# fernald Report

**Inside**

- Nuclear material shipments continue
- Silo 3 contract awarded
- Local university benefits from Fernald equipment

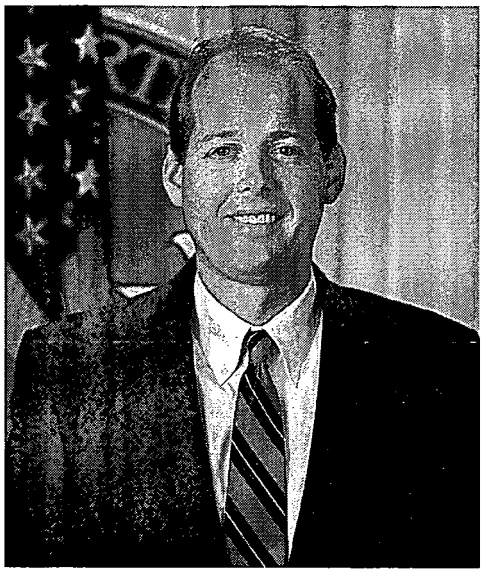
**January** 1999

message from
# Jack Craig

## Safe Shutdown nears completion

When production halted at Fernald 10 years ago, large quantities of process materials were left inside hundreds of buildings on site because many people believed production activities would start again someday. Someday never came. Instead, the mission at the site changed to environmental cleanup and ridding the site of the materials left behind posed a serious challenge.

Not only were the materials left behind among the most contaminated on site, they were also held up in a rapidly deteriorating system of equipment and piping. This unstable environment posed a risk to workers, the community and the environment.



As a result, the Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA) identified Safe Shutdown – the work associated with preparing former production buildings to be decontaminated and dismantled– as one of the highest cleanup priorities.

Our first step in addressing this challenge was to evaluate each facility and prioritize buildings based on conditions and risk. Mechanical devices like elevators, overhead cranes and ventilation systems were no longer operable within the old, deteriorated buildings. As a result, our employees performed safe shutdown activities without heat in the winter and without air conditioning in the summer, in a workplace that was often dark and cramped. Wearing respirators and double sets of anti-contamination clothing, workers have removed more than 500,000 pounds of nuclear materials and thousands of gallons of reagents like acids, bases and organics.

All Safe Shutdown activities will be complete this March thanks to the hard work and dedication of our team members. Completion of this program is a first within the DOE complex and remarkably, it was completed years ahead of schedule and millions of dollars under budget. More importantly, safe shutdown activities have so far been completed safely, which is our number one priority.

A recognition ceremony will be held on March 15 where we will commend the team members who completed the Safe Shutdown project and thank them for bringing us one step closer to achieving the overall cleanup mission and eventual closure of the site.

*Jack Craig*
*Director, DOE-Fernald*

2

*On the Cover: Water Sampling Technician, Mike Stott, downloads water level information from the Biodenitrification Surge Lagoon. The Surge Lagoon contains runoff water from the waste pits and former production area (7023-D0004).*

1938

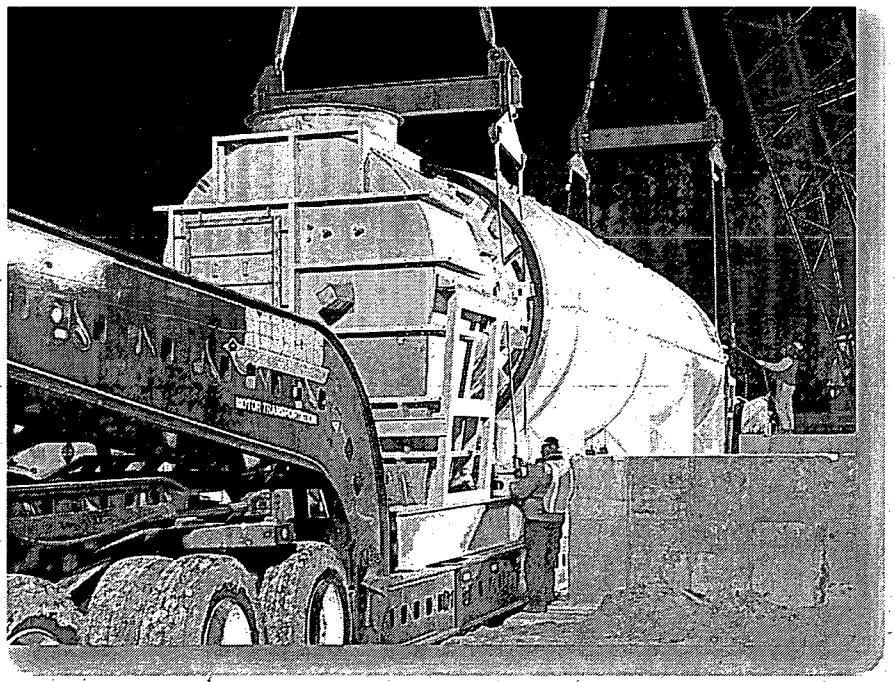
# Removal of Nuclear Materials

Removing uranium products from Fernald is a key element in meeting the Accelerated Cleanup Plan. Notable progress has been made and an exciting new development is underway to help to reach this goal. Progress to date includes:

- Sold approximately 1.8 million pounds of uranium to the private sector;
- Shipped 4800 of the Loss of Fluid Test (LOFT) fuel rods to a fuel processor;
- Screened out approximately 3 million pounds of materials no longer considered "product".

An initiative to establish a Uranium Management Center of Excellence at the Oak Ridge facility is also being developed, whereby Oak Ridge will become the clearinghouse for uranium, thereby freeing up other sites to begin cleanup.

*Fernald's nuclear materials are expected to be removed from the site by 2002 (6714-D265).*



*Above: IT received the first of two dryers on Dec. 23. The dryer was placed between IT's new Gas Control System Facility and the Material Handling Building, adjacent to Fernald's six waste pits. The second dryer arrived this month (6944-D0456).*

# Waste Pits Project startup approach to focus on safety

In 1999, Fernald will begin waste pit cleanup following a controlled, three-step plan that will help establish a safe track record while progressing to more complicated aspects of the project.

During the first step, Fluor Daniel Fernald will use stockpiled waste materials from the Waste Pits Project. "The advantage of starting with stockpiled materials rather than pit waste is to start loading railcars immediately and focus on transportation and disposal activities vital to the long-term success of the project," said Dave Lojek, DOE Waste Pit Project manager.

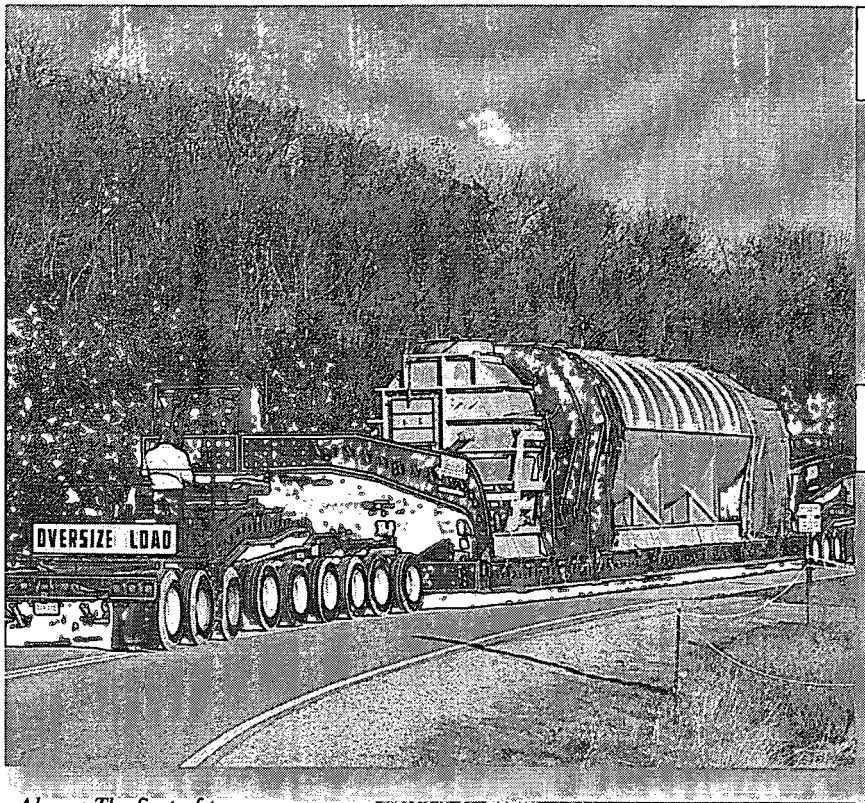
"This approach also provides valuable field experience for our workers carrying out project-specific procedures and operations."

During step two, International Technology (IT) will begin excavating pit materials that do not require treatment (i.e. thermal drying) to meet off-site disposal requirements, and will continue loading waste into railcars for shipment. IT and Fluor Daniel Fernald will concentrate on working through timing or logistical issues during the transfer of loaded railcars for off-site shipment.

When DOE and Fluor Daniel Fernald are satisfied that transportation and disposal activities are running smoothly, IT will begin step three, which involves excavation of pit materials requiring treatment. IT will initiate full-scale operation of the rotary dryers to remove excess moisture from the waste before loading the waste into railcars. Shipments to Envirocare will gradually increase at a controlled rate.

3

# Cleanup Progress Update




## Waste Pits Remedial Action Project (WPRAP)

- Initiated treatment facility operations training for Fernald personnel
- Continued treatment facility construction
- Submitted *First Loadout Work Plan* to regulatory agencies

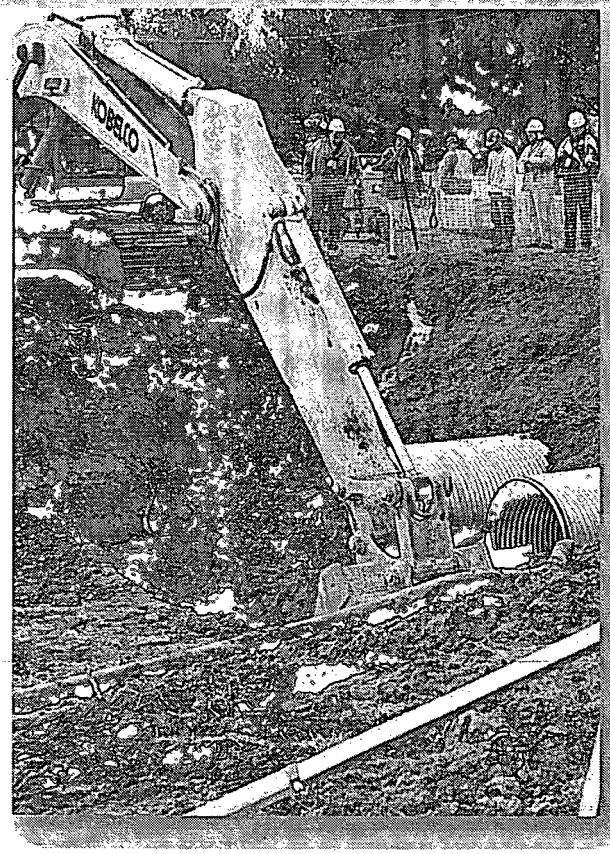
## On-Site Disposal Facility (OSDF)

- Prepared Cells 1 and 2 for winter slow-down
- Placed crusting agent on exposed cell surfaces

*Above: The first of two dryers to be used at the waste pits slowly makes its way up the north access road (6944-D0432).*

*Right: Two 48-inch culverts have been installed beneath the south access road to move water runoff away from the current clay borrow area (6319-D1728).*

*Far right: The cold weather in January did not stop iron workers from moving ahead on the Waste Pits Material Handling Building, which is bigger than a football field (6944-D0397).*



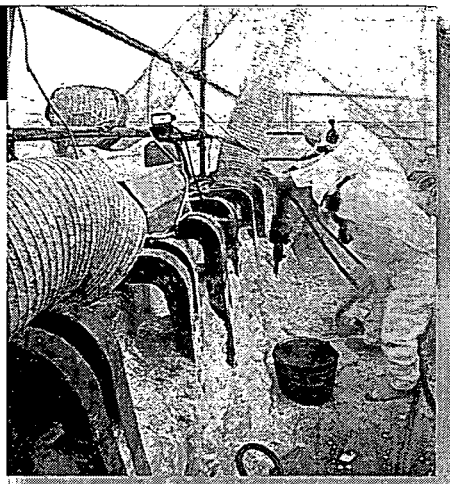

## Facilities Closure & Demolition Project (FC&DP)

### Safe Shutdown

- Continued holdup material removal in selected areas of Plant 6
- Completed packaging Tank Farm holdup material
- Completed removal of 700 gallons of oil from Plant 6 rolling mill

### Decontamination & Dismantlement

- Thorium/Plant 9 Complex —
  - ◆ Continued structural steel size reduction, decontamination of equipment and demobilization
- Miscellaneous Small Structures Project —
  - ◆ Dismantled Building 8F (Drum Washer), bringing total number of dismantled structures to 53
- Maintenance/Tank Farm Complex and Water Storage Tank Project —
  - ◆ Began water storage tank construction
- Boiler Plant/Water Plant —
  - ◆ Completed all field activities
- Facility Demolition/Supplemental Environmental Projects —
  - ◆ Evaluating proposals for decontamination of over 360 tons of track rail and associated hardware; previous negotiations with DOE-Ashtabula regarding the transfer of these materials were discontinued due to contract differences
  - ◆ Continued preparation of boxes containing copper motor windings for shipment to DOE-Oak Ridge as a site-to-site property transfer for recycling



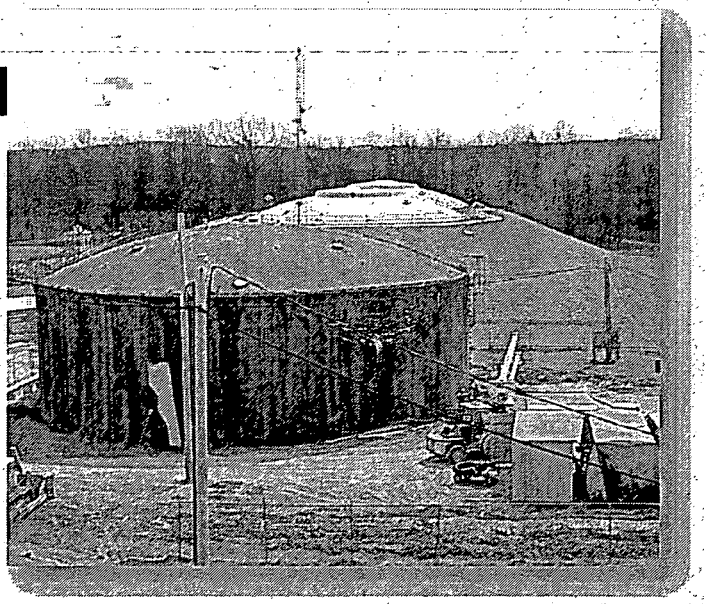
*Left: Hazardous Waste workers using 80 lb. jackhammers removed 87,000 pounds of salt from inside a furnace in Plant 6 (6639-D0115).*

*Below left: Safe Shutdown personnel remove sludge from the bottom of a sump pit in Plant 6, one bucket at a time (6639-D0151).*

*Below: Rocky Mountain Remediation Services will remove 5,100 cubic yards of waste from Silo 3 and stabilize the waste into a brick form before disposing off-site (6759-D0164).*

## Silos Project

- Awarded contract for remediation of Silo 3 to Rocky Mountain Remediation Services on Dec. 18, 1998, more than five months ahead of schedule
- Briefed Silos Project Critical Analysis Team on review of proposals for Silos 1&2 Accelerated Waste Retrieval Project; submitted Consent Package to DOE for review
- Completed 72-hour Proof-of-Principle demonstration test at Vortec (non-joule-heated vitrification testing contractor)



# Cleanup **Progress** Update

## Aquifer Restoration/ Wastewater Project

- Submitted *Injection Demonstration Operations Report* to DOE for further submittal to regulatory agencies
- Held 60 percent design review for Advanced Wastewater Treatment Facility Laboratory Expansion Project with design subcontractor, Lockwood Greene Technologies
- Initiated construction of Biosurge Lagoon Ozone Injection System

## Soil Characterization & Excavation Project

- Excavated additional 12,400 cubic yards from the Inactive Flyash Pile; and prepared area for winter shutdown
- Received bids for *Trap Range Stabilization Package*
- Natural Resource Restoration
  - ◆ Began discussions with Natural Resource Trustees regarding settlement of State of Ohio's claim against Fernald for natural resource damages

*Top:*
*Pipefitters fuse fire protection and domestic water lines which will be fed by the new water storage tank. The 400,000 gallon capacity tank currently being assembled will clear the way for the demolition of the water towers and old 750,000 gallon water storage tank (7014 D0029).*

*Center:*
*Mike Stott (left) and Al Brodbeck (right) analyze data pulled from the Biodenitrification Surge Lagoon. A pressure transducer and data logger stores water level measurements collected monthly from this 8 million gallon basin (7023-D0005).*

*Bottom:*
*An additional 3 to 4 feet of dirt was excavated from the area beneath the Inactive Flyash Pile. Real-time radiation tracking and physical sampling helped isolate pockets of contamination found after initial excavation (6734-D1003).*

## Waste Management Projects

- Liquid Mixed Waste Project — Completed bulking 2,100 gallons of oil from Plant 6 into Batch #9 tank
- Nuclear Materials Disposition — Completed repackaging 121 boxes of enriched uranium tetrafluoride (UF4) and commenced repackaging of approximately 14,500 10-gallon cans of depleted UF4 for eventual shipment to DOE-Oak Ridge
- Loss of Fluid Test (LOFT) Fuel Rod Repackaging — Completed final shipment of LOFT fuel rod boxes

*Above:*
*Members of the Nevada Test Site Surveillance Team reviewed Fernald's Waste Shipping Program in December. Waste shipping will resume after approval is given by DOE-Headquarters (6943-D0021).*

*Left:*
*The T-Hopper turner used in Plant 6 will be sent to the Oak Ridge Uranium Center for Excellence to handle material from DOE sites across the complex (6714-88).*

# Partnerships important to Fernald

When it comes to enhancing Fernald's technical effectiveness, DOE and Fluor Daniel Fernald rely heavily on their special partnerships with universities, colleges and vocational schools. In December, Fernald Technical University Programs participated in the INROADS/Greater Cincinnati-Dayton, Inc. Talent Pool — an event where minority students network with peers, participate in interview workshops and talk to corporate representatives. Fluor Daniel Fernald was among 20 companies that set up corporate displays and discussed opportunities available to potential interns.

Fernald's current INROADS student is Stephanie Dudley, an undergraduate from Ohio University majoring in industrial technology and minoring in business administration. Dudley, who spends her summer and winter breaks at the site, has learned a lot since coming to Fernald four years ago. Partnerships between students like Dudley and Fluor Daniel Fernald support DOE's mission by providing fresh perspectives, exceptional customer service and technological leadership – a combination certain to enhance Fernald's technical effectiveness and cleanup mission.

*Right: The INROADS program gives students the skills, knowledge and experience needed to help them excel in business (7040-D0005).*


# Silos Project Subcontract Awarded

Fluor Daniel Fernald recently awarded a subcontract to Rocky Mountain Remediation Services L.L.C. (RMRS), based in Golden, Colorado for the remediation of Silo 3, which contains about 5,100 cubic yards of cold metal oxides. The subcontract, valued at over $16 million, was awarded Dec. 18, 1998.

RMRS will be responsible for the design and construction of a remediation facility, retrieval and treatment of the Silo 3 material, packaging of the treated waste, and shutdown and dismantlement of the remediation facility. The company has extensive experience with waste treatment and specializes in environmental restoration and regulatory compliance at other DOE facilities. They will utilize the skills and experience of Fernald employees to operate and maintain its facilities. RMRS was selected for the Silo 3 project because of its technical qualifications and excellent safety record.

Upon completion of the facility design phase of the subcontract, which is expected to take 20 months, RMRS will build facilities next to Silo 3. After the material is removed from Silo 3, it will be stabilized using a proprietary chemical process called Envirobond™ which chemically binds the regulated metals in the silo material. Following the treatment process, the material will be compressed into bricks using a second proprietary process called Envirobric™. The treated waste will then be shipped by Fluor Daniel Fernald to an approved off-site disposal facility. Treatment operations are scheduled to begin at Fernald in early 2002. All work, including dismantlement of the treatment facilities, is expected to be complete by the spring of 2003.

*Above: The Silo 3 Small Scale Waste Retrieval team was recognized for their hard work in extracting waste samples so vendors could use them to test their proposed technologies (6759-D0320).*

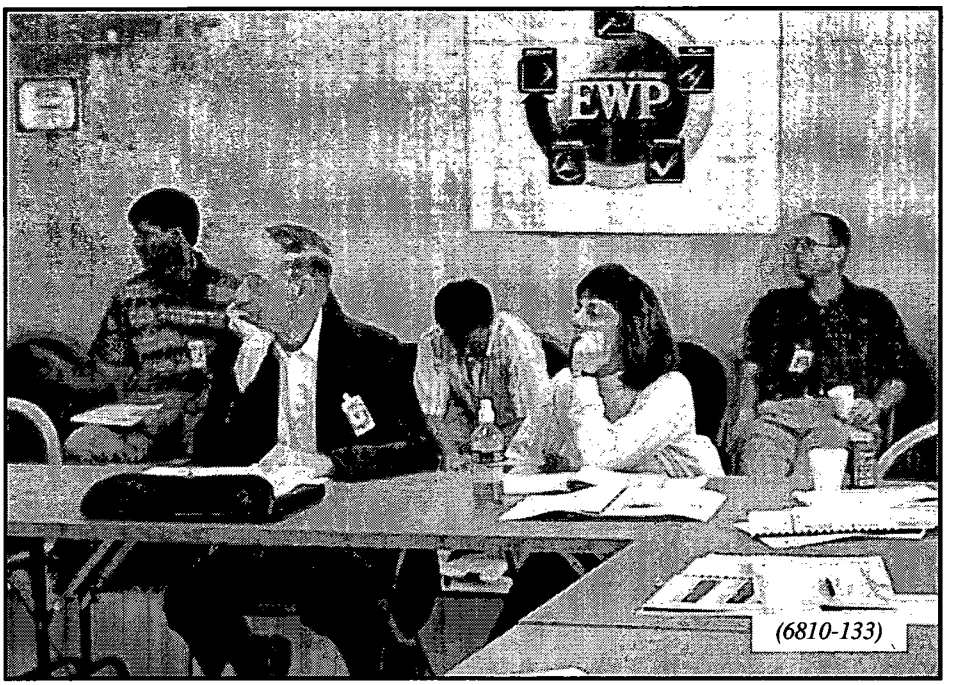
1938

# Integrated safety management

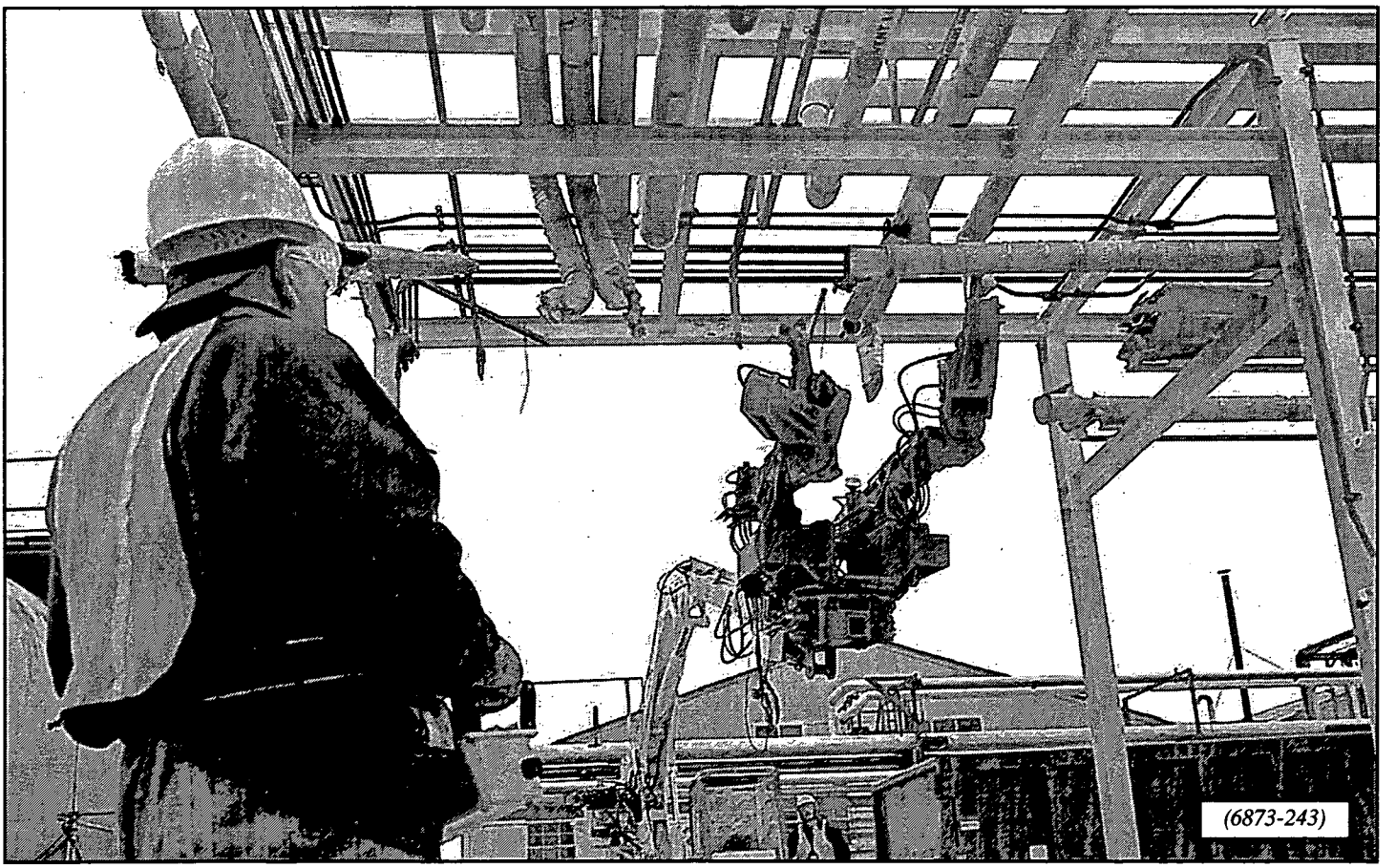
An initiative is underway to ensure safety is integrated into management and work practices at all levels of the organization. Integrated Safety Management (ISM) is an extension of Fernald's successful Safety First Program. Execution of ISM begins by effectively merging safety management into all areas of work planning and execution. The program consists of five core work functions that provide the necessary elements for all work activities.
Team members are expected to:

- define the scope of work;
- analyze the hazards;
- develop and implement hazard controls;
- perform work within controls;
- provide feedback and continuous improvement.

*Below and right: Fernald team members are currently working on several initiatives to promote and integrate ISM into existing programs at the site.*



(6810-133)


(6873-243)


9

## A busy year for the Fernald Citizens Advisory Board

The Fernald Citizens Advisory Board (FCAB) experienced several changes last year including a transition from the leadership of John Applegate (chair of the FCAB since its inception in 1993) to Jim Bierer (member of the FCAB since 1993 and vice-chair since 1997).

FCAB initiatives for 1998 included:

- Monitored Fernald's status as a Defense Closure Fund Site;
- Advocated intermodal transportation of low-level waste from Fernald to the Nevada Test Site;
- Participated in a complex-wide workshop on low-level waste;
- Supported a positive initiative to use Fernald as an environmental and cultural center.

FCAB plans for 1999 include:

- Host a complex-wide workshop on low level-waste transportation;
- Facilitate future use of the site for natural resources, cultural and historical purposes;
- Continue evaluating important projects such as the Silos, Waste Pits and On-Site Disposal Facility;
- Continue encouraging and advocating intermodal transportation to the Nevada Test Site.

*Above: (from left); members Fawn Thompson and Tom Wagner; vice chair; Jim Bierer, chairman and technical consultant, Doug Sarno discussed the May Transportation Workshop at a recent FCAB meeting (7020-D001).*

10

## CRO anticipates 1999 as turning point year

This year, the Community Reuse Organization (CRO) hopes to kick off programs to help site workers and the community adjust to Fernald's closure following cleanup.

"During its first year, the CRO focused on organizing and securing start-up funding from DOE," said CRO Chair David McWilliams. "Our focus has been on planning and collecting input from the public and Fernald workers on issues like final land use of the site and potential economic development programs for workers and the community."

Some noteworthy 1998 accomplishments included:

- two grant awards: a $265,000 planning grant from DOE and a $50,000 grant from the Ohio Department of Development for an entrepreneurial assistance program;
- recommendation to DOE on final land use of the Fernald site; and prioritization of economic development programs.

With most of the planning phase complete, McWilliams views 1999 as a turning point year for the CRO. "Our plan is to submit a *Community Transition Plan* to DOE in March, and following public review, hopefully begin implementing programs later in the year," explained McWilliams.

*Above: The goal of the CRO's proposed economic development program is to create or expand job-producing businesses through loans, grants and low-cost business facilities (6904-D0013).*

1938

## Making wishes come true

Unfortunately, there are some parents who can't afford some of the basic necessities for their children, let alone the toys most of us associate with the holidays. That's where the Fernald Wish Tree Program comes in.

For the fifth year, Fernald employees pitched in to make the season a little brighter for some local families in need of assistance. "We work with the schools to identify families that could use some help, and then employees have the opportunity to purchase and wrap presents for the children," said Katie Payne, one of the event's coordinators. "It's all done anonymously so we never get to see the expressions on the kid's faces, but just knowing that we've made a difference is what it's all about." This year, team members helped approximately 150 families have a happy holiday. Maybe there is a Santa after all.

*Above: Fernald employees Sue Peterman, Janice Oxendine and Carla Shanks wrapped gifts for hundreds of kids the in tri-state (7034-D0001).*

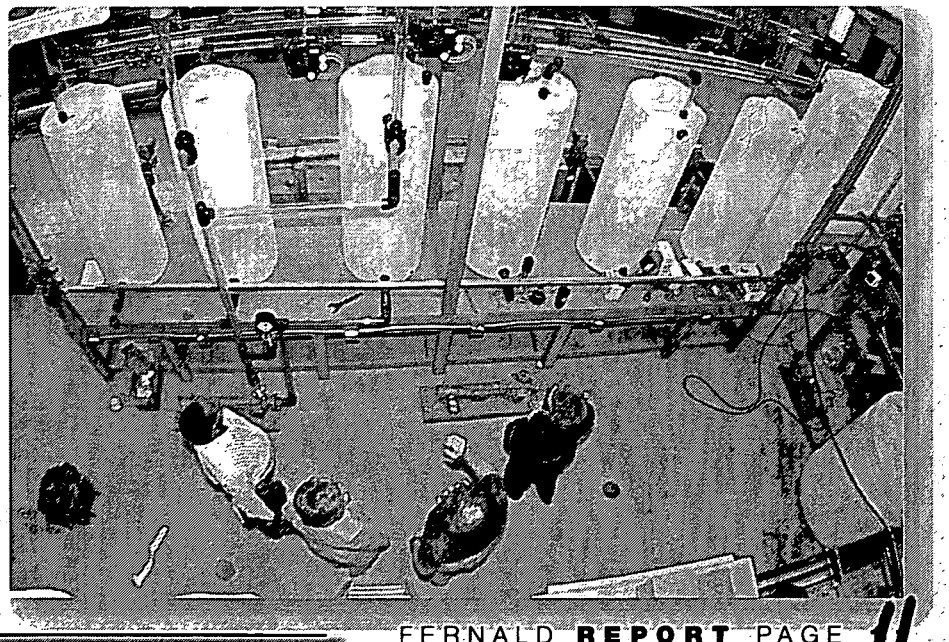
# Local college benefits from Fernald cleanup

Recently Cincinnati State Technical and Community College held an Open House at the Institute for Advanced Manufacturing Sciences (IAMS) in Norwood to introduce its new electrical/process control training facility. This $1.5 million-plus facility is designed to give students the necessary skills to install and maintain equipment used in today's high-tech manufacturing environment. What's unique about this facility is that a good portion of the classroom is outfitted with equipment from Fernald.

The sudden halt of uranium production in the late 1980's left numerous pumps, control panels, and electrical equipment sitting idle. "It would be a shame to keep this equipment sitting on a shelf unused," said Hontas Bailey, Fluor Daniel Fernald property manager. "Through the DOE's Energy Related Laboratory Equipment (ERLE) Grant, we were able to partner with Cincinnati State in their effort to set up a new training facility."

According to Bob Turner, instructor at Cincinnati State, "The equipment from Fernald has helped us tremendously. There is no way we, or most other colleges for that matter, could afford this level of equipment. Our students can now walk into a manufacturing environment that's realistic, challenging and safe."

ERLE grants of Fernald equipment have gone to the University of Cincinnati and other universities in this region, but this is the biggest donation to date. According to Bailey, "It's a good fit and it's nice to see this equipment being used in our community." Turner agrees, "Our students will leave here better prepared and confident they can walk into a new job and perform safely. I am excited that Fernald has helped us make this a top notch training facility."



*Right: The systems built using excess Fernald equipment will give students the opportunity to monitor process controls like flow, pressure and temperature (6994-D004).*

# 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):

- On-Site Disposal Facility and Soil Characterization & Excavation Project
  - Ohio EPA comments on the Substantive Wetland Permitting Cross-Walk for the Silos Infrastructure Project
  - Ohio EPA approval on the Trap Range Stabilization Package
- Facilities Closure and Demolition Project
  - Schedule revisions from DOE-Fernald to the regulators requesting a resequencing of the milestones for D&D activities
  - D&D re-sequencing and extension request letter from EPA concurring with DOE's request to change the milestones
  - Response actions related to residue incidents at the On-Site Disposal Facility
- Silos Project
  - Ohio EPA comments on the Silos Infrastructure Project Design Package
  - Fernald Proof-of-Principle Testing Work Plan Assurance and the Quality Plan for the Silos 1 & 2 Proof-of-Principle Testing from Chem-Nuclear Systems Corporation
- Aquifer Restoration Project
  - September 1998 Operating Report for the Re-Injection Demonstration
- Miscellaneous
  - The Economic Impact of Fernald on the Greater Cincinnati economy prepared by the Economics Research Group/Center for Economic Education/University of Cincinnati for the Fernald Community Reuse Organization
  - Historic American Engineering Record; completed for the Ohio Historic Preservation Office
  - Historical documentation of facilities and structures at Fernald
  - Historical documentation of Fernald and its role within the DOE complex

---

**Fernald Report**
Gary Stegner, Public Information Director
U.S. Department of Energy
Fernald Environmental Management Project
P.O. Box 538705, Cincinnati, OH 45253-8705
Telephone: 513-648-3153,
E-Mail: **gary_stegner@fernald.gov**
Fernald Web Site: **www.fernald.gov**

MS78

Rayer, Diane

12