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**FERNALD REPORT, JULY 1996 FACT SHEET**

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FACT SHEET

# *Fernald Report*

**July 1996**



## **Fernald Open House Set for July 20; Progress is "Grounds for Celebration"**

On July 20, from 10 a.m. to 4 p.m., the public is invited to visit the Fernald site during its 1996 open house. During the event, visitors will get a first-hand view of the cleanup progress since 1990, when the last open house was conducted, as well as activities currently underway at the Fernald site.

Open House exhibits will highlight the past, present and future activities at the Fernald site. A special feature of the 1996 Open House will be "Kids' Corner," an area devoted to involving children with hands-on experiences related to science and environmental cleanup. Kids will have an opportunity to use a Geiger counter to detect radioactivity in common household items, such as smoke detectors. In addition, refreshments will be available to visitors throughout the day. Visitors can take a bus tour of the former process area. The 40-minute tour will include a drive by the K-65 Silos, Vitrification Pilot Plant and Fernald's six waste pits.

## **Shipments Approved to Dispose Fernald Waste Off Site; Accelerated Cleanup Plan Moves Forward**

Fernald has received approval to continue shipping low-level radioactive waste for off-site disposal, including thorium materials that are now being packaged into containers for safe shipment and disposal. Uninterrupted shipping of approximately 5,600 deteriorated thorium drums is a top priority because it represents one of the most significant potential health hazards at Fernald. In addition, this approval is critical to the Fernald accelerated 10-year remediation plan.

DOE and FERMC0 successfully completed the recertification process that is required to continue shipping Fernald waste off site. Specifically, this means Fernald is approved to continue shipping not only thorium residues and thorium-contaminated items but process area scrap, construction/demolition debris, process residues, and contaminated trash. This includes backlog waste leftover from the production years as well as wastes currently being generated as a result of performing cleanup activities at the site. Two additional waste streams are now approved for shipment off site as well -- solidified "mixed" waste, which is treated prior to shipment to eliminate any hazardous characteristics, and solidified thorium nitrate.

Since 1972, Fernald has been the storage site for all thorium materials in the DOE complex. Due to reduced worldwide demand, the thorium material stored at Fernald has been declared waste. The deteriorated drums are placed into new, larger disposal containers to ensure the protection of public health and the environment during shipment to the disposal site. Fernald's thorium is a mixture of thorium metal, oxides and residues remaining from past production. The use of a thorium/uranium fuel cycle was studied extensively in the 1960s for its potential both as a nuclear fuel and as an efficient energy source. This fuel cycle is not in use in the United States, primarily because thorium is more difficult to manage than uranium.



## Off-site Shipment of Normal Uranium Oxides Complete

The final shipment of normal uranium oxides to AlliedSignal was made June 24, completing the contract to ship 708,658 net pounds of this material. FERMCO is now preparing to ship approximately 500,000 pounds of normal uranium metal to AlliedSignal (the remaining inventory of normal uranium at Fernald). These shipments are anticipated to begin in late July and completed by the end of the year.

## FERMCO Recognized for Achieving "Zero Accidents" Status

Leaders of the various organizations responsible for cleanup activities at Fernald join together to receive a plaque recognizing the "Zero Accidents" status achieved by FERMCO, which won the award from its parent company, Fluor Daniel Inc.



The Fluor Daniel Zero Accidents program considers the number of lost workdays due to on-the-job injuries and the total number of recordable incidents. The award criteria is based on U.S. recordkeeping guidelines, and applicants are subject to a verification audit. Fluor Daniel manages several hundred projects worldwide and FERMCO is one of only 24 to achieve Zero Accidents status.

## Alm New DOE Assistant Secretary for Environmental Management

On May 6, Alvin L. Alm was sworn in as DOE's Assistant Secretary for Environmental Management. Alm is responsible for directing environmental management activities in the nation's nuclear weapons complex, including waste management operations, environmental restoration, nuclear material and facility stabilization and technology development.

Since 1989, Alm held the position of sector vice president for the Environmental Business Area at Science Applications International Corp. (SAIC). He is the former chief executive officer of Alliance Technologies Corp. and former chairman and chief executive officer of Thermal Analytical Corp.

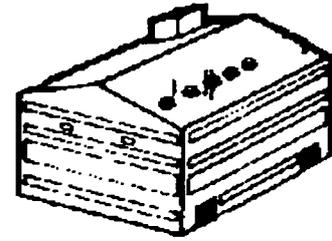
Alm is returning to DOE a second time, having served as its first assistant secretary of Energy for Policy and Evaluation when DOE was created in 1977. Since then, he has served in several other government positions: deputy administrator of U.S. EPA (1983-1985); first staff director of the newly formed Council on Environmental Quality (1970); and EPA assistant administrator for Planning and Management (1973).

Alm earned his undergraduate degree in social services from the University of Denver and a master's degree in Public Administration from the Maxwell Graduate School at Syracuse University.

On July 3, Alm toured the Fernald site. During his visit, he met with DOE Fernald Area Office employees, as well as key stakeholders, including leaders from FRESH and the Fernald Citizens Task Force.

## Plant 4 Implosion Scheduled for Late Summer

Under a subcontract with Plant 4 D&D subcontractor Babcock & Wilcox, Controlled Demolition Inc. (CDI), will combine linear shaped charges and explosives to bring the four-story steel superstructure down in late August or early September. CDI also imploded Plant 7. CDI will place the shaped charges on the top and bottom of key structural supporting members in Plant 4. These specialized steel-cutting charges will be detonated sequentially, thereby causing the steel skeleton to fall vertically within several seconds.



*Plant 4 is larger than Plant 7, with twice as much structural steel and more heavy equipment (large furnaces, blenders, dust collectors) to remove.*

### Key Benefits of Implosion

As proven with Plant 7, implosion is safe, environmentally sound, and meets the Fernald goal of keeping exposure and risks to as low as reasonably achievable levels. Key benefits include:

- reduces radiological contamination exposure to the workers;
- minimizes environmental and personal exposure to lead-based paint;
- reduces worker exposure to high elevations;
- shortens the overall schedule, which reduces the cost of the project.

Despite the rainy spring and hot summer, demolition activities in Plant 4 are progressing on schedule, although heat stress constraints remain an issue. On June 12, B&W began removing exterior transite siding and roof areas from the plant. All the equipment has been removed, except for a few tanks and vessels, which will be removed by crane once the siding is completely off.

Throughout the Plant 4 project, environmental monitoring data are being collected from several high-volume air samplers placed around the perimeter of the project site. The data will establish a baseline to monitor airborne emissions during Plant 4 dismantling and demolition activities. Environmental monitoring data will be collected approximately four to six weeks after the project is complete.

During Fernald's production era, chemical processes produced uranium tetrafluoride (green salt). Green salt was then transferred from Plant 4 to another Fernald plant, where it was blended with magnesium and heated to create a reaction that produced uranium metal. After production ceased, Plant 4 was also used to store drums containing enriched uranium compounds.

## Stakeholder Comments on Draft Methodology for Scrap Metal Disposition Alternatives Due July 26

This methodology will be used as a tool to evaluate disposal options for Plant 4 structural steel and will be integrated with the Operable Unit 3 Remedial Design/Remedial Action Work Plan. Copies of the draft methodology are available in the Public Environmental Information Center. Stakeholder comments are due by July 26.

Copies of the draft methodology were distributed to stakeholders during the June 11 public workshop on recycling, reuse, and free-release of Operable Unit 3 materials. The workshop was in response to stakeholder interest in recycling/reuse initiatives expressed during the April 23 Operable Unit 3 public meeting.

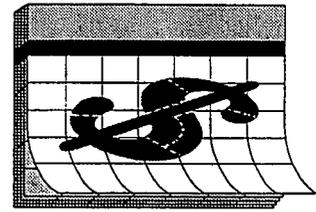
### Please mail comments to:

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## D&D Schedule Revision Reflects Accelerated Cleanup Plan

On June 19, U.S. EPA and Ohio EPA approved DOE's revision of the Operable Unit 3 decontamination and dismantlement (D&D) schedule and sequence. The revised schedule reflects the accelerated remediation scenario defined in the DOE Fernald Area Office fiscal year 1996 baseline, and includes the submittal dates of D&D implementation plans for facilities utilized in the remediation of other operable units. The schedule has been placed in the Administrative Record as an amendment to the original schedule found in the *Operable Unit 3 Remedial Design Prioritization and Sequencing Report*. The schedule of implementation plan submittals will be reviewed annually as the site's budget is approved; any resulting schedule modifications will be submitted to EPA for approval.



## DOE Submits Draft Operable Unit 3 Record of Decision to Regulators

DOE submitted the draft *Operable Unit 3 Record of Decision for Final Remedial Action* to U.S. EPA and Ohio EPA on June 27, 1996. Appendix A of the draft Record of Decision is the Responsiveness Summary, which provides DOE's responses to all comments received during the 30-day public comment period. A copy of the draft ROD has been placed in the PEIC (513-738-0164).

## Meetings Held to Discuss Epidemiologic Study on Fernald Workers

On June 19, the National Institute for Occupational Safety and Health (NIOSH) in conjunction with the Oak Ridge Institute for Science and Education (ORISE) conducted two meetings to present results of *Mortality Among a Cohort of White Male Workers At the Fernald Feed Materials Production Center, 1951-1989*, an epidemiologic study on workers (from 1951 to 1981) at the former Feed Materials Production Center. A meeting for current Fernald workers was held in the afternoon, and a public meeting was held at the Plantation, in Harrison.

Approximately 75 people attended the meetings, including Fernald unions, the Ohio Department of Health, DOE Headquarters, University of Cincinnati Workers Medical Monitoring Program and Crosby Township trustees. Copies of the presentations and a video tape are available at the PEIC.

Prior to the NIOSH study, Oak Ridge Associated Universities (ORAU) conducted a study -- *Mortality Experience of Workers in a Uranium Processing Plant* -- on males employed at Fernald between 1951 and 1989 on the same group (4,014 white males) in 1977. This study was based on death certificate data only. Results were reported at a meeting held Feb. 24 and 25, 1987. The NIOSH study includes all criteria from the original study, as well as added radiation exposure data.

Of the 4,014 white males studied, 33.4 percent were salaried workers, and 66.6 percent were hourly workers. By the end of 1989, 26.5 percent of the workers had died; death certificates were obtained for 99 percent (1,063) of this group. Dosimetry data were available for 99 percent of the study population.

Salaried workers showed a deficit of deaths overall when compared to U.S. population, but there was an increase in stomach cancer deaths. Hourly workers showed no deficit of deaths when compared to U.S. population; however, there was an increase in all cancer deaths. In both groups there was a decrease in circulatory system diseases and no increase in leukemia deaths.

Radiation exposure to workers was possible from external sources (X-rays and gamma rays), as well as internal sources. Test analysis showed stomach cancer was not related to dose level, and lung cancer deaths increased as the external dose level increases. Nonmalignant respiratory disease deaths increased as internal dose levels increased, especially for chronic disease deaths. A relationship between external dose and lung cancer and between internal dose and nonmalignant respiratory disease was confirmed.

## Fernald Health Effects Subcommittee Members Named

The initial meeting of the Fernald Health Effects Subcommittee (FHES), which is composed of 17 members of the public, was held June 12 and 13 at the Springdale Sheraton. Chartered under the Federal Advisory Committee Act, the FHES was formed by the Centers for Disease Control (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR).

The FHES is a site-specific, formal advisory body composed of a diverse group of community and scientific representatives. CDC and ATSDR will work closely with the community to determine future work and to interpret findings from studies now underway. In addition, when appropriate, the FHES will work closely with the Fernald Citizens Task Force. A member of both FHES and the task force, Pam Dunn has been asked to serve as the liaison between the two committees.

Dr. Joseph Farrell was appointed committee chair, from April 1, 1996, through March 31, 1998. In addition, a representative from both the Ohio Department of Health and the Ohio EPA will serve as ex-officio members.

Although CDC's budget will preclude the committee from meeting monthly, members have tentatively agreed to meet in early September. Stakeholders will be informed of the meeting date, time and location, once they are confirmed.

## Till Discusses Fernald Dose Reconstruction Study

During the Fernald Health Effects Subcommittee meeting, Dr. John Till, Radiological Assessments Corp., provided an update on the Fernald Dosimetry Reconstruction Project. He said the report will comprise three documents: appendices, which will contain a detailed description of the methodology and results; a report, which will summarize the results and methods; and a pamphlet, which will explain the project objectives and findings. The documents will be available for review by the National Academy of Sciences and stakeholders.

## Subcommittee Members

### Chairman

*Joseph B. Farrell, Ph.D.*, environmental consultant

### Executive Secretary

*Steve Adams*, public health advisor, National Center for Environmental Health Center for Disease Control and Prevention

*Gene Branham*, Fernald Atomic Trades and Labor Council vice president

*Robert Burgin*, Senior Regulatory Compliance Consultant, Alpha and Omega Services

*Lou Doll*, Fernald representative, Greater Cincinnati Building and Construction Trades Council

*Pam Dunn*, Fernald Citizens Task Force and FRESH member

*Deborah Forbes*, Procter and Gamble

*Gary Storer*, Crosby Township trustee

*Don Thiem*, Ross Township trustee

*Susan Verkamp*, local resident

*Edwa Yocum*, FRESH member/local resident

*Larita L. Frazier-O'Bannon, M.D.*, Deaconess Women's Care

*Chandra Y. Gravely, M.D.*, Davis Medical Group Inc.

*Robert Hanavan*, General Electric/local resident

*Pam Howard*, consultant/trainer, FERMCO Human Resources Development

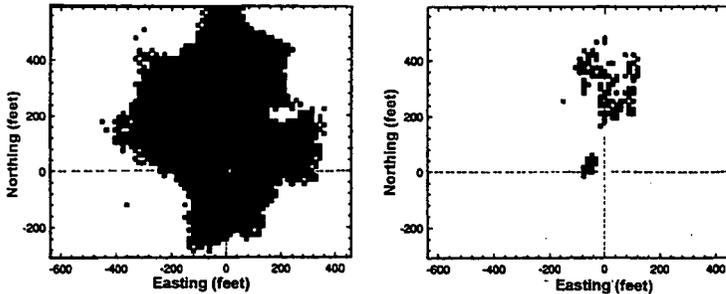
*Keith Nelson, M.D.*, FERMCO environmental risk assessment manager

*Susan Pinney, Ph.D.*, director, Medical Surveillance, Center for Occupational Health Medical Surveillance Unit

*Nancy Smith*, local resident

## Smart Sampling™ Reduces Project Costs, Accelerates Cleanup Schedules

Developed by Sandia National Laboratories, Smart Sampling™ is a unique statistical computer-based program that evaluates the probability of contamination existing in a particular area. The Smart Sampling™ technology is being deployed to help establish remediation priorities and costs.



*These two examples of remediation maps generated using the Smart Sampling technology provide a visual comparison of the same site, with readings of 400 parts of uranium per million (left) and 2,000 parts of uranium per million (right). In this particular example, from Sandia National Laboratories, the cost difference between 400 ppm and 2,000 ppm would be \$3.7 million.*

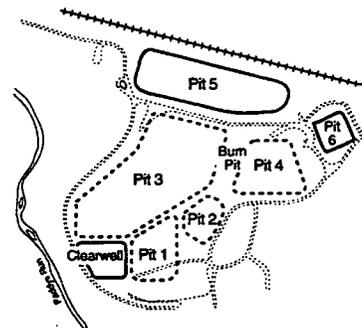
For example, the technology can determine the cost-benefit ratio for sampling a particular area when the probability of contamination existing there is questionable or unknown. This technology has already been demonstrated to considerably reduce total sampling, analytical testing and overall project costs while accelerating remediation schedules. Smart Sampling™ applications are ideal for sites, such as Fernald, which are addressing situations involving soil and groundwater contamination. When a site has only limited data available to identify chemical or radiological contamination throughout an entire site, application of a traditional sampling or grid pattern may not be affordable.

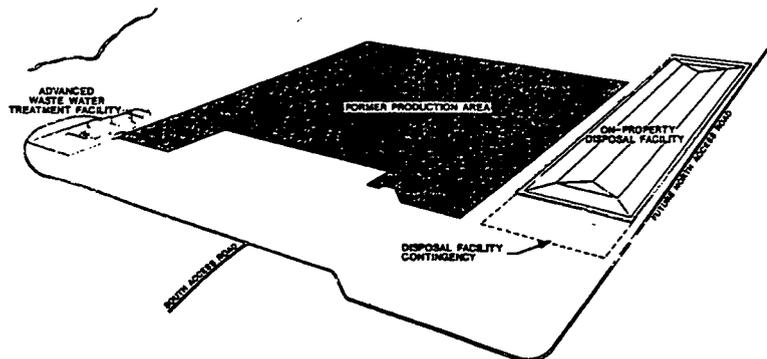
The Smart Sampling™ technology has already been demonstrated and deployed at Fernald, while investigating uranium soil contamination in an area north of the Sewage Treatment Plant. By feeding existing data into the software, a probability map of uranium contamination is generated. Field personnel use the probability map as a guide to locate areas which should be sampled for uranium contamination. Without the Smart Sampling™ technology, field technicians would have to sample an entire field to determine locations containing elevated levels of uranium contamination.

Fernald Technology Programs personnel are considering other programs where the Smart Sampling™ technology may be deployed, including: soil remediation, waste pit remediation and aquifer restoration. In addition, DOE's Mound facility at Miamisburg, Ohio, has successfully applied the Smart Sampling™ techniques to identify the need and cost to collect additional soil samples for plutonium contamination.

## Request for Proposals on Waste Pit Remediation to be Issued Soon

On June 14, FERMC0 submitted the Statement of Work for the Alternative Remedial Action Subcontracting Approach (ARASA) for the Waste Pits Remedial Action Project to the DOE Fernald Area Office. The request for proposals is being developed and is expected to be issued to prospective bidders in mid-July. On June 8, Fernald personnel briefed the Fernald Citizens Task Force on the status of transportation planning. Later this summer, a public workshop is anticipated to discuss transportation issues, including railcar logistics on and near the site during unit train delivery and departure.





## Pre-Final On-Site Disposal Facility Design Submitted to Regulators

On June 28, the Pre-Final (90 percent) Design of the On-Site Disposal Facility was submitted to U.S. EPA and Ohio EPA. Specific environmental monitoring and waste acceptance criteria issues are being discussed, based on public input.

## Convener Submits Preliminary CRO Membership/Charter to DOE

On June 27, DOE and FERMCO representatives met with CRO Convener Maria Curro Kreppel to discuss the preliminary charter, operating procedures, and potential membership list of the new community group. Kreppel will finalize the deliverables and submit them to DOE in early July; DOE expects to approve the convener's recommendations immediately. The first CRO meeting will be held in August.

## Second Team of Scientists from Republic of Belarus Visits Fernald

DOE Fernald Area Office and FERMCO representatives hosted a team of scientists, along with their interpreter, from the Republic of Belarus. This was the second of three separate groups of Belarussians to visit Fernald this year. Tours and presentations focused on the nature of contaminants at Fernald and final remedial actions/technologies being used or planned. The Belarussians intend to use the information to assist in the cleanup of their country, approximately one-third of which is uninhabitable due to various sources of contamination.

## Three Olympic Torchbearers Have Ties to Fernald

On June 20, eight former Olympians and 43 community heroes from Greater Cincinnati participated in the 1996 Olympic Torch Relay. Among the Olympic torchbearers were three people whose names are familiar to Fernald employees. Torchbearers were selected to bring the Olympic flame to millions of people across the United States as part of the Centennial Olympic Games Celebration. Torchbearers were picked by The Atlanta Committee for the Olympic Games and the United Way as part of a nationwide search for people who have made outstanding contributions to their communities. The 15,000-mile relay began April 27 in Los Angeles and will conclude July 17 in Atlanta at the opening ceremony of the 1996 Olympic Games.

Among the tri-state heroes nominated to carry the torch was Michael Smith, senior technologist in FERMCO Environmental Compliance. Smith, who developed and organized a race to benefit the Hamilton County Special Olympics and volunteers each Saturday as a scorekeeper for mentally handicapped bowlers. He is also a member of the 1995 team in training preparing for a marathon in January 1997 to benefit the Leukemia Society of America.

Roland Muhlen, who works at Fernald as an electrician with Wise Construction, a FERMCO subcontractor, was also among the eight former Olympians selected from the area to represent the Olympic spirit. Muhlen participated in the 1972 and 1976 Olympic Games as a sprint canoeist. At the 1972 Olympics, Muhlen's two-person team placed sixth in the 1,000-meter category.

Lisa Crawford, Harrison, was selected after her husband, Ken, wrote an essay acknowledging her community service and activism involving Fernald. She is president of FRESH and a volunteer coordinator at the Pauline Warfield Lewis Center.

## June Shipments of Low-Level Radioactive Waste to Nevada Test Site

The volume, in external cubic feet (cf), of low-level radioactive waste shipped to the Nevada Test Site (NTS) during June 1996 was 25,078 cf, including the first shipments of thorium since January 1995. As of June 28, the Fernald site had shipped 157,598 cf (external) of low-level radioactive waste to NTS for fiscal year 1996.

Low-level waste volume reduction includes approximately 3,847 containers of legacy low-level uranium residue: 278 containers of treated uranyl nitrate hexahydrate (UNH) residues: 72 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*.

Shipment of uranium derbies to Manufacturing Sciences Corp. in Oak Ridge, Tenn., were continued in June.

The volume of low-level radioactive waste materials per waste stream shipped to NTS in June 1996 is as follows:

<i>Waste Stream</i>	<b>June 1996</b>	<b>1996 Fiscal Year to Date</b>
	<i>External Vol. (cf)</i>	<i>External Vol. (cf)</i>
Process Area Scrap	0	59,165
Thorium	724	1,448
Residues (incl. UNH)	4,119	40,361
Contaminated Trash	1,349	5,553
Construction	18,886	51,071
Stabilized Mixed Waste	0	0
Stabilized Thorium	0	0

Note : 1 drum equivalent = 7.4 cubic feet

### ***Fernald Report***

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The *Fernald Report* is prepared by the Fernald Environmental Restoration Management Corp. for the U.S. Department of Energy to inform the community about activities at the Fernald Environmental Management Project. Address all inquiries regarding the *Fernald Report* to:

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