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# fernauld **Report**

## Inside

- T-Hopper Project complete!
- Safety earns 8 stars
- Tree barrier to improve view

October 1998

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## **DOE-EH Audit Team notes accomplishments**

In September an eight-person, Environmental Health (EH) Team from Department of Energy Headquarters, came to Fernald as a follow-up review of our site safety program. Specifically the audit team focused on five key areas: work planning and control; maintenance; electrical safety; occupational radiation protection; assessment and corrective action programs.



A final report is expected later this month, but in a closeout session held September 23, 1998, the team noted substantial progress not only at Fernald, but also at the Ohio Field Office level. This is a clear validation of the hard work and total team effort necessary to develop, implement, evaluate and improve new safety programs. While it is too early to declare victory in the fight to manage safe programs and work practices, we have truly passed a major milestone.

As the team noted, DOE must continue to provide firm direction and oversight on safety programs and issues. We must exercise formality, rigor and discipline while conducting all of our field activities. It is DOE's responsibility to provide Fluor Daniel Fernald with expectations, policy direction, oversight, assessment, support and the resources necessary to achieve our shared goal of keeping the Fernald site a safe place to work, and a recognized leader in safety and performance results.

Fluor Daniel Fernald President and CEO, John Bradburne and I have discussed this at great length and I have his commitment as well as that of his Leadership Team to this process. The changes we have made in the past few years have strengthened our operation. Now we need to move forward with the resolve to maintain and seek new opportunities to continue to improve safety at Fernald.

  
Jack Craig  
Director, DOE-Fernald

*On the Cover: Employees from Solmax, the company responsible for installing the liner in Cell 2 of the On-Site Disposal Facility, place the Geosynthetic Clay Liner (GCL) so that there is adequate overlap at the seam (6319D-1576).*

## Safety takes a starring role

**F**luor Daniel's Zero Accidents Program awards are the most prestigious awards a project can earn. They are highly coveted and are awarded with careful consideration by the Corporate Safety Department. Fluor Daniel Fernald earned four of them this year.

At an awards presentation at the site in September, A.B. Robinson, director of corporate safety for Fluor Daniel, recognized Fernald's commitment to safety and congratulated employees on their accomplishments. Robinson presented a tri-star award, the highest award possible, to the Safe Shutdown Department for working 250,000 hours with no recordable incidents. "This is a very impressive accomplishment," Robinson said. "It is by no means an everyday occurrence for us to be able to make a presentation like this. Fernald has a lot to be proud of."

Fluor Daniel Fernald also received two, two-star awards. The first was presented for achieving 1.5 million hours without a lost-time injury. The second two-star award went to the Waste Management Department in recognition of its safe work practices.

The site earned a one-star award for reaching 3 million hours without a lost-time accident. "These awards are a reflection of our team members' commitment to safety," said John Bradburne, Fluor Daniel Fernald president and CEO. "Our safety record continues to improve because we are always looking for ways to enhance our performance."

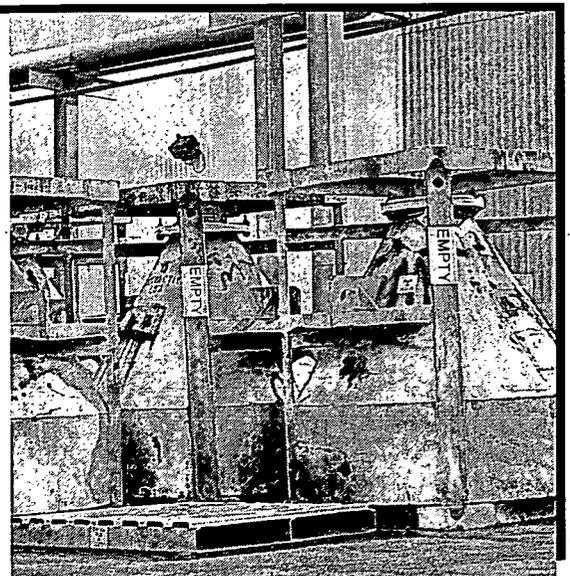


*Above: A.B. Robinson, front right, presented John Bradburne, front left, and the Safe Shutdown department with a tri-star award for working 250,000 safe work hours (6978-1).*

## Nuclear materials to be removed from Fernald

DOE and Fluor Daniel Fernald are one step closer to removing more nuclear material from Fernald. The T-Hopper Project, which began in February 1998, has been completed, opening the door for the transfer of the enriched uranium material. The project required removing uranium trioxide (a yellowish powder) from 131 T-hoppers and repackaging it into 55-gallon drums. A total of 1,395,000 net pounds of material was repackaged into 1,655 drums. During the production years, uranium trioxide was used to make uranium tetra fluoride, which was then converted to uranium metal. The drums are currently being loaded into Sealand containers for shipment off site.

*Right: T-Hoppers are bulk shipping containers historically used for transporting uranium compounds and oxides throughout the DOE complex. Fernald is one of the few facilities capable of handling T-Hoppers, which have an average gross weight of 14,000 pounds (6714-D256).*



# Cleanup **Progress** Update



## Waste Pits Remedial Action Project (WPRAP)

- Completed rail and access road lighting installation
- Received 50 DOE-procured gondola railcars
- International Technology (IT) Corporation continued treatment facility construction
- Submitted Draft Remedial Action documents package to regulatory agencies

## On-Site Disposal Facility (OSDF)

- Completed construction of 3-foot clay liner for Cell 2
- Continued placing impacted material into Cell 1
- Began construction of Cell 2 secondary liner system

Above: IT employees position I-beams during construction at the Railcar Loadout Building (6944D-0116).

Right: Providing utilities to the Waste Pit area is one of the biggest challenges of this construction project (6944D-0882).



Far right: The GCL is the first geosynthetic in what will be six feet of lining material to make-up each cell. Here, the liner is positioned into the anchor trench where dirt will be added to hold it in place (6319D-1573).



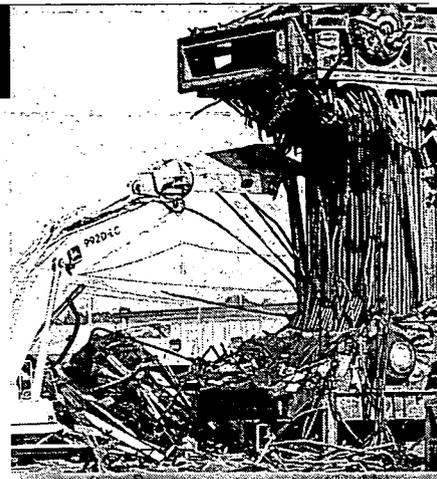
## Facilities Closure & Demolition Project (FC&DP)

### Safe Shutdown

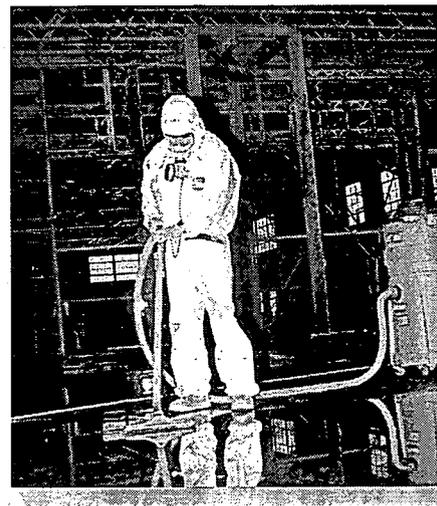
- Plant 2 — Continued holdup material removal and extraction area line draining
- Plant 6 — Continued asbestos, biohazard and holdup material removal
- Non-Nuclear Facilities — Began disconnecting piping in Tank Farm Complex

### Decontamination & Dismantlement

- Thorium/Plant 9 Complex —
  - ◆ Continued interior dismantlement and equipment removal
  - ◆ Completed scabbling operations
- Sewage Treatment Plant Complex —
  - ◆ Completed turnover of project site to Soil and Water Division
  - ◆ Continued preparation of *Project Closeout Report*
- Miscellaneous Small Structures —
  - ◆ Completed D&D of Buildings 24B (Railroad Engine House) and 3G (Refrigeration Building), and two horizontal propane storage tanks associated with former Propane Storage Building
- Recycling Supplemental Environmental Projects —
  - ◆ Received bids for remaining rail, spikes and spike plates from potential recycling vendors and initiated proposal evaluations



Left: Miles of piping made up heat exchange units at the Boiler Plant. Here, the last remaining structure is taken down by a shear (6407D-0765).

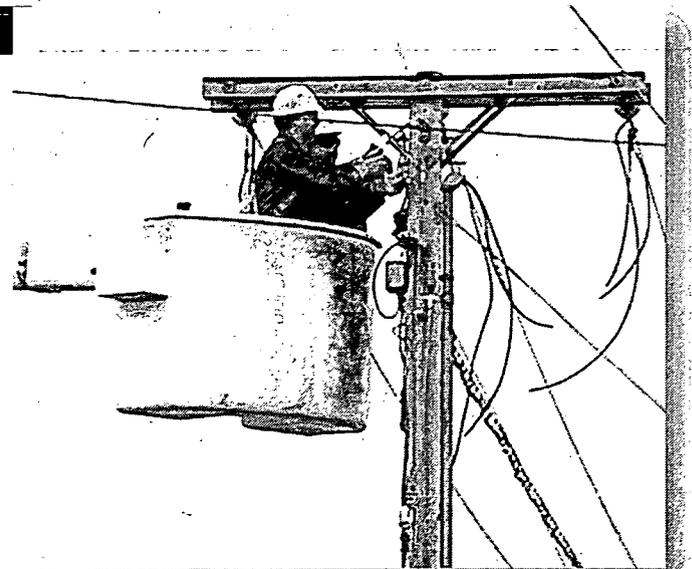


Below left: Following the application of a lockdown solution, water and loose contamination remaining in Plant 9 is vacuumed prior to monitoring and transite removal (6494D-0472).

Below: Cincinnati Bell workers replaced and raised new phone lines to upgrade service to the Silos Project as well as provide needed clearance for truck traffic (6971D-0014).

## Silos Project

- Completed field work for closure of Vitrification Pilot Plant and awarded contract for disposition of resulting waste/debris to Kindrick Trucking
- Received bid proposals for Accelerated Waste Retrieval Project
- Retrieved additional material from Silo 3 through Small-Scale Waste Retrieval system
- Awarded contract for Silos Infrastructure Roads & Electrical Upgrade to Staver Group, Inc.
- Mobilized Kelchner Environmental for construction of Silos Infrastructure Trailer Upgrade



# Cleanup **Progress** Update

## Aquifer Restoration/ Wastewater Project

- Began operation of Injection Demonstration Module on Sept. 2, 1998, four weeks in advance of Sept. 30, 1998, milestone date
- Completed start-up of full-scale Great Miami Aquifer remediation in South Field and South Plume areas
- Submitted *Integrated Environmental Monitoring Plan Quarterly Update Report for Second Quarter 1998* to Agencies on Sept. 25, 1998

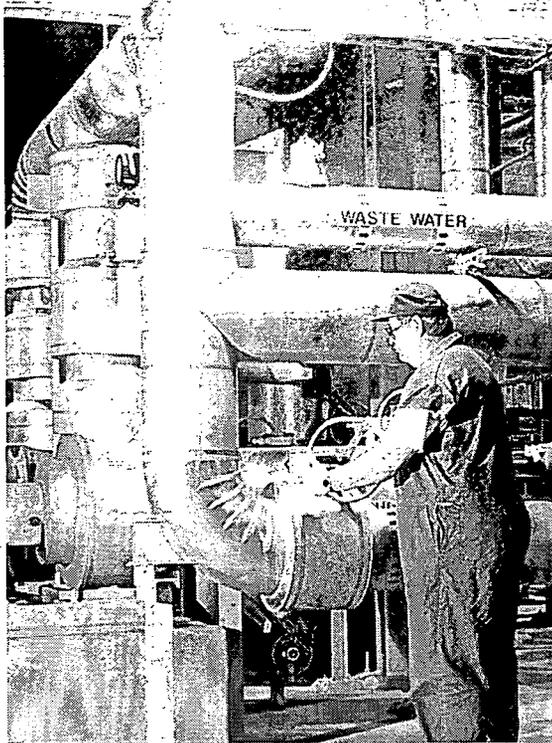
## Soil Characterization & Excavation Project

- Continued excavation of Inactive Flyash Pile (within Area 2 Phase I — Southern Waste Units) and hauling of impacted material to OSDF for placement
- Issued Precertified-for-Construction drawings and specifications for Sewage Treatment Plant Excavation Package (part of Area 1 Phase II — Southern Portion of East Field)
- Natural Resource Restoration
  - ◆ Attended meetings with local economic/government groups to discuss final land use options
  - ◆ Released *Natural Resource Restoration Plan* and associated *Environmental Assessment* for public review/comment on Sept. 18, 1998
  - ◆ Natural Resource Trustees conducted Public Workshop on Sept. 23, 1998
  - ◆ Began construction of On-Property Public Access Habitat Area

*Top:*  
The Advanced Wastewater Treatment Facility operates three shifts, 365 days a year (6969D-003).

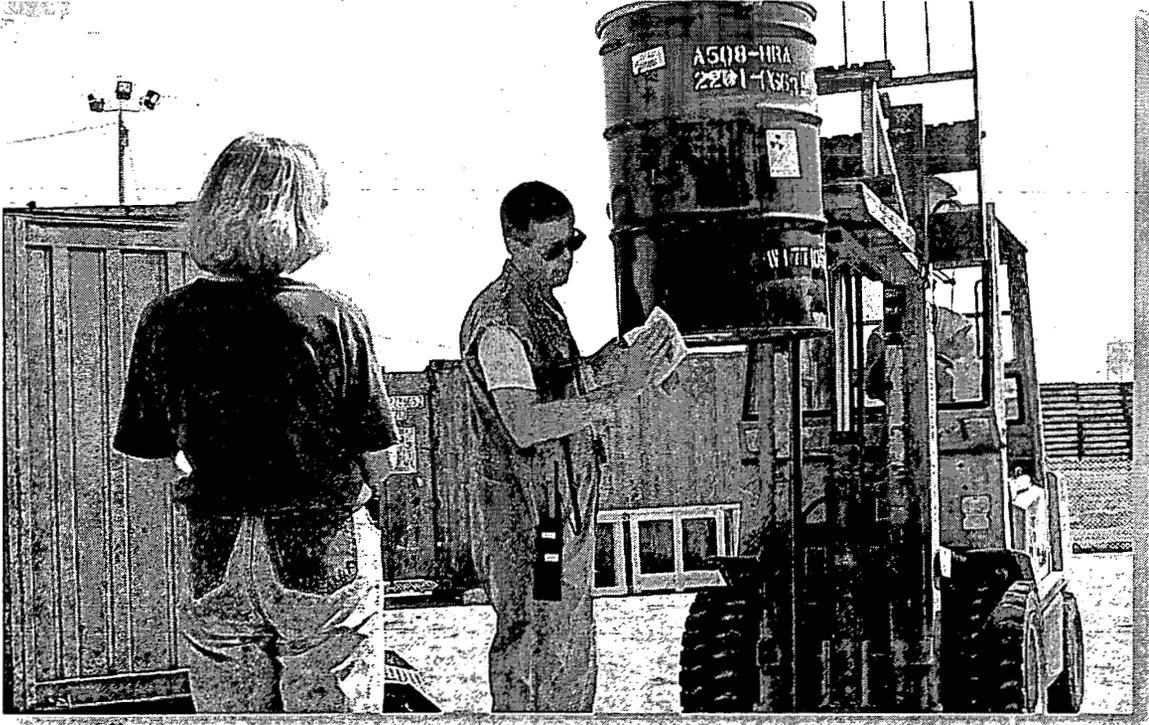
*Center:*  
Fluor Daniel Fernald technicians evaluate radionuclide results during excavation in the Southern Waste Units (6734D-0815).

*Bottom:*  
In this portion of the Inactive Flyash Pile material was found that exceeded the OSDF Waste Acceptance Criteria. This waste is set aside for future packaging and shipment off site (6734D-0750).



# Waste Management Project

- Waste Minimization/Pollution Prevention — Reached agreement (between DOE-Fernald and DOE-Oak Ridge) to transfer 1,340 tons of copper motor windings to Oak Ridge for recycling; Oak Ridge could be ready to receive windings as early as Nov. 1, 1998
- Waste Management Support & Integration — Developed, submitted, and received approval for a proposal to relocate extra Real Time Radiography unit from Fernald to Nevada Test Site for use in receipt inspections
- Nuclear Materials Disposition — Loaded 14 International Shipping Organization (ISO) containers with uranium trioxide in preparation for shipment to support contract for sale of low enriched materials; currently loading an additional 21 ISO containers
- Waste Storage and Sampling — Began relocation of sample line equipment from Plant 6 to Building 30A to support sitewide consolidation activities



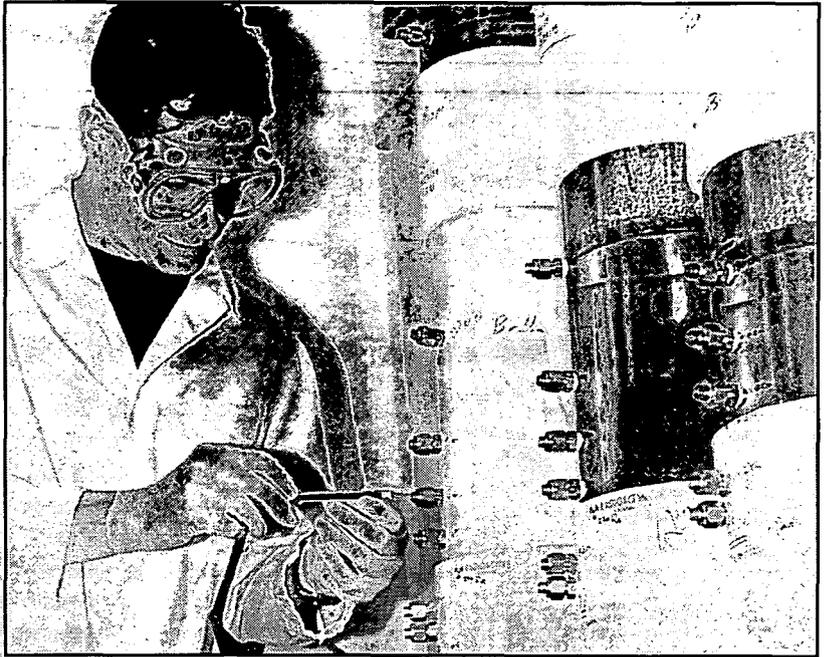
Above:  
Uranium trioxide from the T-Hopper Project awaits loading into ISO containers prior to shipment off site (6714D-0265).

Left:  
Radiation Technician Dan Barber takes a smear sample from the bottom of a 55-gallon drum. The cloth is then monitored to detect surface contamination (6714D-0271).

## Water: An effective barrier for reducing radon

The University of Cincinnati Center for Radiological Assessment and Measurement, in conjunction with Fernald's Technical University Programs, conducted a recent study to determine the ability of a water layer to control radon emanation from radium-bearing materials. Fixed in filters at the bottom of PVC tubes, the K-65 material was covered with increasing thicknesses of water. A syringe was used to collect samples of radon in air and water.

Researchers in the lab found that a water layer covering the K-65 material is effective in reducing radon concentrations in the air. The effects of diffusion and dissolution reduce the transport of radon gas through the barrier and the buildup of radon in the air. For Fernald, this means water can be used as a source of radiological control to support accelerated waste retrieval. Unlike alternative materials such as bentonite, a water layer can be processed in on-site water treatment facilities.



Above: A research assistant from the UC Center for Radiological Assessment and Measurement withdraws a sample from one of the collection points (6992D-0002).

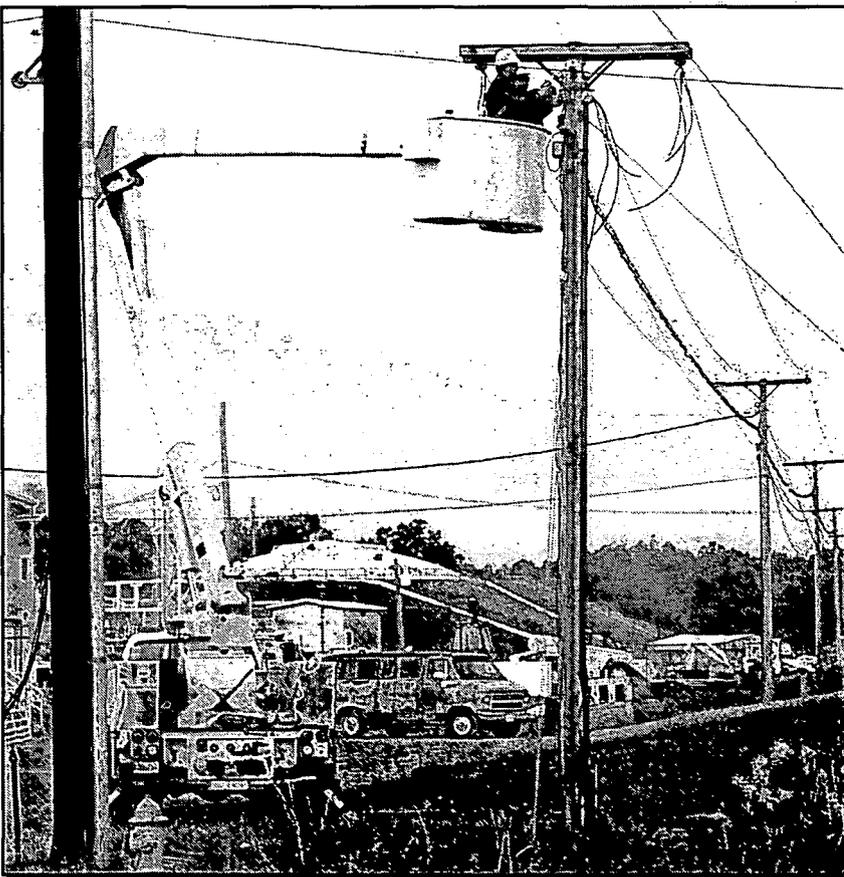
## Silos Infrastructure Project

Fluor Daniel Fernald awarded a \$1,670,000 contract to The Staver Group of Franklin, Ohio in September for construction of a new road around the Silos and for electrical system modifications to accommodate the Silo 3 Project and Accelerated Waste Retrieval Project.

Specifically, Staver will construct approximately 3,400 feet of two-lane asphalt road along the perimeter of the Silos to be used for access to the Silos construction area and truck transportation of treated waste. The entire road will be appropriately illuminated for night hauling and sloped for drainage to maintain pre-construction drainage patterns.

Construction is scheduled to begin in February 1999, after soil sampling around the Silos Project is completed and the data is analyzed. Staver is scheduled to complete its work in August 1999.

Left: Staver will reroute power lines and poles to accommodate the new road to be constructed around the Silos. They will also modify the existing electrical systems by installing a new transformer to provide the power for the Silo 3 Project (6971-D0014).



## Shutting down, safely

Imagine it's July and you're shoveling uranium sludge out of a sump wearing a double set of anti-contamination clothing and a full-face respirator that is filling up with your own sweat. Is it hard to picture yourself in this situation? Consider this: there are more than 100 men and women working in Fluor Daniel Fernald's Safe Shutdown Department who do this every day. It is not easy work but they do it anyway; and they do it safely.

In the last four years, Safe Shutdown has removed more than half a million pounds of holdup material from former process equipment, completing operations in seven former processing Plants and the Pilot Plant. By early next year, they will also be finished in Plants 2 and 6, bringing the entire project to a successful end. "I have great admiration for our team," said Monty Morris, Safe Shutdown project manager. "They work hard and they work safely. I couldn't ask for anything more."

The reputation of the department's commitment to safety extends beyond the boundaries of the site all the way to Fluor Daniel's corporate offices in California, where the Zero Accidents Program is administered. "It was a real honor for us to receive the tri-star award," Morris said, referring to the company's highest award for safety. "We worked 250,000 hours with no recordable incidents to earn this recognition and we're all very proud of it."

When Safe Shutdown is complete, the majority of the employees working on the project will transition to other departments, with a small group remaining to focus on Facilities Shutdown. Facilities Shutdown involves preparing the site's non-nuclear facilities for decontamination and dismantlement which should take approximately three years to complete. "It's good to see our people moving on to contribute to other projects around the site," Morris said. "They'll take their attitude toward safety with them wherever they go and that's good for Fernald."



Above: A hazardous waste worker removes holdup material from inside a tank in Plant 2, the former Ore Refinery Plant (6383D-490).

## 1998 Winter Assistance Program gets underway

The Loyal Shawnee Winter Assistance Program at Fernald and Mound has kicked-off with briefings aimed at increasing employee awareness of the need for food, children's clothing, toys, and personal hygiene items. This program has flourished over the past few years. In 1996 a couple of pick-up trucks were filled - in 1997 it grew to a semi truck. For 1998 the goal is to fill two semi trucks! Several local residents and employees of Fernald and Mound plan to follow the trucks to Oklahoma and assist with distribution the second week in November.

The Loyal Shawnee were moved out of Ohio by the United States military in 1823. They were forced to settle along the Missouri River in the area known today as Shawnee Mission, Kansas. In 1869, the United States military once again forced the Shawnee from their home to Cherokee Indian territory in what is now Craig County, Oklahoma. Today the Loyal Shawnee reside in White Oak, Oklahoma.

"It's amazing how people want to help," said Carolyn Roehrig from the Department of Energy. "We started getting donations this summer and luckily were able to secure some storage space. It's a big job, but very fulfilling."

For additional information please contact Carolyn Roehrig at 648-3142 or Joe Schomaker at 648-3277.

Below: Landstar Ranger, a trucking company contracted by Fernald to ship waste, donated a truck and driver last year and plan to do the same this year. Volunteers from the 1997 program stand next to the loaded semi (6763-1).



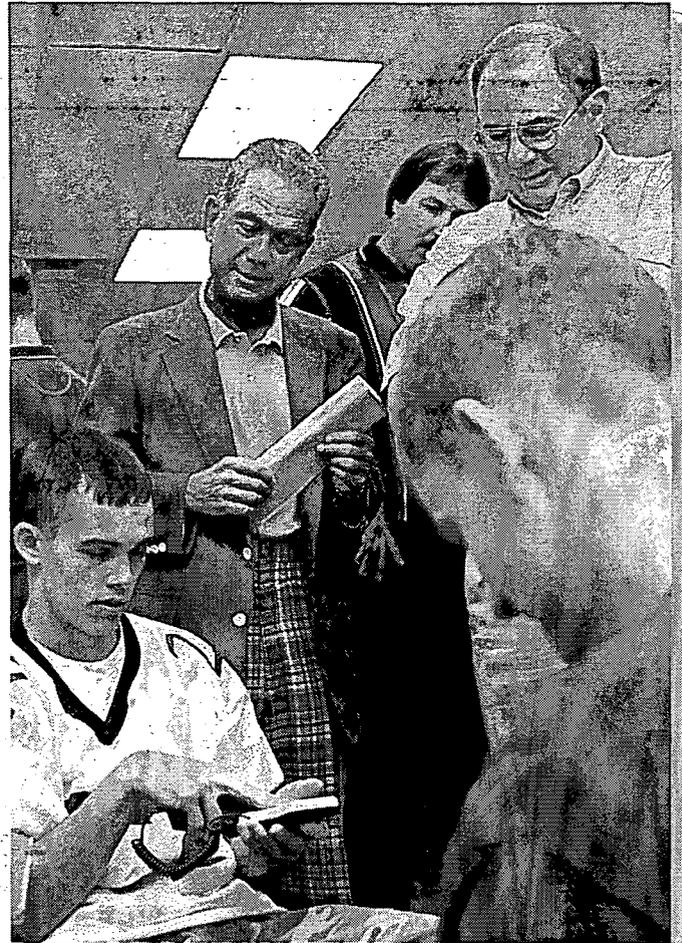
9

## Technology Lab Opens at Ross High School

The technology lab at Ross High School is in high gear, but don't expect to see an industrial arts classroom of times gone by. To the contrary, the new lab is a hands-on approach to encourage students to pursue challenging careers in technology as well as to help enlighten those who may not pursue technical careers. Students are learning fundamental principles of lathe and milling, robotics, electricity, electronics, fluid power, plastics and statistical process control by participating in self-directed modules. "The students learn by doing, while I serve as a facilitator and trouble-shooter," said Todd Hummer, Ross High School technology teacher. "This approach to learning will better prepare the students for the future business world."

The Fluor Foundation recently donated \$15,000 to purchase some of the equipment for the lab as part of the Successful Teaming for Education Partnerships in Science (STEPS) Program. Fernald continues its commitment to local schools through this program and many other education outreach activities.

*Right: Bob Fluor, president of the Fluor Foundation and John Bradburne, president and CEO of Fluor Daniel Fernald, listen to Ross High School students explain manufacturing techniques they are learning in the new technology lab (6981D-0012).*



## Beginning environmental restoration

**A**mid the rumble of earth movers and the skeletons of dismantled buildings a small oasis is about to rise, one which will be a reflection of what Fernald will look like once cleanup is complete. Beginning the week of Oct. 12, 1998, over 100 trees will be planted to form an aesthetic barrier along 500 feet of Willey Road in the area immediately east of the main access road. Several

rows of white pine, mingled with Maple, Oak, Ash and Dogwood trees, will provide an attractive screen from excavation activities taking place in the Borrow Area.

If you're traveling north on Paddy's Run Road and look on the right-hand side, you will also see trees and shrubs being planted in the Habitat Area Environmental Project. This project is one of five environmental projects required by the U.S. Environmental Protection Agency as a result of the Operable Unit 4 dispute resolution agreement. A parking lot has been installed and the two overlooks are under construction. Once complete, the public will have an opportunity to view a variety of native habitats and wildlife.

*Left: Workers from Wise Construction install a silt fence in the Habitat Area to prevent erosion (6967D-0008);*



# Recent Tours

The DOE Ohio Field Office (OFO) Summit was held in Cincinnati on August 25 and 26. The OFO oversees five DOE sites including: Fernald, Ashtabula, Columbus, West Valley, and Mound. Safety, cost savings, project updates and challenges were key topics discussed.

*Right: After the wrap-up on Wednesday, the group traveled to Fernald for a site tour (6957-1).*



Each year during the United Way Campaign, a day is designated as "Retiree Day." All retirees are invited to the site to take part in the activities. This occasion also gives retirees a chance to visit with old friends and co-workers. The day concluded with a site tour and project update (6810D-128).

Representatives have come from Russia, Germany, Canada and now Spain to see and inquire about the Fernald cleanup. Jose Gutierrez, a public official from Madrid, Spain is interested in soil remediation. Accompanying him was Barry Fountos from DOE-HQ.

*Right: Following their tour, Johnny Reising, DOE-Fernald associate director, (center) arranged for Gutierrez (right) to speak with several DOE project managers associated with soil remediation. Fountos (left) visited Fernald several years ago (6810D-0129).*



# New documents added to the Public Environmental Information Center

The following information was recently added to the Public Reading Room, Administrative Record files and Post Record of Decision files at DOE's Public Environmental Information Center (PEIC):

- Waste Pits Remedial Action Project
  - ◆ Final Remedial Design Package
- On-Site Disposal Facility and Soil Characterization & Excavation Project
  - ◆ Ohio EPA Approval of the Draft Area 1 Stockpile Inventory and Waste Acceptance Criteria Attainment Report, Revision A.
  - ◆ Site Preparation Work Plan for Area 1, Phase II Soil Characterization and Excavation Project
  - ◆ DOE's responses to comments from the Ohio Environmental Protection Agency on the Leachate Management Contingency Plan for the On-Site Disposal Facility.
- Facilities Closure and Demolition Project
  - ◆ Technical review of Final "Sewage Treatment Plant Complex Implementation Plan for Above-Grade Decontamination & Dismantlement"
  - ◆ Recycling of Scrap Copper Motor Windings from Fernald to the East Tennessee Technology Park
- Silos Project
  - ◆ Work Plan for Silos 1 and 2 Proof-of-Principle Testing from Vortec Corporation, one of the four Proof-of-Principle testing vendors for Silos 1 and 2.
  - ◆ Quality Assurance Plan from Vortec Corporation.
- Miscellaneous
  - ◆ DOE's response to comments from the Ohio Environmental Protection Agency and U.S. Department of Interior on the Draft Final Natural Resource Impact Assessment and Natural Resource Restoration Plan.
  - ◆ Integrated Site Environmental Report from U.S. EPA and Ohio EPA.
  - ◆ Natural Resource Impact Assessment and Natural Resource Restoration Plan; this is the final version released in September 1998 for public comment.
  - ◆ Environmental Assessment for Proposed Final Land Use at Fernald; this document is also out for public comment at this time.
  - ◆ Sitewide Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Quality Assurance Project Plan.
  - ◆ Draft Environmental Assessment for Intermodal Transportation of Low-Level Radioactive Waste to the Nevada Test Site; this document is out for public comment from Sept. 1, 1998 through Oct. 30, 1998.



## Fernald Report

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12