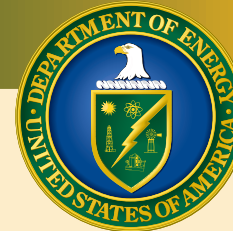


New Energy to Green DOE



2009 WINNERS

EStar

DOE Environmental Sustainability Awards



OFFICE OF ENVIRONMENTAL MANAGEMENT

East Tennessee Technology Park (ETTP)

Information Technology (IT) Organization Pollution Prevention and Waste Minimization Projects



OFFICE OF LEGACY MANAGEMENT

Fernald Preserve

Fernald Preserve Visitor Center



OFFICE OF SCIENCE

Pacific Northwest National Laboratory

Desert Green: PNNL "LEEDing" with its First Opportunity



NATIONAL NUCLEAR SECURITY ADMINISTRATION

Los Alamos National Laboratory

Using a Mature EMS for Meaningful Institutional Improvements



NATIONAL NUCLEAR SECURITY ADMINISTRATION

Sandia National Laboratories-New Mexico

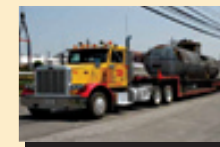
Pollution Prevention Measures Implemented in D&D Projects



NATIONAL NUCLEAR SECURITY ADMINISTRATION

Y-12 National Security Complex

Unneeded Materials and Chemicals (UMC) Reuse Efforts Right on Track



NATIONAL NUCLEAR SECURITY ADMINISTRATION

Y-12 National Security Complex

Y-12 Manufacturing Makes High-Tech P2 Look Easy



NATIONAL NUCLEAR SECURITY ADMINISTRATION

Y-12 National Security Complex

Y-12's "Go Green" Transportation Movement Just Keeps Going, Growing, and Greening



HM

2009 HONORABLE MENTIONS

OFFICE OF SCIENCE



Brookhaven National Laboratory

Total Nitrogen Reduction at BNL Sewage Treatment Plant

OFFICE OF ENVIRONMENTAL MANAGEMENT



Savannah River Site

SRS Biomass Steam Plant Team

OFFICE OF ENVIRONMENTAL MANAGEMENT



Savannah River Site

SRS Deploys New Gasket Removal and Replacement Tool

Y-12 National Security Complex

Unneeded Materials and Chemicals (UMC) Reuse Efforts Right on Track

The Y-12 National Security Complex identified several historical railroad items that, instead of being disposed, could be donated to the Southern Appalachia Railway System for future generations to enjoy. This donation also avoided generating 42,000 kg of industrial waste, saved over \$40,000, and preserved many historical artifacts.

Los Alamos National Laboratory

Server Virtualization Results in Continual Cost and Energy Savings

The Server Administration and Operations Group recently employed a virtualization strategy that combined multiple computers on a single platform resulting in annual savings of \$1.4 million in procurement, maintenance, and energy costs. Virtualization also offers automatic backup and disaster recovery benefits.

Los Alamos National Laboratory

Preventing Pollution through Good Planning

LANL personnel developed a process using ethyl alcohol to clean specialty radiation detection tubes avoiding generating 5,500 gallons of hazardous waste and saving \$865,977 in waste disposal costs. The alcohol does not enter the waste stream because it evaporates during use.

OFFICE OF ENVIRONMENTAL MANAGEMENT

East Tennessee Technology Park (ETTP)

Information Technology (IT) Organization Pollution Prevention and Waste Minimization Projects

The Bechtel Jacobs Company IT Organization created new virtual servers and replaced CRT monitors with energy-efficient LCD monitors resulting in significantly decreased energy use, savings of nearly a half million dollars, and increased employee environmental stewardship awareness.

Savannah River Site (SRS)

SRS Deploys New Gasket Removal and Replacement Tool

The Savannah River National Laboratory's Remote Systems Engineering group developed and deployed a new tool at the Defense Waste Processing Facility used to remotely remove and replace damaged gaskets and snap rings in Hanford-type connectors. Annual cost savings will exceed \$220,000, excluding labor and productivity efficiencies.

Savannah River Site

SRS Bio-Mass Steam Plant Team

SRS replaced an old coal-fired steam plant with a new, highly efficient steam plant that primarily burns wood as a clean, renewable source of biomass fuel. The conversion is expected to annually reduce pollutant emissions by more than 2,300 tons and save \$1.5 million.

East Tennessee Technology Park

Surveillance and Maintenance (S&M) Organization Material Reuse, Recycle, and Grassroots Green Purchasing Initiatives

The Bechtel Jacobs Company S&M Organization at the Oak Ridge National Laboratory and the Y-12 National Security Complex sites initiated a materials and equipment reuse and recycling program. Increased employee involvement and awareness of green issues led to hazardous chemical use reduction and more green-purchasing practices.

East Tennessee Technology Park

Shutdown of K-1101 Air Plant

The Bechtel Jacobs Company replaced a large and unreliable central air compressor with smaller dedicated units for individual facilities at ETTP that allowed air to be supplied to various operations on an as-needed basis. ETTP realized a reduction of approximately 612 kWh, 88% reduction in operation and maintenance costs, and almost a 70% reduction in green house gas emissions.

East Tennessee Technology Park

Hazardous Waste Management Area (HWMA) Waste Disposition Project

Waste generated during the material clean-out of the HWMA was minimized by contacting projects that took 95% of the unwanted materials. The Waste Disposition Project identified these projects and coordinated efforts between several divisions at Oak Ridge National Laboratory to distribute 500 different types of materials, saving approximately \$100,000.

East Tennessee Technology Park

Waste Disposition and Liquid and Gaseous Waste Operations Waste Minimization and Pollution Prevention Projects

The Bechtel Jacobs Company conducted three projects to identify opportunities to minimize waste: Tent Removal and Disposition, Dumpster Repackaging, and Aluminum Cylinder Recycling. These projects avoided almost \$200,000 in disposal costs and underscore the company's commitment to waste reduction.

Portsmouth Gaseous Diffusion Plant

R-114 Coolant Recycling at the Portsmouth Gaseous Diffusion Plant

The major coolant of the uranium enrichment production and operations facilities, R-114, a known greenhouse gas, was recovered and transferred to the Department of Defense (DOD). This avoided an estimated \$5.6 million disposal cost to DOE.

Portsmouth Gaseous Diffusion Plant

X-749/X-120 Area Groundwater Optimization Project

Seven new groundwater monitoring wells were established using Direct Push Technology to reduce potential worker exposure to radioactive and solvent soil contaminants, drilling waste, and the potential for trapped methane ignition.

OFFICE OF FOSSIL ENERGY

National Energy Technology Laboratory (NETL)

Application of P2 to Interior and Exterior Renovation Projects at the National Energy Technology Laboratory

NETL's Environmental Safety & Health (ES&H) Division established representation on the construction task force allowing it to address ES&H issues beginning at conceptual stages and throughout projects. Pollution prevention, recycling, and materials reuse are integrated into projects without adversely impacting construction schedules or requiring contract modifications.

National Energy Technology Laboratory

Use of NETL's Small Purchasing System to Control EPEAT Purchases

An ES&H staff member coordinated the modification of NETL's Small Purchase System to capture electronic purchases and limit them to only those that are EPEAT-registered. This staff member also worked on an integration team to modify the STARS/STRIPES procurement system to comply with Executive Order 13423 so other government facilities might avail themselves of this reporting option.

National Energy Technology Laboratory

Green Transportation Pool

NETL's newly created Web site encourages employee carpooling and makes it easy by allowing staff to cross reference their information to maximize their carpool opportunities.

Naval Petroleum Reserve

Ormat Geothermal Electrical Generation Project

The Rocky Mountain Oilfield Testing Center is evaluating an Ormat Organic Rankin cycle power plant using hot byproduct brine from oil production operations for electric power generation. Harnessing the available energy from hot brine may be an environmentally friendly alternative for powering the oil field.

Naval Petroleum Reserve

BP/WhisperGen Stirling Cycle Generator

BP (British Petroleum) and WhisperGen developed a clean, inexpensive, and reliable system for electrical power generation at remote well sites using byproduct raw natural gas to fuel a Stirling Cycle generator. The system may offer a viable power alternative for lift production and other site energy needs.

Naval Petroleum Reserve

Casper College Wind Turbine

The Rocky Mountain Oilfield Testing Center is a demonstration site for two wind power generators located adjacent to existing oil field operations to test their economic viability for enhancing oil production from mature fields. The demonstration project doubles as a training program for Casper College students studying renewable energy.

Strategic Petroleum Reserve (SPR)

Voluntary Process Change to Reduce VOC Emissions from SPR Workover Operations

The SPR implemented a voluntary pollution prevention project that reduces volatile organic compounds emissions by using floating roof tanks in conjunction with workover operations. The project resulted in a \$20,000 direct cost savings, reduction of over 85 tons of VOC emissions, plus broad environmental, health, and safety benefits.

OFFICE OF LEGACY MANAGEMENT

Fernald Preserve

Fernald Preserve Visitor Center

The U.S. Green Building Council awarded the Fernald Preserve Visitors Center platinum level certification through its Leadership in Energy and Environmental Design (LEED) program. Fernald incorporated the frame of an existing Silos Project warehouse and adopted many sustainable design, energy, and water conservation features to win the platinum designation.

OFFICE OF SCIENCE

Pacific Northwest National Laboratory (PNNL)

Desert Green: PNNL "LEEDing" with its First Opportunity

PNNL facilities and operations personnel incorporated sustainable design principles into policies and procedures for new construction at the Capability Replacement Laboratory. In addition to tracking to the Leadership in Energy and Environmental Design (LEED) silver certification, the energy performance is modeled at 25-30% better than the ASHRAE 90.1 baseline design.

Brookhaven National Laboratory (BNL)

Total Nitrogen Reduction at BNL Sewage Treatment Plant

The BNL sewage treatment plant loading had become unbalanced due to the changes in BNL's mission. By simply adding the cafeteria's putrescible kitchen waste to the waste stream, the nutrient balance at the plant was restored and treatment efficiency significantly improved.

Argonne National Laboratory

Reduction, Re-use, Recycling and Re-buying of Dielectric Oils

Argonne's ASD-RF group employed a twin Baron oil purification system to process its used dielectric R-temp and Diala oil. The Baron system degasifies, dehydrates, and filters the oil to extend its life for an additional year.

Brookhaven National Laboratory

Authorized Release of Sewage Sludge to a Subtitle D Landfill

Following a thorough cleaning and survey, BNL's sewage treatment facility was declared as "radiologically clean". The new status allowed lifting the restriction that its biosolids be disposed as low-level radioactive waste. BNL realized a savings of approximately \$4 million and increased efficiency of its sewage treatment plant operations.

Brookhaven National Laboratory

BNL's Energy Challenge

Fifty BNL buildings are competing in this year's BNL Energy Challenge to see which can conserve the most energy. The concept behind the Energy Challenge is to promote energy awareness and conservation among employees. In the first 6 months of competition, BNL realized \$60,000 in energy savings.

Princeton Plasma Physics Laboratory (PPPL)

PPPL's FY08 Biobased Products Purchasing

PPPL uses only 100% biobased cleaning products and metal cutting lubricants to conduct these operations in a faster, cheaper, and safer manner.

Stanford Linear Accelerator Center (SLAC)

Partnering with Stanford University (SU) Campus in Chemical Redistribution Program

SLAC partnered with SU's Chemical Redistribution Program to ensure appropriate management of government property and resources. This partnership reduces SLAC's liability and costs by minimizing hazardous waste amounts and encouraging chemical reuse.

Stanford Linear Accelerator Center

Linac Coherent Light Source (LCLS) Construction Project, SLAC National Accelerator Laboratory

The LCLS construction project team exceeded its goal for recycling non-hazardous construction waste. 86% (290.0 tons) of the 338.5 tons of construction waste was recycled at a nearby commercial materials processing facility.

Thomas Jefferson National Accelerator Facility

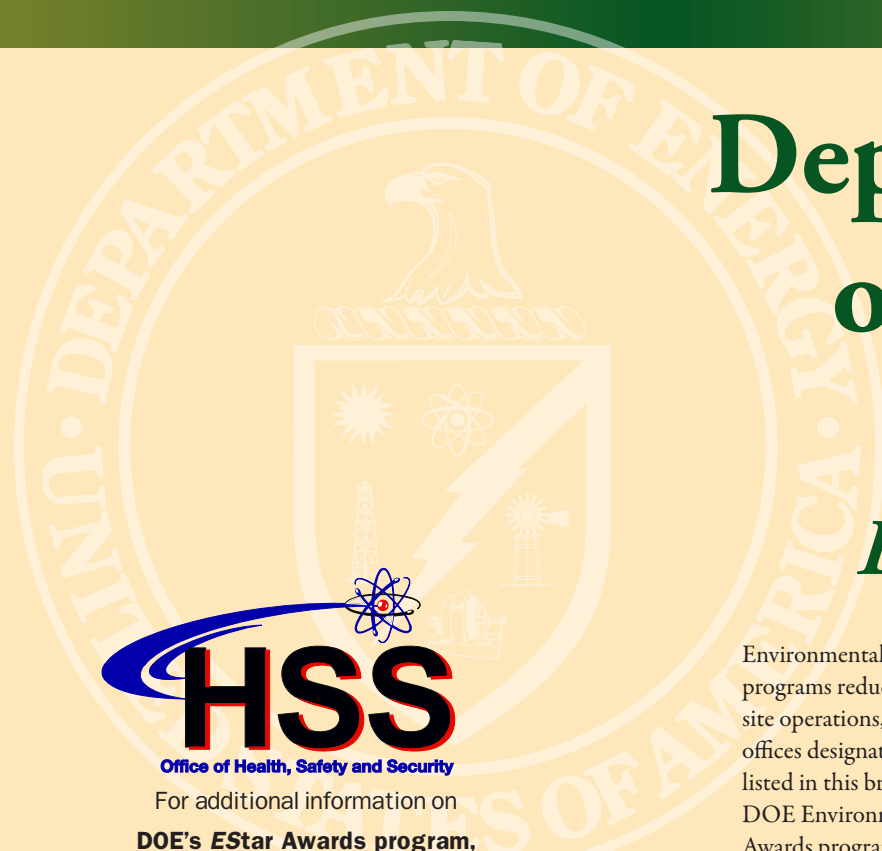
Circuit Board Saves Cable

Jefferson Laboratory's Fast Electronics Group designed a circuit board that can store up to 8 micro-seconds of high density accelerator experimentation data. Improved data acquisition resulted in a significant savings in the cabling previously required to provide time delays for signals from experimental apparatus.

Thomas Jefferson National Accelerator Facility

Refurbished Sodium Iodide Crystals Serve New Use

A proposed Jefferson Laboratory Coulomb Sum Rule experiment required a specialized NaI detector. Laboratory employees located an available but non-functioning detector at Brookhaven National Laboratory, devised a way to restore the detector's capability, and successfully ran its experiment saving \$1-2 million. The refurbished detector has since been donated to Duke University for an addition to its useful life.



Office of Health, Safety and Security

For additional information on
DOE's EStar Awards program,
visit DOE's EStar website at:

www.hss.energy.gov/pp/p2awards/

or contact

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Beverly Whitehead

(beverly.whitehead@hq.doe.gov; 202-586-6073)

Office of Environmental Policy and Assistance



U.S. Department of Energy



DOE EStar Awards for exemplary environmental sustainability projects and practices.

EStar Honorable Mentions

Department of Energy

2009 EStar Awards

Environmental Sustainability projects and programs reduce environmental impacts, enhance site operations, and reduce costs. DOE program offices designated the 35 "Best in Class" initiatives listed in this brochure for consideration in the DOE Environmental Sustainability Star (EStar) Awards program. Through our independent panel of judges, eight initiatives were selected to receive EStar Awards and three were selected for EStar Honorable Mentions.



ENERGY EFFICIENCY AND RENEWABLE ENERGY

National Renewable Energy Laboratory

NREL Campus of the Future

NREL incorporated its own groundbreaking technologies into everyday campus operations including designs for transportation, utility distribution, storm water management, pedestrian connectivity, and energy production. As a result, NREL has become a global model of campus sustainability design.

NATIONAL NUCLEAR SECURITY ADMINISTRATION



Los Alamos National Laboratory (LANL)

Using a Mature EMS for Meaningful Institutional Improvements

Under the LANL Environmental Management System (EMS), each of the site's operating directorates develops an annual environmental action plan to identify and correct local environmental issues. This resulted in over 450 individual improvement actions involving compliance performance, reduced liquid discharge, energy and fuel conservation, and excess materials disposition. Significant progress has been made in addressing site issues thereby gaining further support of and commitment to the EMS process.



Sandia National Laboratories - New Mexico

Pollution Prevention Measures Implemented in D&D Projects

The SNL/New Mexico Demolition and Destruction program successfully institutionalized pollution prevention techniques, such as materials characterization, reuse, and recycling, to significantly minimize the quantity of solid waste landfilled and hazardous/radioactive materials generated.



Y-12 National Security Complex

Y-12's "Go Green" Transportation Movement Just Keeps Going, Growing, and Greening

Y-12's Go Green Transportation Movement moved beyond the use of alternative fuels to include other fleet management techniques, such as mass transit and options for bikers and pedestrians, to reduce the impact of employee commuting and campus navigation.



Y-12 National Security Complex

Y-12 Manufacturing Makes High-Tech P2 Look Easy

The Y-12 National Security Complex manufacturing organization's pollution prevention programs included elimination of Freon for chip cleaning, development of a tackless residue cleaning cloth, and reuse of surplus materials. More than 275,600 kg of waste were eliminated resulting in a cost avoidance of \$542,000.