

Pollution Prevention Performance Summaries

- National Nuclear Security Administration
- Office of Science
- Office of Fossil Energy
- Office of Environmental Management
- Office of Nuclear Energy
- Office of Civilian Radioactive Waste Management



AVOIDING WASTE / AVOIDING COST

Seven NNSA sites reported on 42 activities that eliminated or reduced waste as a result of integrating P2 into site operations.

These activities *avoided*:

- 12,560** metric tons of solid waste
- 158** metric tons of hazardous waste
- 306** cubic meters of low-level radioactive waste
and
- >\$18 million** in waste management/disposal costs

RECYCLING

NNSA sites reported recycling over **67,000** metric tons of material
20,471 metric tons reported by Y-12 (most of any DOE site)

POLLUTION PREVENTION AWARDS

Five NNSA sites nominated activities for P2 award consideration. NNSA selected twelve activities for EH submission to the White House "Closing the Circle" competition.

DOE P2 Star Award

- Lawrence Livermore National Laboratory: *Chemical Environmental Services' Low-Level Waste Stream Development*

White House "Closing the Circle" Award Honorable Mentions

- Pantex: *Environmental Partnerships*
- Sandia National Laboratories/NM: *Waste Reduction Techniques Applied to Landscaping*

DOE P2 Best-in-Class Awards

- Six NNSA Best-in-Class Designations
- Six NNSA Notable Practice Designations

ENVIRONMENTALLY PREFERABLE PURCHASING (EPP)

Six sites achieved a 100% EPP purchase score:

- Bettis Atomic Power Laboratory
- Kansas City Plant
- Knolls Atomic Power Laboratory
- Lawrence Livermore National Laboratory
- Los Alamos National Laboratory
- Pantex Plant

>\$15 million in purchases of recycled-content products at ten NNSA sites.

Highlights:

NNSA has met 4 out of 5 DOE waste reduction goals to be achieved by the end of 2005.

Highlights:

NNSA sites have reported a 52% increase in recycling since 2000.

Highlights:

NNSA sites nominated 21 activities for P2 award consideration.

NNSA Service Center organized a successful DOE/NNSA Pollution Prevention Workshop in May 2005.

NNSA recognized 13 additional P2 projects with its own Environmental Stewardship Award.

Highlights:

NNSA accounted for over 50% of DOE's \$29.5 million in purchases of recycled-content products.



Office of Science (SC)

AVOIDING WASTE / AVOIDING COST

Six SC sites reported on 23 activities that eliminated or reduced waste as a result of integrating P2 into site operations.

These activities *avoided*:

6,756 metric tons of solid waste

25 metric tons of hazardous waste

50 cubic meters of hazardous waste

and

>\$6 million in waste management/disposal costs

RECYCLING

SC sites reported recycling over **11,053** metric tons of material

POLLUTION PREVENTION AWARDS

Six SC sites nominated 13 activities for P2 award consideration. SC selected nine of these for EH submission to the White House "Closing the Circle" competition.

DOE P2 Star Award

- Pacific Northwest National Laboratory: *Early Adopters Buy Bio: Greening Our Purchasing Systems*

DOE P2 Best-in-Class Awards

- Four SC Best-in-Class Designations
- Five SC Notable Practice Designations

ENVIRONMENTALLY PREFERABLE PURCHASING (EPP)

Six SC sites achieved a 100% EPP purchase score:

Ames National Laboratory
Argonne National Laboratory
Brookhaven National Laboratory
Fermi National Accelerator Laboratory
Lawrence Berkeley National Laboratory
Princeton Plasma Physics Laboratory

>\$7 million in purchases of recycled-content products at ten Science sites.

Highlights:

Argonne National Laboratory avoided \$1 million in costs by reconfiguring and reusing spent uranium targets in the IPNS facility.

Highlights:

ORNL's Biology Cleanout recycled 2,400 y³ of material and avoided replacement and disposal costs of \$275,000.

Highlights:

PNNL won a P2 Star Award for integrating environmentally preferable purchasing, including biobased products, into its Environmental Management System.

Highlights:

SC accounted for almost 25% of DOE's \$29.5 million in purchases of recycled-content products.



Office of Fossil Energy (FE)

AVOIDING WASTE / AVOIDING COST

4 FE sites reported on 11 varied activities that eliminated or reduced waste as a result of integrating P2 into site operations.

Through reuse, recycling, or incorporating sustainable design principles in facility operations, FE sites are now able to avoid as much as **\$148,817,500** in costs, \$144 million of which would occur in the event of a full oil drawdown of the Strategic Petroleum Reserve (see box at right).

RECYCLING

FE sites reported recycling over **568** metric tons of material.

POLLUTION PREVENTION AWARDS

Two FE sites received awards for their P2 activities.

The **Strategic Petroleum Reserve** won the following awards for *Preventing Downstream Emissions through EMS and Sustainable Product Stewardship*:

- DOE P2 Star
- DOE P2 Best-in-Class
- White House Closing-the-Circle Honorable Mention

The **National Energy Technology Laboratory** received the following award for the *Green Fleet Team: Petroleum Fuel Reduction through Alternative Fuels*:

- DOE P2 Star

ENVIRONMENTALLY PREFERABLE PURCHASING (EPP)

Three sites achieved a 100% EPP purchase score:

Albany Research Center
National Energy Technology Laboratory
Strategic Petroleum Reserve

>**\$486,000** in purchases of recycled-content products at three reporting FE sites.

Highlights:

The degasification plant at the Strategic Petroleum Reserve (SPR) has been designed to eliminate emissions and costs that would occur in a full-scale drawdown:

- 77,000 tons of VOCs
- 283 tons of hydrogen sulfide
- 210 tons of benzene
- \$144 million

Highlights:

SPR avoided \$238,000 in labor and material costs by refurbishing a bridge that the Louisiana Army National Guard installed as a training exercise.

Highlights:

NETL-Pittsburgh increased its alternative fuel use by 20% over the previous year; all light duty vehicle acquisitions in 2004 were alternative, biobased fuel vehicles.

Highlights:

SPR switched lighting from a conventional battery system to solar lighting thereby eliminating 375 pounds of battery waste.



Office of Environmental Management (EM)

AVOIDING WASTE / AVOIDING COST

Six EM sites reported on 52 activities that eliminated or reduced waste as a result of integrating P2 into site operations.

These activities *avoided*:

- 3,783** metric tons of solid waste
 - 64.9** metric tons of hazardous waste
 - 147** cubic meters of low-level radioactive waste
- and
- >\$83 million** in waste management/disposal costs

RECYCLING

EM sites reported recycling over **16,891** metric tons of material

POLLUTION PREVENTION AWARDS

Three EM sites nominated activities for P2 award consideration. EM selected six for EH submission to the White House "Closing the Circle" competition.

DOE P2 Star Award

- Savannah River Site - *New Market for Unserviceable Cargo Containers*
- Savannah River Site - *Green Fleet Team, Petroleum Fuel Reduction through Alternative Fuels*

DOE P2 Best-in-Class Awards

- Five EM Best-in-Class Designations
- One EM Notable Practice Designations

ENVIRONMENTALLY PREFERABLE PURCHASING (EPP)

Six sites achieved a 100% EPP purchase score:

- East Tennessee Technology Park
- Fernald
- Hanford
- Santa Susanna
- West Valley
- Waste Isolation Pilot Plant

>\$4 million in purchases of recycled-content products at nine EM sites.

Highlights:

EM has met 3 out of 5 DOE waste reduction goals to be achieved by the end of 2005.

Highlights:

SRS recycled 2,710 metric tons of iron in 2004; this is over 16% of the material recycled by EM.

Highlights:

EM sites nominated 10 activities for P2 award consideration

SRS is one of three DOE sites that are members of the "Green Fleet Team" (NREL and NETL are the others).

Highlights:

EM accounted for over 15% of DOE's \$29.5 million in purchases of recycled-content products.



Office of Nuclear Energy (NE)

AVOIDING WASTE / AVOIDING COST

The Idaho National Engineering and Environmental Laboratory (INEEL) reported on 4 activities that eliminated or reduced waste as a result of integrating P2 into site operations.

These activities *avoided*:

- 450** metric tons of solid waste
 - 15.7** metric tons of hazardous waste
 - 14.5** cubic meters of low-level radioactive waste
- and
- >\$87,000** in waste management/disposal costs

Examples of activities that avoided waste are:

- Five sheets of lead from the DD&D of WRRTF reactor building were sent to the Nevada Test Site for reuse instead of being disposed of as hazardous waste. Due to the size of the lead sheets, they could not be sent to a lead recycler. The largest piece was a 9.5-foot square, clad in steel, weighing 34,500 lbs.
- A 200-ton compactor weighing 32,000 lbs. was sent to a waste processing facility in Oak Ridge, TN instead of being disposed of as low-level waste at the INEEL. Oak Ridge will use the compactor for volume reduction of low-level radioactive waste.

RECYCLING

INEEL reported recycling **6,476** metric tons of material

- NE is responsible for over 6% of material recycled at all DOE sites.

ENVIRONMENTALLY PREFERABLE PURCHASING (EPP)

INEEL achieved a 100% EPP purchase score

- INEEL reported **\$1.3 million** in purchases of recycled-content products.

Highlights:

NE has met 3 out of 5 DOE waste reduction goals to be achieved by the end of 2005.

Highlights:

INEEL has reported a 15.5% increase in recycling since 2000

Highlights:

NE accounted for over 4% of DOE's \$29.5 million in purchases of recycled-content products



Office of Civilian Radioactive Waste Management (RW)

AVOIDING WASTE / AVOIDING COST

To continually improve environmental performance, the Yucca Mountain Project (YMP) site Environmental Management System (EMS) targeted the environmental aspect of hazardous material use and storage relative to pest control at its facilities. The existing pest control method was non-effective, expensive, and produced a waste chemical that needed to be managed and disposed.

A pollution prevention opportunity assessment (PPOA) identified an innovative, non-chemical, non-sonar, non-ultrasound pest control system that produces an intermittent signal in the electrical field around building wiring. The signal creates an irritating environment in the building's walls and ceilings for rats, mice, ants, and roaches.

The electronic technology eliminated the purchase, use, and storage of pest control chemicals at a savings of \$20,000.

POLLUTION PREVENTION AWARDS

RW-YMP received two DOE Best-in-Class awards:

- *Zapping Unwanted Pests Electronically*
- *Web-based Process Ensures Successful Implementation of EMS*

RECYCLING

RW-YMP reported recycling over **543** metric tons of material.

ENVIRONMENTALLY PREFERABLE PURCHASING (EPP)

>**\$266,000** in purchases of recycled-content products.

Highlights:

This EMS-generated project also reduced the risk of mice-carried Hantavirus transmission by eliminating mice and their droppings from facilities without the use of toxic chemical pesticides.

Highlights:

The EMS is the vehicle sites use to integrate P2 into site operations. The Yucca Mountain Project developed a web-based EMS to provide general and specific information to all organizations responsible for its processes and procedures.