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# FERNALD REPORT - SEPTEMBER 1996

09/01/96

DOE-FN PUBLIC
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FACT SHEET

# Fernald Report

September 1996

## Enhanced Work Planning Nets Significant Productivity Improvements

In 1995, DOE introduced a new initiative to dramatically redesign DOE's work planning process in an effort to improve safety, productivity and efficiency. Over the last year, nine DOE sites, including the Fernald Environmental Management Project (FEMP), have participated in this initiative called "Enhanced Work Planning."

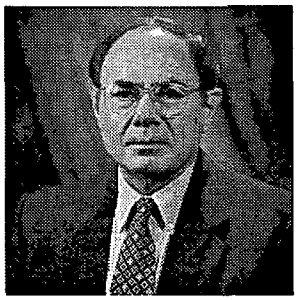
The foundation for the initiative is to bring together -- as an integrated, multidisciplinary team -- all personnel involved in work planning to develop, review, and approve work packages in one step. This has required fundamental culture changes. Historically, craft workers were rarely involved in preparing or reviewing work packages, so problems which might have been averted during planning were not discovered and corrected until the work was ready to be performed, often causing delays and rework. Now craft workers, engineers, health and safety specialists, etc., work with planners early during planning, maximizing productivity and efficiency.

## The FEMP's Notable Successes

The FEMP has been a model for many of DOE's programmatic improvements and has experienced increased efficiency in 34 areas of the work planning process. Some of the FEMP's most notable successes include:

- a $250,000 annual cost avoidance by having support groups, rather than planners, identify when permits are required, what the requirements should be, and how the requirements can be made more consistent for similar jobs;
- an 86 percent reduction in the average time to complete a corrective maintenance work request, from 151 days to 21 days;
- a 42 percent drop in the site's backlog of maintenance work orders and preventive maintenance actions;
- a 20 percent reduction in delay time for executing work since last quarter.

Highlights of the FEMP's current work planning initiatives, such as the development of an electronic work package, will be featured in future issues of the *Fernald Report*.



*(FEMP File Photo 6404-08)*

## A Message from Guest Columnist Fluor Daniel Fernald President John Bradburne

I am pleased to announce that effective immediately, our company has changed its name from FERMCO to Fluor Daniel Fernald Inc. Since I joined the Fernald team in February, many team members have heard me say that one of my goals was to better integrate FERMCO and Fluor Daniel. Many team members told me how disconnected they felt from the parent company.

This name change was made for various reasons, with the two most important being that it:

- conveys our identification with the global Fluor Daniel family;
- is symbolic of our efforts to open more doors for team members to the multitude of growing opportunities within Fluor Daniel.

FLUOR DANIEL FERNALD

Organizationally, we are working to achieve an environment which allows us to bring together the best combination of the company's resources to provide the greatest value for our team members and for DOE, our client. Our operations at the FEMP are -- and must continue to be -- BETTER, FASTER, CHEAPER and SAFER.

I am pleased to be the first president of Fluor Daniel Fernald, and the leadership team is happy to be leading this company to completion of the accelerated cleanup plan at the FEMP. We are simply carrying out the mission as a company with a new name.

John Bradburne

President, Fluor Daniel Fernald



## DOE Secretary O'Leary Designates FEMP Mentor-Protégé Program as "Program of the Year"

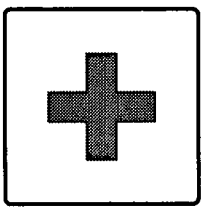
On Aug. 22, DOE Secretary Hazel O'Leary honored Fluor Daniel Fernald Inc. for its 1995 Mentor-Protégé Program accomplishments by designating it as the "Program of the Year." Fluor Daniel Fernald implemented its Mentor-Protégé Program in March 1995. The program provides historically under-utilized businesses -- small disadvantaged and/or women-owned businesses -- with appropriate developmental assistance to perform as subcontractors at the FEMP and other DOE facilities.

According to Fluor Daniel Fernald President John Bradburne, the businesses in the Mentor-Protégé Program have already made valuable contributions in terms of quality and cost efficiency. Area companies currently participating in the Mentor-Protégé Program are Horizon Environmental Group and Village Building Services of Cincinnati, and International Consultants Inc. of Dayton. The program is administered through the FEMP Small Business Office.

## Emergency Response Agreement Mutually Benefits FEMP and Ross Township

The FEMP recently modified its mutual aid agreement with Ross Township to ensure each will assist the other with an automatic response in the event of an emergency. The FEMP's mutual aid agreement with Ross Township is similar to its mutual aid agreement with Crosby Township. Approved by DOE, the modified mutual aid agreement became effective Sept. 6.

"It's a modification to the existing mutual aid contract," Steve Wentzel, a Fluor Daniel Fernald manager, said. "We respond automatically with some predetermined equipment when they receive an alarm." For example, if Ross Township Fire Department were to receive a fire alarm from within its community, FEMP Emergency Response Team members would also respond with a pumper, ambulance or a rescue truck to assist Ross emergency response personnel.



"It reduces our response time to emergency assistance calls in the Ross area, especially at times when their staffing levels are low -- like during the day," Wentzel said. He also noted the modified mutual aid agreement benefits the FEMP as well. "It opens the door [for us] to utilize their increased staffing levels in the evenings when we have reduced staffing levels on site. This is another opportunity for us to improve our ability to work together to improve safety for both the FEMP and the community."

## Liquid Waste Project Completed 40 Days Ahead of Schedule

Fluor Daniel Fernald Waste Management Program personnel completed the shipment of legacy liquid waste to the Toxic Substance Control Act (TSCA) incinerator, located in Oak Ridge, Tenn., 40 days ahead of schedule. The final waste shipment to the TSCA incinerator was completed Aug. 21.

**During this project, 3,204 containers were processed for liquid removal.**

The legacy waste shipped to the TSCA incinerator was identified in the *Site Treatment Plan*. The project included bulking drummed waste into 21,000 gallon tanks for sampling and analysis as required to meet the TSCA incinerator Waste Acceptance Criteria. Upon acceptance by TSCA Operations, the waste was loaded into tankers for shipment to the incinerator.

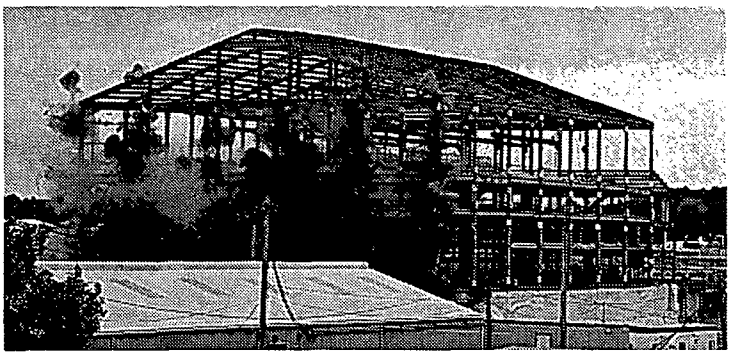
As a result of the shipments to the TSCA incinerator, the FEMP's waste inventory has been reduced to approximately 100,500 gallons, which includes the 51,500 gallons shipped during fiscal year 1995 and the 49,000 gallons shipped during fiscal year 1996.

## On-Site Disposal Facility Cap and Liner System Results Favorable

Results of laboratory and field test data confirm that the construction procedure planned for the clay layers of the On-Site Disposal Facility cap and liner systems will meet design requirements. Data were collected throughout the summer in accordance with Ohio EPA regulations as part of the On-Site Disposal Facility test pad demonstration project. The tests were conducted to measure the permeability of the clay test pads and demonstrate that the criteria for the compacted clay to be used in the construction of the On-Site Disposal Facility liner and cap systems can be met.

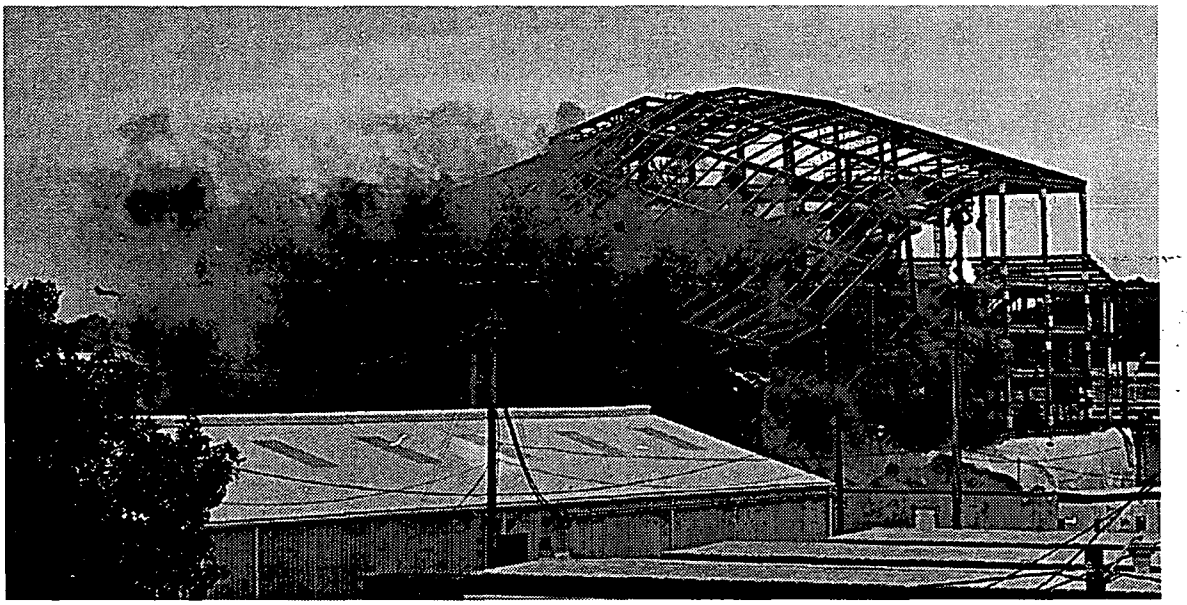
# Plant 4 Implosion A Booming Success

The FEMP's Plant 4 was demolished on Aug. 24, when explosive charges attached to key structural supporting members were detonated to drop the steel superstructure to the ground. The implosion was successful, and all activities were completed as planned.



*Plant 4 was imploded by Controlled Demolition Inc., which used linear-shaped charges to take down the steel superstructure (FEMP File Photo 5965-905).*

Fluor Daniel Fernald subcontractor Babcock and Wilcox continues decontamination and dismantling activities in Plant 1, the former incoming materials sampling plant, and two small buildings surrounding the plant. Plant 1 will also be imploded. The Plant 1 implosion is tentatively planned for early 1997.



*Steel, concrete and other materials from the felled Plant 4 building have been cut into manageable pieces using crane-mounted shears. Final disposition of these materials will be consistent with the Record of Decision for Final Remedial Action at Operable Unit 3 (FEMP File Photo 5965-908).*

*Equipment decontamination and subcontractor demobilization activities are nearing completion. On this project, the contract completion date for subcontractor Babcock and Wilcox is on schedule for the end of September. (FEMP File Photo 5965-925).*

## Data Indicate Fernald Uranium Discharges Continue To Decline

As FEMP cleanup efforts proceed, environmental monitoring programs will continue. The *Site Environmental Report* presents sampling data for air, water, soil, sediment, vegetation, fish and other media which are collected throughout the year as part of the FEMP environmental monitoring program.

FEMP uranium discharges to the Great Miami River decreased from 351 kilograms (772 pounds) in 1994 to 179 kilograms (394 pounds) in 1995, a 49 percent decrease from last year.

Air emissions were estimated at 3.5 kilograms (7.7 pounds) for 1995, as opposed to 1.3 kilograms (2.9 pounds) in 1994.

The maximally exposed individual is a hypothetical person assumed to live next to the FEMP, eat only locally produced fruits and vegetables, and drink water from a local well. The dose to the maximally exposed individual was calculated at 0.7 millirem in 1994.

Copies of the annual report can be obtained at the Public Environmental Information Center, 10845 Hamilton-Cleves Road, or by calling DOE, 513-648-3153.

## DOE Publishes *Site Environmental Report* for 1995

Issued Sept. 18, the annual *Site Environmental Report* documents informationn that indicates uranium discharges from the FEMP continued to decline in 1995.

The amount of uranium contained in all liquid effluent discharged from the site decreased from 461 kilograms (1,013 pounds) in 1994 to an estimated 310 kilograms (682 pounds) in 1995.

FEMP uranium discharges to the Great Miami River decreased from 351 kilograms (772 pounds) in 1994 to 179 kilograms (394 pounds) in 1995 -- a decrease of 49 percent from last year. The decrease may be attributed to additional treatment capacity provided by the FEMP Advanced Wastewater Treatment facility (AWWT).

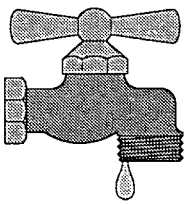


In addition, contaminated groundwater continues to be pumped from the aquifer that underlies the site and surrounding area. Extraction wells installed south of the FEMP to prevent further migration of uranium contamination began operating in August 1993. The contaminated water is returned to the site for monitoring and treatment at the AWWT facility and then discharged to the Great Miami River.

While airborne uranium emissions have decreased each year since production ended in 1989, there was a slight increase in 1995, as a result of stepped-up cleanup activities. Air emissions were estimated at 3.5 kilograms (7.7 pounds) for 1995 as opposed to 1.3 kilograms (2.9 pounds) in 1994.

In 1995, the dose to the maximally exposed individual was calculated at approximately 1 millirem or approximately 1 percent of the limit established by the International Commission on Radiological Protection (ICRP). The maximally exposed individual is a hypothetical person assumed to live next to the Fernald site, eat only locally produced fruits and vegetables, and drink water from a local well. The dose to the maximally exposed individual was calculated at 0.7 millirem in 1994.

At its facilities, DOE seeks to limit radon concentrations to below 3.0 picocuries per liter (pCi/L). At the FEMP fence line, measurements in 1995 were approximately 0.7 pCi/L, similar to the 0.8 pCi/L measured in 1994, and well below DOE's limit. For comparison, some annual average background concentrations of radon (off site in the Cincinnati area) ranged from 0.6 to 0.9 pCi/L in 1995.



## Public Water Supply Connections Nearly Complete

Most residential connections to the Public Water Supply have been completed. All connections meet the requirements of the Ohio EPA, Hamilton County General Health District and Cincinnati Water Works. Final connections, including restoration work, will continue through the fall.

DOE's share of the total cost is about $5.8 million of $9.4 million required for completion of the Western Hamilton County Water plan, Phase IA. Work began in early March to complete DOE's commitment to supply drinking water to those home owners potentially affected by the South Groundwater Contamination Plume. Service connections are being made to approximately 140 properties through contracts administered by Hamilton County Department of Public Works.

## Pumping Stops Uranium Contamination Migration at Wells

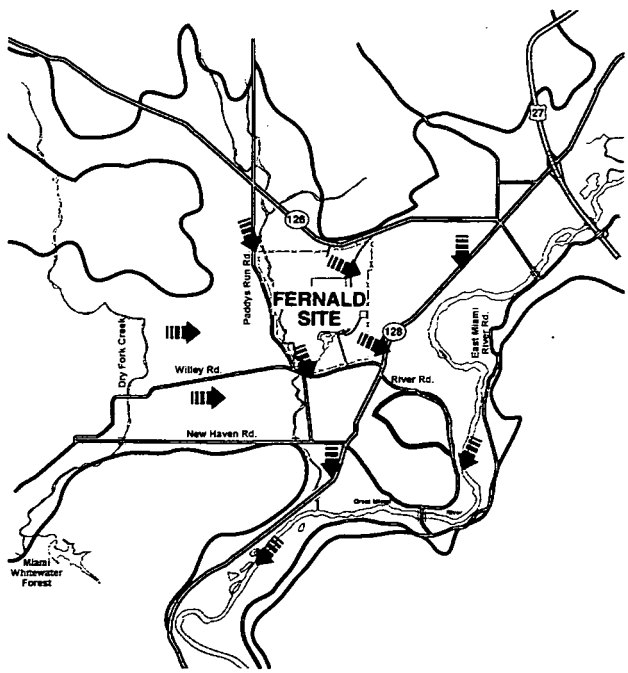
As a result of past production operations at the FEMP, uranium has migrated off property. The primary objective of the South Plume removal action is to prevent further southern migration of the uranium plume in the sole-source Great Miami Aquifer.

The South Plume Removal Action, consisting of five groundwater extraction wells located off property south of the FEMP, began operation in August 1993. Groundwater is being pumped from the extraction system through a force main back to the site where it is treated, monitored, and then discharged to the Great Miami River through the FEMP's discharge pipeline. Since pumping began, 1.9 billion gallons of groundwater and 266 pounds of uranium have been pumped from the aquifer. Additionally, the southward migration of the groundwater contaminant plume has been halted at the line of recovery wells. Coupled with previous on-property source control and source removal activities, the pumping has resulted in significant decreases in uranium concentrations in the South Plume groundwater. The current off-property maximum uranium contamination in groundwater is approximately 150 parts per billion versus the 1993 pre-pumping maximum of greater than 300 parts per billion.

This South Plume Removal Action is being integrated into the comprehensive sitewide groundwater remedy which is currently being designed for implementation beginning in 1998.

The Great Miami Aquifer remediation effort is envisioned to include both extraction and treatment of contaminated water then reinjection of treated water to enhance the effectiveness of the remedial efforts. Modeling scenarios indicate the Great Miami Aquifer remediation timeframe could be reduced to 10 years with reinjection and additional recovery wells located within strategic contamination "hotspots."

Preliminary field tests of injection indicate it may work; however, a full-scale field demonstration is need to test its viability as a component of the FEMP's groundwater remediation strategy. This field-scale test is scheduled for early 1996.



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## New FEMP Access Facility Under Construction

Construction has begun on the new Site Access Facility along the South Access Road on the way into the Fernald site parking lots. "So far the project is about 25 percent complete. We began on Aug. 12, and the construction is scheduled to last for five months," said Bruce Myers, Fluor Daniel Fernald construction manager. The tentative completion date is Dec. 5. A new double-wide trailer will be located in this area and used for employee and visitor badge distribution. Two guard kiosks are also being constructed at the entrance to each parking lot area. During this project, the normal flow of traffic will be rerouted. FEMP team members and visitors are requested to drive carefully through the area.

## ARIES Robot Successfully Demonstrated

On Aug. 21, the Autonomous Robotic Inspection Experimental System (ARIES) was demonstrated to 25 observers at the FEMP. ARIES was built by the South Carolina Universities Research and Education Foundation (SCUREF) team members at Clemson University and University of South Carolina. SCUREF has contracted with the DOE Morgantown Energy Technology Center, and is using DOE funds for this work.

*ARIES is a mobile self-navigating platform outfitted with cameras, bar code readers, and lasers so it can inspect for rust, dents, blisters, etc., on drum surfaces to supplement and enhance hazardous waste inspections (FEMP File Photo 6293.92).*

During the demonstration, the machine performed well. During its inspection runs, ARIES even successfully crossed a berm and dike ramp that separates the two areas where the demonstration was performed. This developmental testing at the FEMP enabled developers to test, run, debug and improve their robots while operating in a typical DOE waste storage facility.

The ARIES team will have an opportunity to integrate "lessons learned" before advancing to a comparative study at Idaho National Engineering Laboratory and Los Alamos National Laboratory, which will host more tightly controlled tests to gage performance.

## Fernald Community Group Participates in Retreat

The Fernald Community Reuse Organization participated in an orientation retreat on Sept. 14 at the Alpha Building near the FEMP. The purpose of the retreat was to inform members of the current state of cleanup progress at the FEMP and begin discussions on the group's path forward and business operations. The group also listened to reports from the Fernald Citizens Task Force and the Natural Resource Trustees.

During October, the community group will meet again to further discussions on its mission and internal operations and will also participate in a special forum conducted by the National Council for Urban Economic Development (CUED). The DOE Office of Worker and Community Transition retained CUED -- an economic development membership association -- to provide technical assistance to communities affected by downsizing and/or closure of DOE sites.

During a two-day visit, a team of CUED economic development strategists will meet with various FEMP stakeholders to gain an understanding of regional economic development needs, programs and services. Based on information collected during its visit, the CUED team will recommend initiatives it believes the Fernald Community Reuse Organization should undertake, given the local economy and existing economic development services.

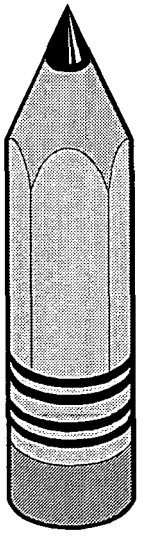
## Fernald Citizens Task Force to Discuss Silo 3 Treatment During Sept. 28 Meeting

On Saturday, Sept. 28, the Fernald Citizens Task Force will hold its next meeting from 8:30 a.m. to 12:30 p.m. at the Alpha Building, 10967 Hamilton-Cleves Highway, Harrison. During the meeting, task force members will discuss a proposal to amend Silo 3 treatment, as well as the implications on the budget. The meeting is open to the public, and time will be reserved for the public to address the task force members.

## FERMCO Joins "Push For Pencils" Back-to-School Effort

In conjunction with the FreeStore and the WVXU radio station, from Aug. 19 through Sept. 6, Fluor Daniel Fernald team members collected the following items to help provide children with adequate school supplies:

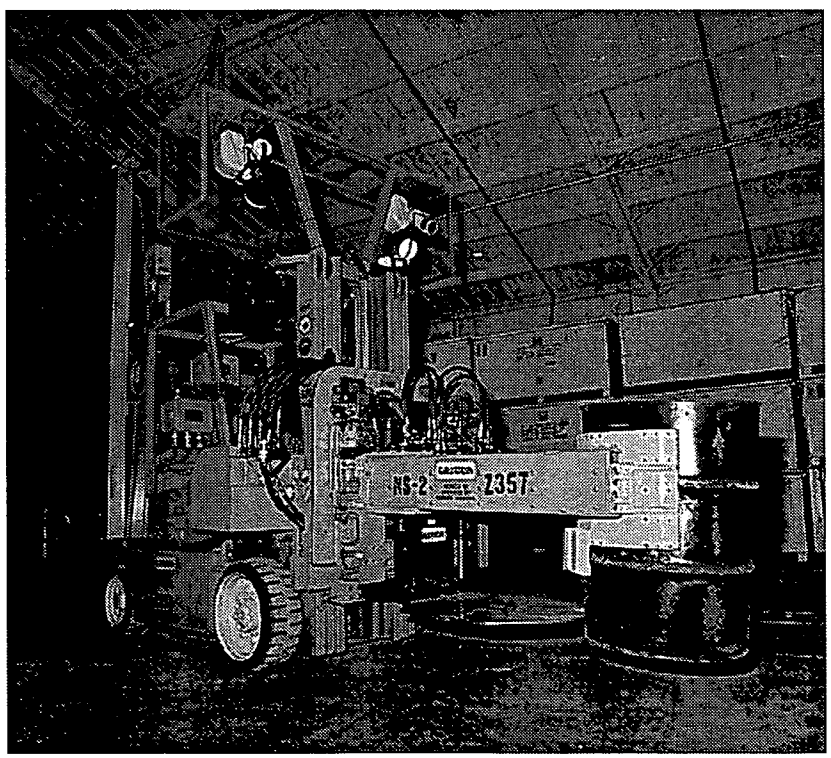
748 crayons;
850 pencils;
10 notebooks;
10,420 sheets of loose-leaf paper;
8,680 sheets of bound paper;
146 folders;
148 ounces of glue;
3 pencil boxes;
48 colored pencils;
24 markers;
20 pens;
8 rulers;
6 erasers;
16 pairs of scissors;
1 calculator.



## Call FEMP Community Message Line for Public Involvement Opportunities

Local stakeholders who want a quick summary of public events and meetings involving the FEMP are encouraged to call the FEMP Community Message Line. The message line has updated information on key events of public interest and is accessible 24 hours, seven days a week. Any caller who has a question may leave a message on the line, and a FEMP team member will return the call.

513-648-6272




*During the thorium overpacking project, operators use remote-controlled equipment to place deteriorated drums of thorium into overpacking containers (FEMP File Photo 6014-334).*

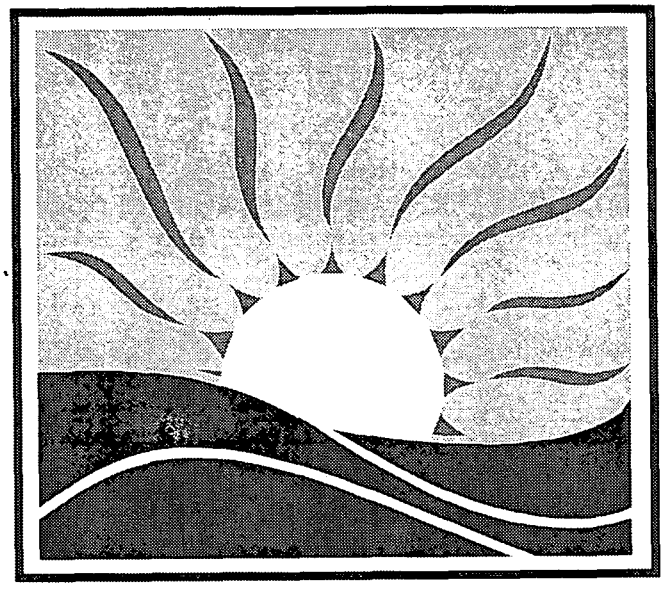
## Thorium Overpacking Project on Schedule

The overpacking of the drums of thorium continues on schedule. As of mid-September, 750 drums had been packaged into 125 thorium overpack containers. Twelve truckloads carrying 100 thorium overpack containers (six to eight thorium overpack containers per shipment) have been shipped to NTS since the project began May 6.

## Fernald Natural Resources Trustees Propose Path Forward

In addition to DOE's responsibility to clean up the FEMP, CERCLA imposes liability on DOE for the injury of natural resources on and around the FEMP due to releases or threats of releases of hazardous substances.

The Fernald Natural Resource Trustees have prepared a letter to U.S. EPA, proposing a tentative path forward for resolving DOE's potential natural resource liabilities. The Fernald Natural Resources Trustees have agreed to focus on a natural-resource-restoration-based approach as part of the remedial design process, as opposed to a formal damage assessment.



## Public Input Welcome

The Fernald Natural Resources Trustees act as guardians of natural resources on behalf of the public. They are interested in any input on this issue, including the proposed path forward. You may call or write DOE Public Information Director Gary Stegner, 513-648-3153, to provide any comments or receive additional information.

Gary Stegner
Public Information Director
U.S. Department of Energy
Fernald Environmental Management Project
P.O. Box 538705
Cincinnati, OH 45253-8705

# Low-Level Radioactive Waste Shipments to Nevada Test Site

The volume, in external cubic feet (cf), of low-level radioactive waste shipped to the NTS during August 1996 was 66,045 cf. As of Aug. 30, the FEMP had shipped 255,775 cf (external) of low-level radioactive waste to NTS for fiscal year 1996. Low-level waste volume reduction includes approximately 4,855 containers of legacy low-level uranium residue; 1,040 containers of treated uranyl nitrate hexahydrate (UNH) residues; 388 containers of thorium oxalates/ hydroxides; and 2,100 containers of mixed waste materials identified in *Fiscal Year 1996 Inventory Reduction Plan for Legacy Waste at the FEMP.*

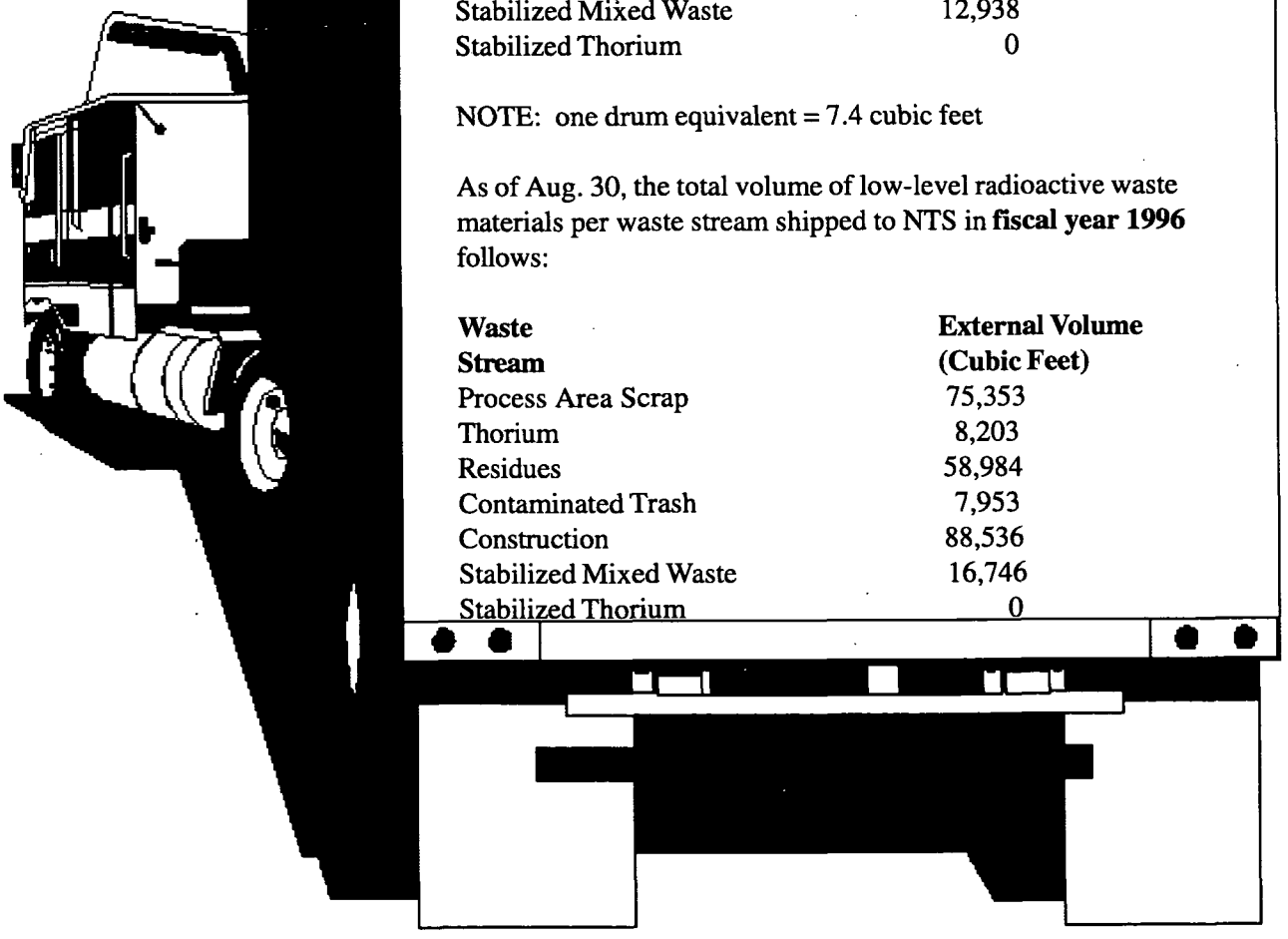
The volume of low-level radioactive waste materials per waste stream shipped to NTS in **August 1996** follows:

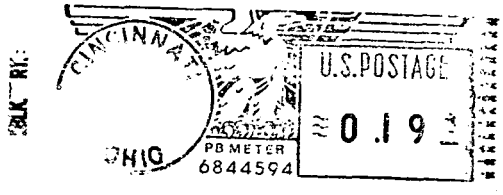
| **Waste Stream** | **External Volume (Cubic Feet)** |
|---|---|
| Process Area Scrap | 8,094 |
| Thorium | 3,860 |
| Residues | 9,383 |
| Contaminated Trash | 2,400 |
| Construction | 29,370 |
| Stabilized Mixed Waste | 12,938 |
| Stabilized Thorium | 0 |

NOTE: one drum equivalent = 7.4 cubic feet

As of Aug. 30, the total volume of low-level radioactive waste materials per waste stream shipped to NTS in **fiscal year 1996** follows:

| **Waste Stream** | **External Volume (Cubic Feet)** |
|---|---|
| Process Area Scrap | 75,353 |
| Thorium | 8,203 |
| Residues | 58,984 |
| Contaminated Trash | 7,953 |
| Construction | 88,536 |
| Stabilized Mixed Waste | 16,746 |
| Stabilized Thorium | 0 |



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