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the United States Department of Energy’s National Nuclear Security Administration under contract DE-AC04-94AL85000.
What we’ll cover

• Why P2?
• Community Oriented
• Scope of P2
• Programs & accomplishments
• Public outreach
• P2 information on the Web
• Your input please
Why P2 at Sandia?

- Pollution Prevention Act of 1990
- DOE Orders over the years
  - Updates resulting from Executive Orders
- Formal P2 Program started about 1995
  - Recycling started much earlier
- Being proactive & continuous improvement
  - It’s the right thing to do
  - Good Business case
- P2 adopted a new vision in 2007
• The P2 program promotes and integrates environmental sustainability into all SNL/NM operations.
  – To promote and integrate environmental sustainability …., the P2 program will seek to: achieve 100 percent recycling of all recyclable commodities
## Community oriented – Local Vendors

<table>
<thead>
<tr>
<th>RECYCLING</th>
<th>PROCUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ace Metals</td>
<td>Bocotek</td>
</tr>
<tr>
<td>BioPapel (Durango McKinley)</td>
<td>Document Solutions</td>
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<tr>
<td>Document Solutions</td>
<td>Holman’s</td>
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<tr>
<td>PG Enterprises</td>
<td>Riteway Pallet</td>
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<tr>
<td>RASTRA (closed)</td>
<td>Sandia Office Supply</td>
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<tr>
<td>Soilutions</td>
<td>Sandia Paper Company</td>
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<tr>
<td>Wise Metals</td>
<td></td>
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<tr>
<td>Wood-U-Recycle</td>
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</table>
P2’s Scope

• Waste Reduction:
  – Hazardous Waste & Solid Waste
  – Research options to reduce at point of generation or find recycle pathway for current landfilled waste.

• Reuse:
  – Office Chairs; “Computers for Learning”

• Recycle:
  – Improve Shrink Wrap & Foam; Add Yard Waste

• Buy Green:
  – Biobased Lubricants and Glass Cleaners
Recent Performance

![Graph showing recent performance](image)
Optimization & Standardization, leading to waste reduction
New recycle streams

- Beyond scrap metals, cardboard & white paper:
  - Mixed paper continues to grow for 4th year
  - Packing foams #4 LDPE & #6 EPS started 2009
  - Shrink wrap #4 LDPE film
  - Alkaline Batteries

- FY09 Recycling Opportunity Assessment
  (available on P2 external website)
Going to Market
Statistics for FY09

Total Routine Recycling during FY09
2.85 million pounds -- 56% recycle rate
The “P2 Tent”

- Installed June 2007
- Staging area for electronics prior to recycle
- Many more uses now

- Toner / Binder Exchanges
- Plastics accumulation
- Carpet / Ceiling Tiles
C & D Waste – Diversion in Recent Years

SNL/NM Pollution Prevention
C & D Recycling

- Concrete
- Asphalt
- Shipping Crates, pallets, dimensional lumber
- Carpet Tiles
- Ceiling Tiles
- Cardboard
- Making products from waste
  - Conphalt
  - Pellets
  - Ceiling tiles, carpet backing, cardboard
Sustainable Acquisition

• What is Sustainable Acquisition?
  – Going Full Circle

• Seeking out, and giving preference to:
  Products with a reduced impact on the environment and human health

• How Sustainable Acquisition can make a difference: $200 billion in Federal purchases per year can pull the market
Sustainable Acquisition-Continued

• Categories of sustainable products
  – Recovered (recycled) content
  – Biobased content
  – Energy and water conservation
  – Hazardous material reduction

• Contract language and specifications
Awareness/Outreach

- Monte Vista Elementary School 3rd-5th graders
- Annual youth conference – for HS student environmental education
- Info to City on Energy Savings from Recycling
- Presentations to Valley and Rio Rancho HS
- Tips throughout year to employees – home and work
What Is It All About?

- Life-cycle thinking
- Seeking continuous improvement

http://p2.sandia.gov
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Questions/Comments
Extra slides
Community oriented

- Local recycling vendors
- Local sales vendors
- Reduced waste and emissions
- FY11 goals (e.g., computers donated to schools)
Hazardous Waste

SNL/NM Pollution Prevention

Routine: FY08 = 65.8, FY09 = 90.3
Non-Routine: FY08 = 372.2, FY09 = 271.0
Recycled: FY08 = 77.9, FY09 = 69.0
Making product from waste

• Crush concrete and asphalt debris into a useable product
• 5000-6000 tons of debris diverted in FY10
Closed Loop Recycling

- 99% recycling!
  Over 12,000 Toner cartridges per year

- In FY07, purchased 4,728 remanufactured units, at average savings of $48/unit, for annual savings of ~$225,000

- Meets the need and completes the loop
Reduced Waste & Emissions

• Composting at Cafeteria – Began March 2010
  – 14,270 pounds after 6 months

• Commercial Solid Waste
  – Reduced by 50mt (6%) from FY08 to FY09

• C&D Waste
  – Reduced by 1,130mt (30%) from FY08 to FY09
## Recycling Revenues Reinvested

will update thru Aug

<table>
<thead>
<tr>
<th></th>
<th>First 8 months</th>
<th>Full year</th>
<th>Net (of KAFB proceeds)</th>
<th>Paper &amp; Scrap Metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY10</td>
<td>$128,176</td>
<td>$162,276</td>
<td>$146,469</td>
<td>86%</td>
</tr>
<tr>
<td>FY09</td>
<td>$121,773</td>
<td>$162,276</td>
<td>$146,469</td>
<td>79%</td>
</tr>
<tr>
<td>FY08</td>
<td>$177,393</td>
<td>$232,063</td>
<td>$190,032</td>
<td>93%</td>
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<tr>
<td>FY07</td>
<td>$123,399</td>
<td>$169,784</td>
<td>$141,796</td>
<td>73%</td>
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<tr>
<td>FY06</td>
<td>$108,374</td>
<td>$150,054</td>
<td>$134,247</td>
<td>84%</td>
</tr>
</tbody>
</table>
Electronics Stewardship

• What is Electronics Stewardship?
  – Full Circle with electronics including...
  – Procurement, Operations and End of Life

• Procurement: EPEAT as a purchasing tool
  – Hazardous materials reduction, recyclability, post-consumer content, upgradability, energy efficient
  – Mandated >95% of all applicable purchases
Operations: Power management, duplex printing, use of copiers for printing, REUSE!

End of Life: Recycling of all IT equipment, working to re-start Computers for Learning

SNL/NM as a high volume purchaser (can we say how much?),
  – proper management
    • toxic materials
    • Technical Nutrients