



**3855 FCAB UPDATE**  
*Week of August 27, 2001*  
(Last update was dated August 6, 2001)

## MEETING SCHEDULE

<u>DOE Cleanup Progress Briefing</u> <u>Tuesday, September 11, 2001, 6:30 p.m.</u>	Services Building Conference Room
<u>Stewardship Committee Meeting</u> <u>Thursday, September 13, 2001, 6:30 p.m.</u>	Services Building Conference Room
<u>FCAB Annual Retreat</u> <u>Saturday, September 15, 2001, 8:30 a.m.</u>	The Hamiltonian Hotel

## ATTACHMENTS

- Briefing Package for Retreat
  - 08/21/01 Email from Gene Jablonowski about EPA's Fiscal Year 2002 Priorities for the FCAB
  - 08/01/01 Letter from Steve McCracken to Jim Bierer about DOE's Fiscal Year 2002 Priorities for the FCAB
  - FCAB Draft Calendar 2002, including a list of 2002 holidays
  - Directions to the Hamiltonian Hotel
- Summary of the 4/11/01 Stewardship Committee meeting
- Long-term Stewardship Newsletter
- News Clippings

## NEWS and ANNOUNCEMENTS

### NOTE MEETING DAYS AND TIMES

The next Stewardship Committee meeting will be held on October 11<sup>th</sup> and the next full FCAB meeting is scheduled for October 13, 2001.

## FOR FURTHER INFORMATION

Please contact Doug Sarno or Mildred Charles, The Perspectives Group  
Phone: 513-648-6478 or 703-971-0058 Fax: 513-648-3629 or 703-971-0006  
E-Mail: [djsarno@theperspectivesgroup.com](mailto:djsarno@theperspectivesgroup.com) or [mcharles@theperspectivesgroup.com](mailto:mcharles@theperspectivesgroup.com)

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## MEMORANDUM

DATE: August 31, 2001  
TO: FCAB Members  
FROM: Doug Sarno  
RE: Prep for 2001 FCAB Retreat

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Please review the attached agenda prior to coming to the retreat and give some consideration to each of the questions posed. In particular, try to write down three to five things you think the FCAB did well this year and how we can continue, and three to five areas where we can improve and how we might do that. Also give some thought to the areas in which the FCAB can be most useful in the upcoming year.

The DOE priority letter and an email from USEPA are also enclosed, any input from Ohio EPA will be sent along when we receive it.

Look over the calendar for the next year, it contains the basic second week of the month dates if we make no changes. Let's try to identify potential conflicts and changes at the retreat so that we have as stable a meeting calendar as possible. A list of holidays for 2001 and 2002 is on the back.

If for any reason, you will not be able to attend the retreat, please call the FCAB office at 648-6478 as soon as possible to let us know. Thanks and see you on the 15<sup>th</sup>.

**From:** Doug Sarno <djsarno@theperspectivesgroup.com>  
**To:** Mildred Charles <mcharles@theperspectivesgroup.com>  
**Date:** Friday, August 24, 2001 10:01 AM  
**Subject:** FW: EPA Priorities for the FCAB

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From: Jablonowski.Eugene@epamail.epa.gov  
Date: Tue, 21 Aug 2001 14:21:55 -0500  
To: jcbierer@msn.com, RO\_BIERER@swocai.swoca.net  
Cc: djsarno@theperspectivesgroup.com, gary.stegner@fernald.gov,  
tisha.patton@fernald.gov, Saric.James@epamail.epa.gov,  
Bruce.Donald@epamail.epa.gov, graham.mitchell@epa.state.oh.us  
Subject: EPA Priorities for the FCAB

Jim,

A hard copy of EPA's FCAB priorities for 2002 will be mailed shortly; the following is a summary (can't e-mail attachments today, LAN problems):

"EPA's priorities are similar to those stated by DOE, with an emphasis on work related to Silos Projects. Additionally, EPA would like to see the FCAB track the progress of remediation at the Fernald site. Progress tracking should help identify potential schedule slippage early, allowing corrective measures to be initiated well before any problems occur. Progress tracking could also be used as a tool to promote progress and the continuing successes at Fernald, hopefully in an easy to convey manner. EPA is interested in discussing this priority at the upcoming FCAB retreat."  
"

I will be out of the office until September 12 and will attend the September 15th FCAB retreat.

Thanks,

Gene Jablonowski  
U.S. EPA Region 5  
(312)886-4591

**Department of Energy**

**Ohio Field Office  
Fernald Area Office  
P. O. Box 538705  
Cincinnati, Ohio 45253-8705  
(513) 648-3155**

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AUG 01 2001

Mr. James Blerer, Chair  
Fernald Citizens Advisory Board  
3371 Hamilton-Cleves Road  
Hamilton, OH 45013

DOE-0765-01

Dear Jim:

**THE DEPARTMENT OF ENERGY'S FISCAL YEAR 2002 PRIORITIES FOR THE FERNALD CITIZENS ADVISORY BOARD**

Before addressing our Fiscal Year (FY) 2002 priorities for the Fernald Citizens Advisory Board (CAB), the Department of Energy (DOE) would like to thank the CAB for its many contributions to the successful remediation of the Fernald site. Over the past eight years, the CAB has played a pivotal role in developing policy and recommending solutions to the site's most fundamental cleanup issues. It has been stated repeatedly and remains true, the CAB is the model for effective public involvement within the DOE. We look forward to working with the CAB as we complete the remediation of Fernald.

Our priorities for the CAB are consistent with those outlined for 2001 with emphasis continuing on post closure stewardship and the Silos Project. Building on the Future of Fernald process, we ask the CAB to continue its focus on long-term stewardship issues. Specifically, emphasis should be placed in the following areas:

- Working with DOE and Fluor Fernald, Inc. on planning the design of a multi-use educational facility that will serve the post closure needs of the surrounding community.
- Since the decision on selecting a long-term steward is fundamental to any post closure stewardship planning effort, the CAB should initiate discussions with potential long-term stewards of the Fernald property during 2002.
- Review and comment on the draft Long-term Stewardship Plan that will be provided in early FY 2002.

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Mr. James Bierer

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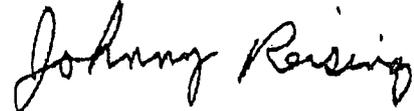
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DOE-0765-01

We will continue to involve the CAB with remediation issues, particularly the Silos Project, Waste Pits Project, Soil Excavation and On-site Disposal Facility, Aquifer Restoration, and Waste Management.

Again, we thank the members of the CAB for their past service to the DOE, and we look forward to continuing our work in 2002.

Sincerely,



*for*

Stephen H. McCracken  
Director

FEMP:Reising

cc:

G. Stegner, OH/FEMP  
J. Bradburne, Fluor Fernald, Inc./MS1  
D. Carr, Fluor Fernald, Inc./MS2  
D. Sarno, FCAB

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# FERNALD CITIZENS ADVISORY BOARD DRAFT CALENDAR 2002

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## Time and Location of Meetings (unless otherwise noted):

DOE Public Briefing Meetings, Tuesdays, 6:30 p.m., Services Building Conference Room  
Stewardship Committee Meetings, Thursdays, 6:30 p.m., Services Building Conference Room  
Full FCAB Meetings, Saturdays, 8:30 a.m., Services Building Conference Room

### OCTOBER 2001

09 DOE Monthly Progress Briefing, *Tuesday*  
11 Stewardship Committee Meeting, *Thursday*  
13 Full FCAB Meeting, *Saturday*

### NOVEMBER 2001

10 SSAB Groundwater Workshop  
13 DOE Monthly Progress Briefing, *Tuesday*  
15 Stewardship Committee Meeting, *Thursday*  
17 Full FCAB Meeting, *Saturday*

### DECEMBER 2001

**NO MEETINGS SCHEDULED**

### JANUARY 2002

08 DOE Monthly Progress Briefing, *Tuesday*  
10 Stewardship Committee Meeting, *Thursday*  
12 Full FCAB Meeting, *Saturday*

### FEBRUARY 2002

12 DOE Monthly Progress Briefing, *Tuesday*  
14 Stewardship Committee Meeting, *Thursday*  
16 Full FCAB Meeting, *Saturday*

### MARCH 2002

12 DOE Monthly Progress Briefing, *Tuesday*  
14 Stewardship Committee Meeting, *Thursday*  
16 Full FCAB Meeting, *Saturday*

### APRIL 2002

09 DOE Monthly Progress Briefing, *Tuesday*  
11 Stewardship Committee Meeting, *Thursday*  
13 Full FCAB Meeting, *Saturday*

### MAY 2002

14 DOE Monthly Progress Briefing, *Tuesday*  
16 Stewardship Committee Meeting, *Thursday*  
18 Full FCAB Meeting, *Saturday*

### JUNE 2002

11 DOE Monthly Progress Briefing, *Tuesday*  
13 Stewardship Committee Meeting, *Thursday*  
15 Full FCAB Meeting, *Saturday*

### JULY 2002

09 DOE Monthly Progress Briefing, *Tuesday*  
11 Stewardship Committee Meeting, *Thursday*  
13 Full FCAB Meeting, *Saturday*

### AUGUST 2002

**NO MEETINGS SCHEDULED**

### SEPTEMBER 2002

10 DOE Monthly Progress Briefing, *Tuesday*  
12 Stewardship Committee Meeting, *Thursday*  
14 Fernald Citizens Advisory Board Retreat,  
*Saturday* (tentative)

### OCTOBER 2002

08 DOE Monthly Progress Briefing, *Tuesday*  
10 Stewardship Committee Meeting, *Thursday*  
12 Full FCAB Meeting, *Saturday*

### NOVEMBER 2002

12 DOE Monthly Progress Briefing, *Tuesday*  
14 Stewardship Committee Meeting, *Thursday*  
16 Full FCAB Meeting, *Saturday*

### DECEMBER 2002

**NO MEETINGS SCHEDULED**

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# HOLIDAYS

2001

2002

New Year's Day	Monday, January 1	Tuesday, January 1
New Year's Bank Holiday (Scotland)	Tuesday, January 2	Wednesday, January 2
Martin Luther King, Jr. Day (US)	Monday, January 15	Monday, January 21
Chinese New Year	Wednesday, January 24	Tuesday, February 12
Australia Day (Australia)	Friday, January 26	Saturday, January 26
Waitangi Day (New Zealand)	Tuesday, February 6	Wednesday, February 6
Lincoln's Birthday (US)	Monday, February 12	Tuesday, February 12
Valentine's Day (C, UK, US)	Wednesday, February 14	Thursday, February 14
Presidents' Day (US)	Monday, February 19	Monday, February 18
Washington's Birthday (US)	Thursday, February 22	Friday, February 22
Ash Wednesday	Wednesday, February 28	Wednesday, February 28
St. Patrick's Day (Ireland, US)	Saturday, March 17	Sunday, March 17
Canberra Day (Australia)	Monday, March 19	Monday, March 18
Mothering Sunday (United Kingdom)	Sunday, March 25	Sunday, March 10
Daylight Saving Time begins (US)	Sunday, April 1	Sunday, April 7
Palm Sunday	Sunday, April 8	Sunday, March 24
Passover*	Sunday, April 8	Thursday, March 28
Good Friday	Friday, April 13	Friday, March 29
Easter Sunday	Sunday, April 15	Sunday, March 31
Easter Monday (A, C, I, NZ, UK)	Monday, April 16	Monday, April 1
Anzac Day (Australia, NZ)	Wednesday, April 25	Thursday, April 25
Professional Secretaries Day® (US)	Wednesday, April 25	Wednesday, April 24
National Day of Mourning (Canada)	Saturday, April 28	Sunday, April 28
May Day, Bank Holiday (I, UK)	Monday, May 7	Monday, May 6
Mother's Day (Canada, US)	Sunday, May 13	Sunday, May 12
Armed Forces Day (US)	Saturday, May 19	Saturday, May 18
Victoria Day (Canada)	Monday, May 21	Monday, May 20
Memorial Day, Observed (US)	Monday, May 28	Monday, May 27
Spring Bank Holiday (UK)	Monday, May 28	Monday, May 27
Holiday (Ireland)	Monday, June 4	Monday, June 3
Flag Day (US)	Thursday, June 14	Friday, June 14
Father's Day (C, UK, US)	Sunday, June 17	Sunday, June 16
St. Jean Baptiste Day (Québec)	Sunday, June 24	Monday, June 24
Canada Day (Canada)	Sunday, July 1	Monday, July 1
Independence Day (US)	Wednesday, July 4	Thursday, July 4
Civic Holiday (Canada)	Monday, August 6	Monday, August 5
Bank Holiday (Ireland)	Monday, August 6	Monday, August 5
Summer Bank Holiday (UK)	Monday, August 27	Monday, August 26
Labor Day (Canada, US)	Monday, September 3	Monday, September 2
Rosh Hashanah*	Tuesday, September 18	Saturday, September 7
Yom Kippur*	Thursday, September 27	Monday, September 16
Columbus Day, Observed (US)	Monday, October 8	Monday, October 14
Thanksgiving Day (Canada)	Monday, October 8	Monday, October 14
National Boss Day (US)	Tuesday, October 16	Wednesday, October 16
United Nations Day (US)	Wednesday, October 24	Thursday, October 24
Daylight Saving Time ends (US)	Sunday, October 28	Sunday, October 27
Holiday (Ireland)	Monday, October 29	Monday, October 28
Halloween	Wednesday, October 31	Thursday, October 31
Election Day (US)	Tuesday, November 6	Tuesday, November 5
Veterans Day (US)	Sunday, November 11	Monday, November 11
Remembrance Day (Canada)	Sunday, November 11	Monday, November 11
Thanksgiving Day (US)	Thursday, November 22	Thursday, November 28
Hanukkah*	Monday, December 10	Saturday, November 30
Christmas Day	Tuesday, December 25	Wednesday, December 25
Boxing Day (A, C, NZ, UK)	Wednesday, December 26	Thursday, December 26
St. Stephen's Day (Ireland)	Wednesday, December 26	Thursday, December 26
Kwanzaa begins	Wednesday, December 26	Thursday, December 26

\*All Jewish holidays begin at sundown the day before they are listed here

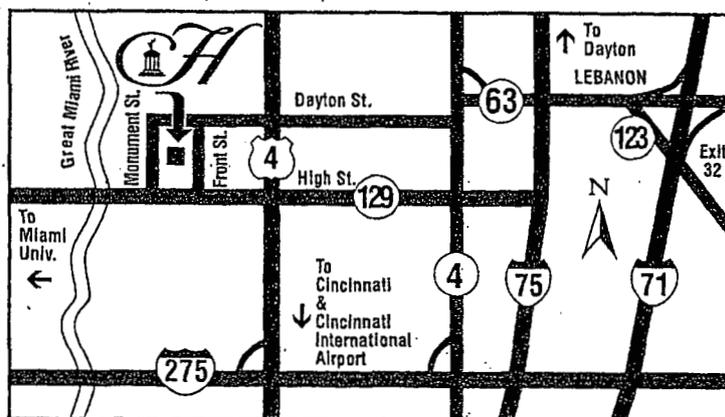
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### DIRECTIONS TO THE

## Hamiltonian Hotel

One Riverfront Plaza  
Hamilton, Ohio 45011  
513-896-6200



**DIRECTIONS:**

Located between Cincinnati & Dayton in SW OH.

**From Cincinnati & KY:** I-75 North Exit 24 (St. Rt. 129), Westbound 8 miles to Hamilton. Turn right on Front Street and continue to Hotel.

**From Dayton, OH:** I-75 South Exit 24 (St. Rt. 129), Westbound 8 miles to Hamilton. Turn right on Front Street and continue to Hotel.

**From Oxford and Miami University:** Travel south on Route 177 (becomes 129). Continue over Miami River Bridge. An immediate left turn on Front Street takes you to the Hotel.

**From Airport:** Travel east on I-275 to I-75 north. Exit 24, travel 8 miles. Turn left on Route 129 (High Street), and right on Front Street, continue to the Hotel.

Please call Tisha Patton at 513-648-5277 for additional information.

Date: April 11, 2001

**Topics:**

- Natural Resource Trustee Issues Related to Rebaselining
- Native American Reinterments
- Public Use Scenarios and Criteria for Trails

**Attendees:**

**Fernald Citizens Advisory Board**

Marvin Clawson  
Steve Depoe  
Pam Dunn

**Phoenix Environmental Corp**

Doug Sarno

**U.S. Department of Energy**

Johnny Reising  
Gary Stegner  
Ed Skintik

**Ohio Environmental Protection Agency**

Tom Schneider  
Donna Hannon

**Fluor Fernald**

Tisha Patton  
Larry Stebbins  
Eric Woods

**FRESH**

Edwa Yocum  
Carol Schroer

**FCRO**

Todd Trammel

# MEETING SUMMARY

## Natural Resource Trustee Issues Related to Rebaselining

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Johnny Reising provided an update on the re-baselining letter that was sent to Tom Schneider of OEPA. Concerns about the procurement programs and potential delays, the excavation of soil, and the placement of material into the OSDF were discussed. Johnny went on to say that these issues, if left unresolved, would potentially stop restoration plans. Since the trustees previously expressed concern that the DOE was not going to go forward with the scope of their commitment and/or procurement schedules for rebaselining activities, additional highlights of the letter addressed the following issues:

- DOE is committed to fulfilling the requirements that they have under the Natural Resource Restoration Plan and the commitments that were previously made with the Natural Resource Trustees (NRT's).
- DOE remains committed to the implementation of the restoration work which is consistent with the Refined Scope Document developed by the NRTs.
- Restoration will not take precedence over remediation.
- Utilization of the natural resources staff that currently exists is being addressed.

## Native-American Reinterment Update

Ed Skintik reported that the Eastern Shonee tribe expressed interest in working on reinterment plans with the FCAB, however the tribe's chief had some concerns about the FCAB working with non-federal tribes. Pam Dunn urged the FCAB to remain neutral on the issue.

A number of archeologists have expressed interest in the activities at Fernald. Doug suggested that the committee should arrange for all vested groups to come together to discuss appropriate strategies for reinterment plans.

## Criteria for the Trails and Education Center

Modifications regarding the criteria for the trails and education center were discussed in order to make formal recommendations that can be submitted to the board for approval next week. The term "research" was changed to "field studies" in order to make it more student oriented.

Doug stated that one of the major items that the stakeholders have been advocating in regard to stewardship is a complex of trails to promote environmental studies and education for various students. The draft will go to the full board next week for approval and recommendation. The objective for the document is to present the FCAB's criteria for future trails, so that DOE can establish preliminary designs. He also noted that the FCAB wants the trails to serve educational purposes. Ms. Dunn added that the language should also clearly state that recreational purposes at certain areas of the trail should be discouraged. She also noted that a closing paragraph should be added to encourage the coordination of any on-site construction with the future site needs.



An article about a Cold War garden monument that coincides with Fernald's 50<sup>th</sup> Anniversary was handed out. As a result, it was also determined that the education center should provide the final location of the cold war garden and any other future monuments.

Pam suggested that one of the upcoming Saturday meetings should be used to visit the Links Prairie in Adams County, which is an educational facility of the University of Cincinnati. Links Prairie has an outdoor area with green space and a research facility.

### Planning for Upcoming Meetings

Now that a set of criteria has been put forward, members agreed that the FCAB should invite a group of experts to participate. A list of contacts should be generated to build a constituency of experts from local colleges and universities. If an interest is there, short-term goals can include field trips and research projects that will take place at the education center.

The Fourth Annual Stewardship Workshop will be held July 30th – August 2nd at Grand Junction, Colorado to address a number of relevant topics concerning the board. Doug also confirmed that the next SSAB workshop will be on groundwater and will be held at Savannah River. Although the FCAB presence was encouraged, members should consider participating at the Stewardship workshop event which is more in keeping with current FCAB issues. By doing so, travel resources would be used more efficiently in the long run.

Pam Dunn suggested that the DOE as a whole should put together a list of long-term stewardship resources. Doug confirmed that a similar list does in fact exist.

A final announcement was made to remind the committee that Dave Geiser of DOE's Long Term Stewardship office is planning to attend the next meeting on May 10th. Since he is interested in the planning process, relevant material about the Future of Fernald process should be made available to him during that meeting.

### Next Meeting Date

The next meeting will be held on May 10, 2001.

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 Stewardship

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# Long-Term Stewardship

Issue 01, Volume 01

July 2001

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## Facing the Future

### Developing Long-Term Stewardship Policy

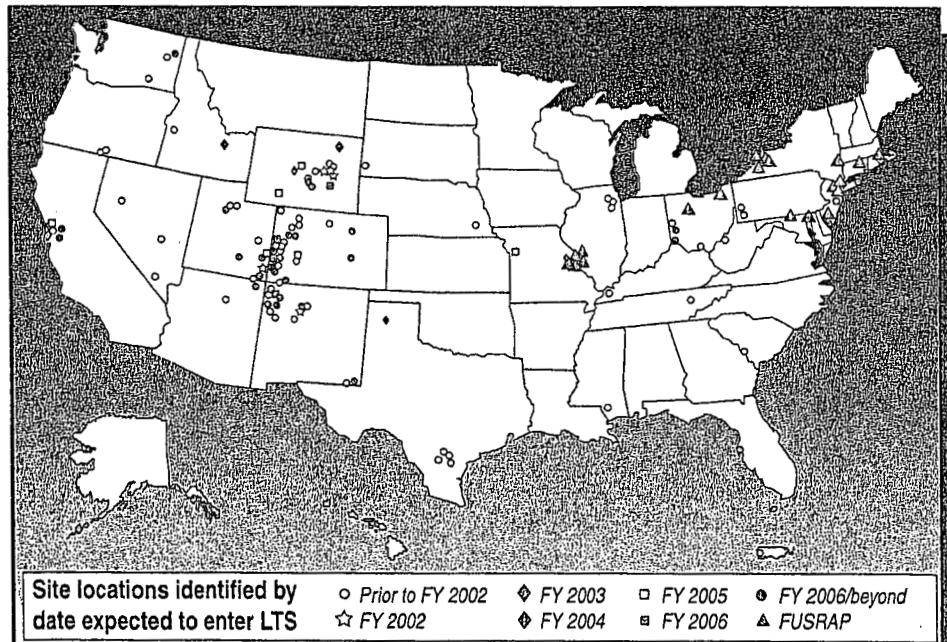
For the past several years, there has been a growing recognition that the Department of Energy must take responsibility for the continued monitoring and safeguarding of many hazardous and radioactively contaminated sites. This effort will ensure that human health and the environment are protected until conditions allow for unrestricted use.

In 1999, the Office of Long-Term Stewardship (EM-51) was established to coordinate and communicate these efforts throughout the DOE complex. The Office is currently identifying policy and guidance

needs and working with other DOE offices to develop them and assure their successful implementation. Efforts include communicating with national stakeholder groups and coordinating with research and development organizations, both internal and external to DOE. Internally, the Office oversees and guides the transition of sites throughout the country into the national Long-Term Stewardship Program.

In its short history, the Office has coordinated the development of two significant documents—the *Draft Long-Term Stewardship Study* and the *January 2001 Report to Congress on Long-Term Stewardship* (see sidebar on page 3). These documents contain the crucial background information needed to begin building a baseline for an effective

*Future, continued on page 13*



*Nationwide, plans have been made for many sites to enter a period of long-term stewardship.*

The *Long-Term Stewardship* newsletter provides information to EM and other DOE offices on nationwide long-term stewardship and related science and technology efforts. For more information on the Long-Term Stewardship Program, visit our website:  
<http://lts.apps.em.doe.gov/>

Program Director:  
David Geiser  
202-586-9280 or  
David.Geiser@em.doe.gov

If you have questions or would like to be added to the mailing list, contact:  
Roger A. Mayes, Ph.D.  
208-526-3328 or  
mayera@inel.gov

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*Gerald Boyd  
Deputy Assistant Secretary,  
Office of Science and  
Technology*

***From Gerald Boyd,  
Deputy Assistant Secretary***

Safe long-term management of legacy waste sites and residual environmental contamination is a significant challenge—technically, socially, fiscally, and politically. The issue of long-term stewardship has already prompted legal actions from national interest groups as well as the attention of the U.S. Congress.

In a first step toward meeting this challenge, we have conducted an analysis of the major issues and prepared the initial technical baseline for the Department's long-term stewardship responsibilities. These efforts are documented in two reports (identified in the sidebar on page 3). We also asked the National Academy of Sciences to assess approaches to long-term stewardship. This resulted in the National Research Council report *Long-Term Institutional Management of DOE Legacy Waste Sites*. In addition, the Department sponsored a number of efforts to evaluate particular aspects of the long-term stewardship challenge.

It is clear that long-term stewardship issues have significant implications, not only for the Department but for the entire nation. The Department's responsibility for long-term stewardship spans state, tribal, and congressional boundaries, and includes every Program Secretarial Office and nearly every site in the country. For these reasons, the Department is pursuing a national

framework for long-term stewardship.

Within that national framework, the actions required for long-term stewardship are inherently field-level

activities. Site-specific long-term stewardship issues are the concern of the specific state, tribal, and local governments—and their stakeholders. The varying array of regional and local perspectives demand that the Department's long-term stewardship efforts respond appropriately to site-specific needs while remaining consistent with national policy.

In May 2001, an LTS Executive Steering Committee was established to coordinate and develop policy recommendations for this national effort. The LTS Executive Steering Committee—consisting of Deputy Field Office Managers or Assistant Managers, the Director of EM-51, representatives of affected Program Secretarial Offices, and chaired by Beverly Cook, DOE-ID Operations Office Manager—will:

- Identify long-term stewardship policy needs,
- Develop department policies for long-term stewardship, and
- Develop corporate strategy and objectives to achieve DOE's long-term stewardship mission.

A program to ensure that the Department is able to meet its long-term stewardship responsibilities is still in the early stages of development. A considerable planning effort remains to identify all the specific roles and responsibilities, policies, and activities needed over the next few years to meet the program's mission. But the Department is prepared and committed to do the hard work needed to ensure safe and responsible management of residual contamination for generations to come. ■

***From Beverly Cook,  
DOE-ID Operations Office  
Manager***

As the Manager of DOE-Idaho, every significant decision I make incorporates life-cycle thinking and budgeting. This is the way that DOE does business today—with the end in mind.



*Beverly Cook  
DOE-ID Operations Office  
Manager*

This, however, was not always the case. For many reasons, DOE and its predecessors did not always fully consider the long-term consequences of research, production, and waste management, which prompted the creation of DOE's EM Program.

When the DOE's collective problem-set of residual contamination is considered, the potential effect of today's decisions on future generations cannot be avoided. It is with this realization that the Department must approach the responsibility of long-term stewardship.

The LTS Program will address the long-term consequences of research, production, and waste management—to be responsible stewards of legacy and residual materials managed by DOE for whatever period is required to protect human health and the environment. In effect, we are infusing life-cycle planning into our long-term environmental management decisions and actions.

## Policy-Making and the Executive Steering Committee

### *A Corporate Responsibility*

The Office of Long-Term Stewardship (EM-51) is housed in DOE's Office of Environmental Management within the Office of Science and Technology, but it spans all the DOE Headquarters Program Secretarial Offices. Sites requiring long-term stewardship are geographically distributed throughout the nation and cut across all of DOE's operations offices.

To best meet the needs of field and headquarters organizations, the LTS Executive Steering Committee was established. The Steering Committee, consisting of senior DOE managers representing all DOE Program and Operations Offices and chaired by Beverly Cook, DOE-10 Operations Office Manager, is examining the interests of the Department and the nation in defining policy and assigning resources. This corporate structure will ensure that investments in science and technology and other long-term stewardship activities are aimed at the most pressing and important issues for current and future generations, while meeting both national and local needs. ■

**“ Long-term stewardship efforts must extend beyond DOE's organizational boundaries and be viewed as a corporate responsibility. ”**

**—Bev Cook**

The LTS Program consists of numerous sites with a unique blend of issues. However, the nation cannot afford to conduct the program on a case-by-case basis, and future generations would regret the resulting inconsistencies. On the other hand, a "one size fits all" approach to long-term

stewardship is not appropriate. Clearly, long-term stewardship policies must strike a balance between accommodating site-specific needs through local discretion and ensuring an appropriate level of consistency through programmatic requirements and national-level policy and procedures. A "corporate" policy will best meet the needs of field and headquarters' organizations, led by the newly created LTS Executive Steering Committee.

The first meeting of the Steering Committee took place in May. At that meeting, I observed a strong consensus among the participants that long-term stewardship efforts must extend beyond DOE's organizational boundaries and be viewed as a corporate responsibility. Integrating this corporate view into long-term stewardship policies and actions will ensure the greatest benefit to the Department, the nation, and future generations.

The LTS Program is still at a formative stage. We are working aggressively to have policy and guidance in place to ensure success for the significant number of long-term stewardship sites due for transition by 2006. This includes guidance on preparation of site-specific long-term stewardship plans and a DOE-wide Strategic Plan this fiscal year and in FY 2002.

Throughout the evolution of the LTS Program, DOE can greatly benefit from the involvement of others. As the chair of the Executive Steering Committee, I will continue seeking the input of stakeholders, other agencies, and neighbors to ensure the Department successfully meets its long-term stewardship obligations. ■

**Two significant documents** formed the foundation for the development of the LTS Program—the *Draft Long-Term Stewardship Study* and the *January 2001 NDAA Report to Congress on Long-Term Stewardship*.

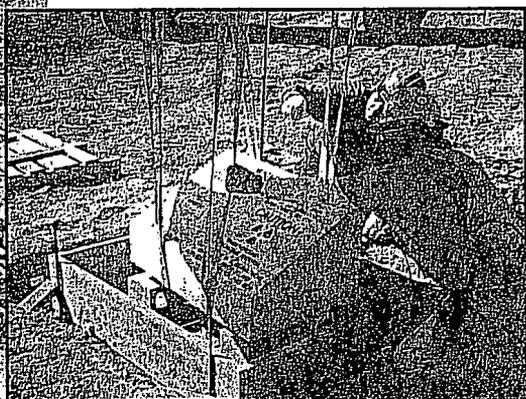
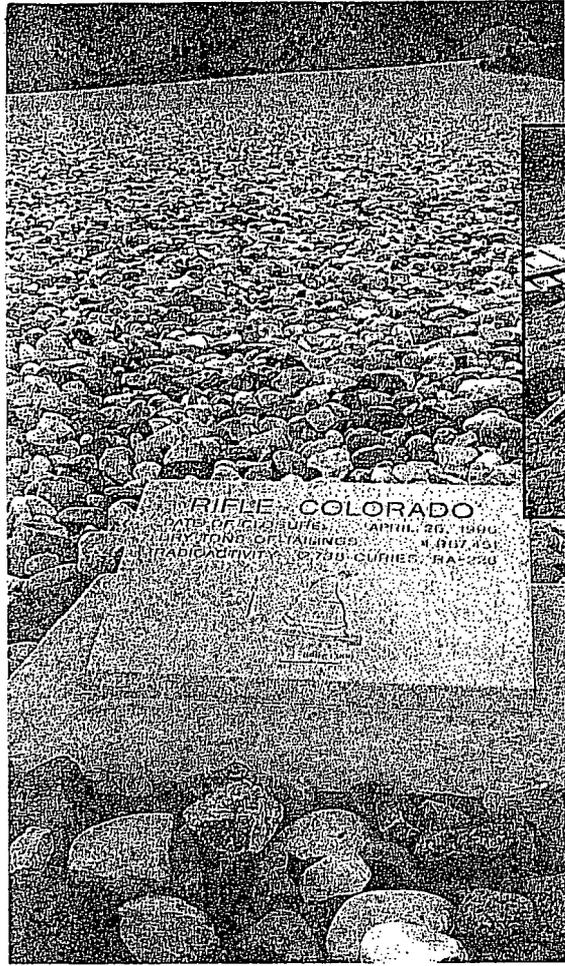
The *Report to Congress on Long-Term Stewardship*, published in January 2001, identifies 96 sites or portions of sites where environmental restoration, waste disposal, and facility stabilization will be completed by 2006, but where land use will be restricted. The two-volume report describes the currently anticipated management and long-term stewardship responsibilities including rough costs, scopes, and schedules.

While the report primarily covers the period from now through the year 2006, it provides a preliminary glimpse of DOE's long-term stewardship obligations through 2070. Eventually, more than 120 sites will be involved, in addition

to the 34 sites where long-term stewardship activities are already underway.

The *Draft Long-Term Stewardship Study*, published in October 2000, describes and analyzes the national issues associated with long-term stewardship. Because it is not a National Environmental Policy Act or decision document, the Draft Study does not attempt to describe how DOE intends to address these issues except where decisions already have been made. Where possible, it identifies options for addressing issues in order to promote information exchange and to inform the decision-making processes at the national level and individual sites. ■

For More Information, these and other documents are available by calling the Center for Environmental Management Information, 1-800-736-3282, and on the Long-Term Stewardship Information Center web page, <http://lts.apps.em.doe.gov/center>.



*The installation of permanent monuments at many long-term Stewardship Sites signals the end of the remediation phase and the beginning of long-term stewardship.*

DOE (Nuclear Energy, Defense Programs, Fossil Energy, etc.). The remaining sites will transition to the LTS Program as the ultimate landlord. Each site will necessarily negotiate appropriate arrangements to meet their specific needs. However, it is neither practical nor cost-effective for all transitions to be one of a kind. Rather, it is imperative that some level of uniformity exists throughout all sites.

**Guidance support.** The LTS Program will provide the support structures and guidance to gain the economy of scale that comes with managing and assisting transition activities across the DOE complex. This will ensure that the commitments and precedents set at individual sites are sustainable throughout the Program.

**Planning support.** Future land use planning is critical to determining appropriate and achievable end-states for each site. It requires working closely with stakeholders to reach mutually acceptable plans. The LTS Program will share information and provide planning and stakeholder-involvement support.

**Regulatory and institutional control support.** When time frames are expanded significantly, environmental regulations designed to meet immediate needs may be ineffective or even become out of date. Creative and cost-saving approaches may require the collaboration of and joint ownership by regulators. The LTS Program will assist sites and regulators in developing regulatory solutions that match the needs of long-term stewardship requirements. Mechanisms will also be developed to help the field sites to efficiently implement institutional controls (such as deed restrictions, land transfer agreements, and monitoring requirements) throughout the DOE complex.

**Site Transfer Coordination.** A cross-cutting organization, the LTS

# Implementing the Vision

## DOE's Long-Term Stewardship Program

The LTS Program has been structured to support five principal functions:

- Program Execution and Policy/Guidance Development—program management, strategic planning, guidance and policy development, and national coordination,
- Cleanup to Stewardship Transition—providing sites with technical assistance such as training, planning, agreements, verification, and pilot projects,
- Stewardship Operations—long-term surveillance and maintenance, emergency actions, performance assurance, and responsiveness,
- Continuous Improvement—science and technology enhancement systems and decision analysis,

- Information Management—program coordination, system development, and records transition, operation and management activities.

### Preparing for Transition

Each DOE site must prepare an independent Project Baseline Summary (PBS) for their long-term stewardship activities prior to FY 2004. As remediation projects are completed, budget requests, cost estimates, and performance metrics for follow-on long-term stewardship activities will be shifted into these PBSs, where they will become the responsibility of the LTS Program.

Some sites may transition to other agencies or to private ownership; others will remain in the control of their current landlord organization within

Program is uniquely positioned to share lessons learned from each transition. For sites transitioning out of federal ownership, support may take the form of assisting in the negotiation of property transfer restrictions. For transfers within DOE or to other federal agencies, support may include helping to clearly delineate the responsibilities of the parties involved.

### **Long-Term Surveillance and Maintenance (LTSM)**

Once sites are transitioned to long-term stewardship, they become the responsibility of the LTSM program. LTSM is a critical component of the LTS Program, ensuring that any on-site contaminated materials remain isolated from the environment, that the safety of the public and the environment is maintained, and that all applicable regulations are met. Responsibilities include site inspections, operation of remediation systems, and validation that long-term stewardship requirements are fully met.

### **Science and Technology**

Investments in science and technology will improve the permanence of cleanup remedies and reduce monitoring and maintenance costs while maintaining or improving protection of human health and the environment. In addition, it is important to achieve significant reductions in the risk, cost, and duration of long-term stewardship activities. To address this need, a roadmapping effort has been initiated for science and technology investments (see related article on page 15) that will involve national laboratories, industry, and universities to significantly participate in EM science and technology development efforts.

The LTS Science and Technology Roadmap will:

- Identify new science and technology needs specific to long-term stewardship efforts,
- Identify existing capabilities both within and external to DOE to meet these needs,
- Determine critical research and development priorities specific to long-term stewardship, and
- Direct specific efforts required to address the prior three items.

Many science and technology investments have been made that can be deployed today, such as more durable caps and real-time monitoring equipment. Adapting these available technologies to long-term stewardship is a high priority. (See related article on page 6.)

Over time, it will be necessary to continually reassess science and technology needs as long-term EM projects reach completion and additional information is gathered.

The LTS Program will support long-term stewardship research by fostering partnerships and creating opportunities to accelerate the application of new technologies, processes, and knowledge to solve stewardship challenges.

### **Information Systems and Records Management**

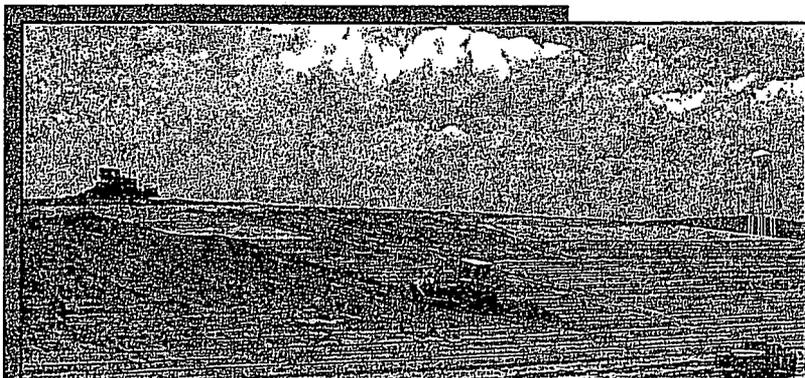
Long-term stewardship requires the availability of detailed, accurate information about the location and nature of residual hazards, and the processes and cleanup strategies that generated these hazards. Even where sites have been cleaned up to levels supporting unrestricted use, information documenting the levels achieved should be available.

Although individual DOE sites can take many steps now toward improving information management practices, a more systematic approach is needed to coordinate and focus efforts throughout the DOE complex. The LTS Program will develop a systematic approach to reliably maintain and make available records germane to long-term stewardship.

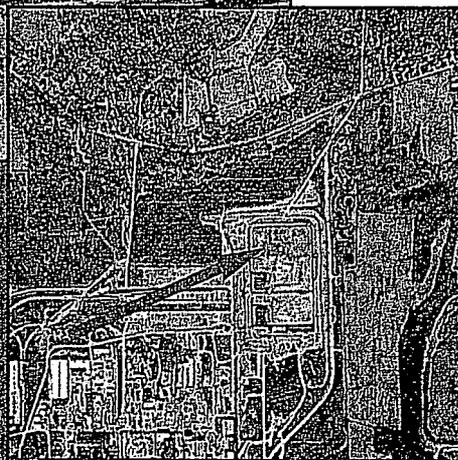
### **Continuous Improvement and Learning**

The LTS Program is being structured to foster the sharing of knowledge and experience so that long-term stewardship efforts continuously improve. One critical component of this is the use of pilot projects, which will assist DOE sites in addressing specific technical, regulatory, and policy roadblocks to transitioning to long-term stewardship.

The projects, awarded on a competitive basis, will focus on the immediate stewardship needs of the closure sites and emphasize demonstration and deployment of existing innovative approaches. A priority will be placed on solving the problems of the closure sites as well as problems common throughout the DOE complex. ■



An excavator prepares the final grade for the installation of the OSDF Cell 1 capping (above). The OSDF is being constructed on the east side of the Fernald Site and will ultimately hold approximately 2.5 million cubic yards of waste. The location of OSDF's Cell 1 construction is shown in this aerial view of the northeast corner of the Fernald site.



## Closure Cell Applications

### *Preliminary activities underway at Fernald*

Preliminary long-term stewardship activities are underway at the DOE Fernald Environmental Management Project site near Cincinnati, Ohio. (Fernald is a former uranium processing facility; production ceased in 1989.)

The Post Closure Stewardship Technology Project, sponsored by the Subsurface Contaminants Focus Area of the DOE Office of Science and Technology, is helping Fernald project management and stakeholders develop a comprehensive, long-term, post-closure care, inspection and monitoring plan.

"We are trying to do everything possible and reasonable to ensure that, years from now, somebody doesn't say 'I wish we'd done this' or 'They should have done that,'" Fluor Fernald Technology Programs Manager Paul Pettit said. "Our goal is being responsible in stewardship for the legacy the site will leave behind."

One differentiator at Fernald is the Integrated Stewardship Technology (IST) Team, which was assembled to guide the identification, screening, demonstration, deployment, and evaluation of post-closure stewardship technologies.

While the IST Team was formed just in the last year, Pettit said, it's a tried-and-true mechanism for this kind of complex project.

The concept of an integrated team approach originated with Dr. Paul Hart, a former director of the Deactivation and Decommissioning Focus Area. The approach was first used in 1995-96 for the successful Plant 1 Decontamination and Decommissioning technology demonstration and deployment project at Fernald.

Fernald's IST Team is composed of nationally recognized experts in disposal-facility design, such as professors Craig Benson of the University of Wisconsin, David Daniel of the University of Illinois, and Gary Foose, of the University of Cincinnati. It also includes regulators—such as the Ohio EPA—and stakeholders—such as community members and the Fernald Residents for Environmental Safety and Health (F.R.E.S.H.).

At their January 2001 meeting, the IST Team directed their attention to the Post Closure Stewardship Technology Project's current primary focus: the On-Site Disposal Facility (OSDF), the main engineered structure to remain at the Fernald site and the source for most of the site's post-closure technology needs. The OSDF will be filled with wastes composed primarily of contaminated soil and debris from demolished buildings at the site.

The OSDF is an area some 3,600 feet long, 800 feet wide and 65 feet above ground at its highest point. The facility is located largely aboveground to preserve as much as possible of the natural clay layer that underlies it and protects the aquifer. It was purposefully established in a location where the natural clay layer is the thickest, about 40 feet thick.

The OSDF will be composed of seven "cells," separate units which will each consist of an engineered bottom, content (the majority of the site's contaminated material will be placed in the OSDF), and a final cover. Cell 1 began receiving waste in December 1997 and has reached its capacity. Construction of the final cover for Cell 1 began in Spring 2001. Cells 2 and 3 are now receiving waste. The remaining four cells are to be built between 2002 and 2006, with plans for the OSDF to be completed by 2009.

"There's some urgency in applying monitoring technologies to Cell 1, since it will be closed this year," Pettit said. "We want to use the energy and

momentum achieved in Cell 1 as a dress rehearsal for Cell 2, and then strive for additional improvements in subsequent cells."

The IST Team's first task was to choose the monitoring parameters where measurements are the most necessary to provide the best assurance that the final cover is performing as it was designed. The IST Team selected critical monitoring parameters, including hydraulic head measurement, settlement/subsidence, soil moisture/soil-water potential, soil temperature, and visual observation.

Of the various technologies envisioned for monitoring these parameters, the IST Team chose four:

- Pressure transducers and thermocouples,
- Plate and Rod,
- Ground Penetrating Radar targets, and
- Remote sensing benchmarks.

These were parameters that could feasibly be installed during 2001 to meet the tight construction schedule for the closure of Cell 1.

"We're looking at using technology for providing a better overall diagnostic of the integrity of the final cover system," said Kathi Nickel, Technology Programs Officer for the DOE at

*Fernald, continued on page 14*

## Technologies chosen for critical monitoring parameters

### *Pressure transducers*

These instruments will be installed in riser pipes from the drainage layer to measure pressure changes that might indicate plugging of the drainage layer.

### *Thermocouples*

Moisture and temperature in the soil of the vegetative layer will be monitored with thermocouples. These are extremely important parameters in maintaining a healthy vegetative cover, which will aid in quick movement of water from the top of the cell and prevent erosion and downward percolation.

### *Plate and Rod*

Settlement plates will be installed on top of the drainage layer, with rods extending up to the surface. Periodic surveying of the rods will determine whether any subsidence or movement has occurred, indicating whether the integrity of the cover system has been compromised.

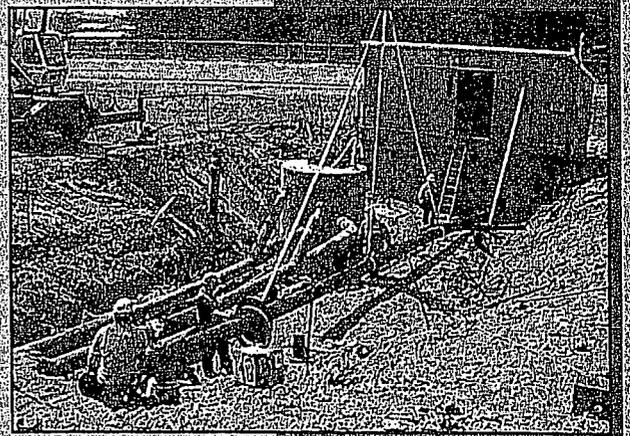
### *Ground Penetrating Radar Targets*

Steel plates will be installed in various interfaces between layers for potential future use as "targets." The targets would be available, if new technologies, such as improved versions of ground penetrating radar, are developed. New or improved versions of technologies could then replace the more labor-intensive plate and rod system.

### *Remote Sensing Benchmarks*

Fernald is investigating the possibility of using flyovers or satellite imagery to collect data on such parameters as vegetative stress or erosional problems. Associated test plots could provide benchmarks for interpretation of remote imagery.

*Pipelitters install the first section of piping from Cell 1 to a valve house (below). The Enhanced Permanent Leachate Transmission System has been designed to collect leachate water from the On-Site Disposal Facility cells and transfer that water to the Advanced Wastewater Treatment facility. After treatment, the water will be released to the Great Miami River.*



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## Upcoming Workshop to Focus on Interaction

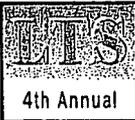
### *4th Annual Long-Term Stewardship Workshop Scheduled*

As the manager of DOE's Long-Term Surveillance and Maintenance (LTSM) program, DOE-GJO has hosted the annual LTS Workshop since the event's inception. Participants in previous annual workshops have applauded the Grand Junction team's success in addressing topics of critical concern and in involving presenters that make the event worth attending.

"It is very important that individuals can share information and hear from key policy-makers who are establishing the direction of long-term stewardship," said Audrey Berry of DOE-GJO, one of the workshop's organizers.

Berry added, "This year will be no exception, in terms of interesting topics and great presenters, but we will definitely be running the workshop differently."

In response to feedback from past participants, this summer's event will allow for more interactive problem-solving, sharing, and learning. The overall theme of the workshop is the integration of long-term stewardship issues into real-world planning and decision-making.



4th Annual

## Long-Term Stewardship Workshop

### "The Future Through The Past"

July 30 - August 2, 2001

**Grand Junction, Colorado**  
Sponsored by: **DOE Grand Junction Office**



Short, interactive presentations will be followed by facilitated discussions and small group exercises.

The initial sessions will focus on the questions of when long-term stewardship planning should begin and how remedy selection affects long-term stewardship activities.

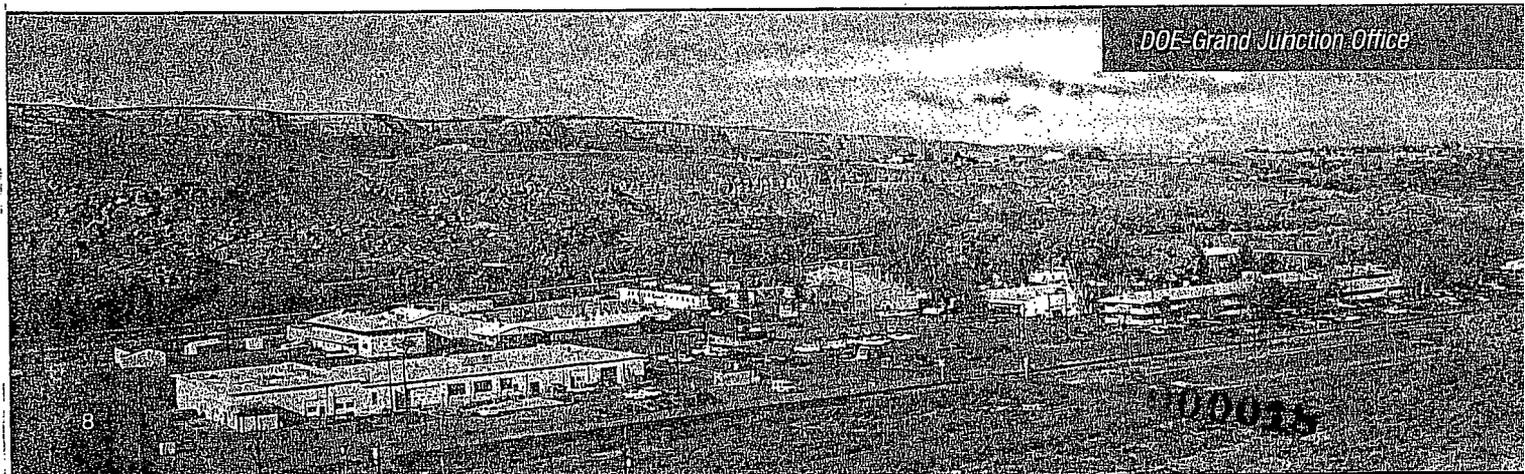
Subsequent sessions will provide information on who should be involved

in long-term stewardship planning—the roles of regulators and government entities, community groups, future landowners, etc. Presenters will share insights on elements of successful planning and who should be included in the planning process. The presentations will also identify the information needed for successful planning.

Finally, in addition to DOE, representatives from the Nuclear Regulatory Commission, Environmental Protection Agency, and Department of Defense will compare and contrast their perspectives on what type of information is necessary for a long-term stewardship plan and the roles each agency has in long-term stewardship.

### ***Interactive Exercises Will Enhance Mix of Presentations and Discussions***

Throughout these presentations and discussions, participants in small groups will use a fictional site containing realistic predetermined characteristics, settings, and boundaries to apply the DOE's draft guidance toward developing a long-term stewardship technical plan. This interactive plan-building exercise will both reinforce and test ideas from presentations and discussions. By using a realistic but simulated scenario, participants will have a chance to "test drive" site planning without being caught up in site-specific details or rol



DOE-Grand Junction Office

## The Science of Decision Systems

The science of decision systems modeling is an often overlooked component of long-term stewardship. To be effective over the long-term, decision systems must:

- Support technical and institutional performance
- Sustain performance over inter-generational time frames, and
- Sustain constructive involvement of government entities.

In a study of decision systems successes and failures, Dr. Jerry Harbour, a human systems researcher who assisted in developing the workshop scenarios, notes four critical attributes of durable decision-making systems:

- **Inclusiveness**—Decisions must not only be inclusive of scientific data and risk assessment but also stakeholder values, which may shift during this and successive generations. Broader inclusion of interests yields more robust solutions that gain wider support.
- **Transparency**—For the outcome to be trusted and supported, decision-making processes must be open and understandable to as many people as possible.
- **Broad Framing**—Long-term decisions must initially be open to a wide range of options to provide more room for innovative ideas. Decision-making that starts with a narrow range of options can fall victim to short-sightedness.
- **Adaptability**—For long-term success, decision-making must be able to accommodate changes in the form of new technologies or different social values. Irreversible decisions foreclose on future generations' options to respond.

Learning from decisions must be an ongoing part of the long-term stewardship process. Research in decision-making is another effort supporting DOE's needs to sustain intergenerational support. ■

### Additional Forums for Discussion and Interaction

In addition to the workshop's primary theme of planning, a variety of activities where participants can network will also be offered. The last session will be dedicated to "hot" topics relevant to long-term stewardship issues, which are not addressed in the main agenda. In addition, this year's workshop will have an exhibition area for organizations to showcase their contribution and abilities within the realm of long-term stewardship. The deadline for exhibitor applications has been extended to July 20, 2001. ■

For More Information on the 4th Annual LTS Workshop and an up-to-date agenda, visit <http://www.doe.gpo.com/programs/ltsm>

## Scenarios are created for LTS planning simulation

Kelterville is a fictional site that could be anywhere in the U.S. It is either overlying a vital aquifer, or is in an arid landscape. It is either in a remote rural setting, or the middle of an urban area. Because it is fictional, Kelterville can be any combination of these circumstances.

Kelterville was generated by human systems engineers to be a prototype representing many sites in the DOE complex. The scenarios are realistic because they are derived from median values for all DOE complex contaminants. Because the simulation exercise is place-neutral, however, participants will be able to explore the long-term

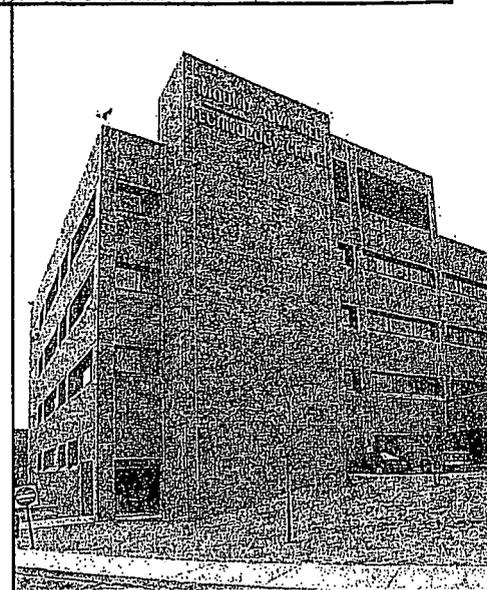
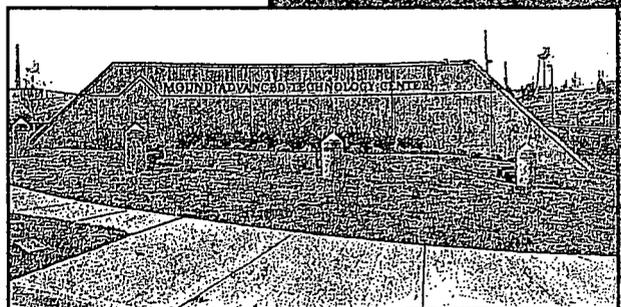
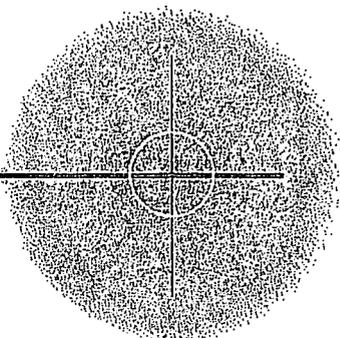


stewardship problem set and the implications of current draft guidance from a fresh perspective without getting mired in the site-specific implications.

Art Kleinrath, of the DOE-GJO, believes the simulation will free participants to think more expansively. "Most of us examine long-term stewardship issues from the narrow perspective of a particular site. I think that can have a dampening effect when considering the broader needs of long-term stewardship. Having a set of somewhat generic sites with familiar problems should allow participants to see the forest for the trees. I think it should stimulate a lot of productive input." ■

# DOE Mound in Transition

## LTS in Action



*Long before DOE began using the phrase “long-term stewardship,” stakeholders, regulators and managers at DOE’s Miamisburg Environmental Management Project Mound facility in Miamisburg, Ohio, were discussing the need for “post-closure stewardship.”*

### 1993-DOE prepares to leave Mound

The drive to consider life after DOE began in 1993, when DOE announced that it was transferring defense missions from Mound, which at the time fabricated weapons components for national defense. With this announcement and the impending loss of jobs, community leaders immediately identified the potential reindustrialization and economic value of the Mound facility.

In the same year, Ohio Congressman Tony Hall moved to permit private businesses to set up on Mound land. In 1994, legislation was passed that allowed DOE to sell property to economic development groups below cost. The move to reuse Mound was afoot. In this environment, DOE, U.S. EPA, and the Ohio EPA began to realize that remediation of Mound called for a different approach to reduce life-cycle costs and accelerate site closure and transition.

*An entrance sign identifies the location of the Mound Advanced Technology Center where the Miamisburg Mound Community Improvement Corporation is housed along with other private businesses.*

### Background

**Site:** 306 acres, located in Miamisburg, Ohio, 10 miles south-southwest of Dayton, Ohio.

**Previous Mission:** Fabricated nuclear weapons components for the U.S. Government's national defense program from 1947 until 1995; also supported non-weapons research and development.

**Current Mission:** Continue to manufacture radioisotopic thermal generators, even after the site is transferred. The DOE's Environmental Management program is now conducting cleanup activities at this site, an effort referred to as the Miamisburg Environmental Management Project. The effort includes remediating soil and groundwater, conducting environmental monitoring, and decommissioning facilities. DOE will also dispose of legacy waste and disposition any materials in inventory.

### **1995—Mound 2000 Process Established**

In 1995, the approach known as the Mound 2000 process was initiated. The Mound 2000 process established a "core team" of representatives from DOE, U.S. EPA, and Ohio EPA to evaluate each of the potential site contamination problems and recommend the appropriate response. Existing information is used to determine the appropriate steps needed to address contaminated sites; thus, projects only involve data collection when further assessment is required. Straightforward projects with a clear problem move directly to action. Further, the Mound 2000 process also incorporates opportunities for stakeholder input.

### **1998—Property Transfer Process in Place**

In January 1998, DOE sold the Mound plant to the Miamisburg Mound Community Improvement Corporation for \$10. The Sales Contract establishes that DOE will convey the entire site to the MMCIC in discrete parcels. Each parcel must be cleaned up pursuant to CERCLA with conveyance of the parcel formally approved by U.S. EPA. The Mound 2000 approach enables the exit plan goal of transferring property to the MMCIC for economic redevelopment and ultimately delisting the site from the National Priorities List.

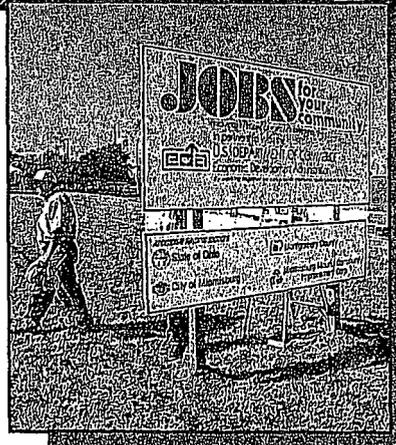
The Sales Contract also establishes that DOE will transfer each parcel of land via a quitclaim deed. The quitclaim deed transfers ownership of the parcel and establishes that MMCIC will take the parcel "as is, where is" with DOE maintaining responsibility for any

institutional controls applied to transferred parcels. Through a covenant in the Sales Contract, DOE retains responsibility for remediation if contamination is discovered in the future. The contract protects DOE by establishing the procedures by which MMCIC can defer acceptance of a parcel and ensuring that deferrals will not extend beyond DOE's exit date from the site.

Because DOE is remediating the

*Mound, continued on page 12*

*Local and State dignitaries pull together during the Parcel H transfer ceremony (top). A sign advertising "JOBS for your Community" is located on newly transferred parcel H land (bottom).*



### **Quitclaim Deed vs. Easements**

Although DOE is transferring parcels of land to MMCIC, a number of use restrictions and access agreements must remain in place—some for the short term and others in perpetuity. DOE and MMCIC have agreed to an approach for placing restrictions on the land to facilitate the ease by which these restrictions may be removed. Use restrictions and access agreements that must remain in place in perpetuity are incorporated in the quitclaim deed. These include:

- Restrictions on land use (i.e., land must not be used for residential use or farming, no day-care facilities, schools, other educational facilities, community centers, playgrounds, or other recreational or religious facilities for children under 18 years of age may be built)
- Restrictions on the use of the groundwater (i.e., the owner is restricted from extracting, consuming, exposing, or using in any way the groundwater underlying the premises without prior written approval from the U.S. EPA and Ohio EPA)
- Restrictions on removal of soil from the original Mound facility site boundaries (306 acres)
- Agreements on access to the site for DOE, its agents, and its regulators to conduct any needed future response action as defined under CERCLA (e.g., remedial investigation or remedial action) ■

## Memorandum of Agreement—A Mechanism to Synchronize Plans

DOE and MMCIC essentially established an interdependent relationship of "joint custody" through a Sales Contract. From that point forward DOE's budgets, plans, and remediation challenges had direct impact on its partner organization.

Acknowledging this reality, a Memorandum of Agreement (MOA) identified the collaborative relationship between DOE and MMCIC to work together with the U.S. EPA and Ohio EPA to transition the site. In the MOA, the parties are committed to jointly maintain the integrity of the environment in an efficient and economic manner. They also agreed to integrate DOE's Exit Plan (the plan to clean up and exit the site) with MMCIC's Comprehensive Reuse Plan. The Mound Reuse Partnership Council established through the MOA will consider and discuss related operational issues.

In the spirit of the MOA, the MMCIC is treated as a key participant and is involved throughout the land transfer process, rather than strictly at required points in the process. For example, DOE provides MMCIC with documents such as the Record of Decision and the Environmental Summary at the same time that these documents are distributed to U.S. EPA and Ohio EPA, rather than after regulator review, when the documents are traditionally shared with stakeholders. ■

## Mound

*continued from page 11*

Mound site to industrial use standards, the Sales Contract and quitclaim deed require that MMCIC develop the property in a manner consistent with industrial land use.

### 1999—Moving Forward with Land Transfers

The Mound Plant is 10 miles southwest of Dayton, Ohio, where it occupies 306 acres within the city limits of Miamisburg. Situated on a hill overlooking the city and the Great Miami River, the Mound facility is considered prime real estate. Though defense operations have ceased, DOE's Office of Nuclear Energy maintains a facility within a self-contained "island" consisting of approximately 8.5 acres. The remainder of the site has been sold to MMCIC under the terms of the 1998 Sale Contract.

Though the land was officially sold in 1998, the first parcel transfer did not occur until 1999.

"When we transitioned the first parcel, every week was full of surprises," said Susan Smiley, Project Manager for DOE in Miamisburg. "Fortunately there were no show-stoppers. The process has gotten easier since then, but we are about to run out of "low-hanging fruit" in terms of land parcels that are readily transferable."

### 2001—Moving Forward with Land Transfers

Currently, 3 parcels (representing 41% of the transferable land) have been conveyed via quitclaim deed, to MMCIC, which now hosts more than 30 major industrial tenants.

"The remaining parcels are complicated by the presence of buildings," Smiley said. "Often, the buildings that are desirable for industrial reuse are occupied, while others require



*A steering committee made up of representatives of the community, DOE and its contractor coordinates stakeholder activities and meetings.*



removal or remediation. Both factors make transfer much more complex."

### Looking Forward to 2006

DOE's goal is to complete all remediation activities by the end of 2006, resulting in the delisting of the entire site (all 306 acres) from the National Priorities List. At that point, the transfer of approximately 297 acres and facilities will be completed and the remaining land will continue to be managed by DOE's Office of Nuclear Energy's Power Systems Technologies Program. ■

*For More Information, contact Jane Greenwalt at [jane.greenwalt@ohio.doe.gov](mailto:jane.greenwalt@ohio.doe.gov) or 937-865-3116*

## NEWS BRIEFS

**DOE-Grand Junction Office undergoes transitions**

As of March 1, DOE-GJO began reporting to DOE-ID. The office had previously reported to DOE-Albuquerque. A further transition is the upcoming transfer of office buildings and land to the Riverview Technology Corporation, a community-based non-profit organization. Once the land transfer is final (anticipated this summer), DOE-GJO will lease its buildings from the new owner and residual environmental issues will become the responsibility of the LTSM program.

For More Information, visit DOE-GJO's new website at [www.gjo.doe.gov](http://www.gjo.doe.gov)

**House Passes Funding Bill**

The House FY 2002 Energy and Water Development Appropriations legislation (H.R. 2311) passed the full House on June 28, 2001. It provides \$7.032 billion for environmental management cleanup activities, an increase of \$699.2 million over the budget request and \$253.4 million over last year.

The recommendation reflects the effort made by the Committee on Appropriation to maintain cleanup schedules and meet compliance agreements at sites throughout the country.

The Committee also provided \$42 million to improve deteriorating facilities and infrastructure at the Department's science laboratories and nuclear weapons complex.

For More Information, visit <http://www.house.gov/appropriations/news/2002/02enrgyh2ofloor.htm>

**Future**

*continued from page 1*

LTS Program, and are the first step in the complex process of defining policy and guidance.

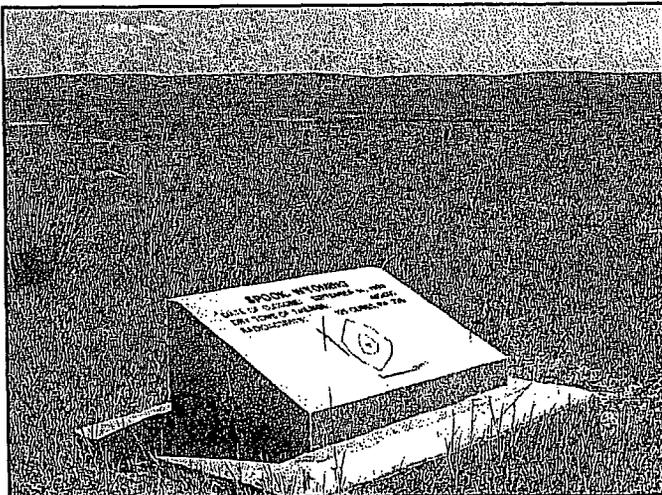
**The LTS Program is defining the policy and guidance necessary to ensure that DOE sites are managed for the benefit of future generations.**

The task of managing the LTS Program in the field was assigned to the DOE Idaho Operations Office (DOE-ID), which is supported by both the Idaho National Engineering and Environmental Laboratory (INEEL) and the DOE Grand Junction Office (DOE-GJO).

This team is providing the programmatic infrastructure-site

planning, information management, decision analysis, science and technology support. In addition, the team manages the DOE's Long-Term Surveillance and Maintenance program, which becomes the new "landlord" for sites that have transitioned into long-term stewardship.

The LTS Program will also reach beyond DOE to include other federal agencies; state, tribal, and local governments; public interest organizations; private citizens; and most importantly, future generations of stakeholders. By working effectively with regulators, government entities, and stakeholders, and making wise use of taxpayer resources, the LTS Program will continuously improve for the benefit of future generations. ■



## Fernald

continued from page 7

Fernald. "These are not new technologies, but the sum total of their use for this application is not being done elsewhere."

In addition, engineers at Fernald hope to develop a data collection system for wireless communication of data to a remote location. The development of a Long-Term Data/Image Repository is part of the overall plan for Fernald Stewardship. It is intended that current and historic data should be accessible through a Web site or other user-friendly medium, not only to engineers but also to regulatory personnel, community members and other stakeholders.

The Fernald Post Closure Stewardship Technology Project is also

concentrating on other monitoring needs, not just for the OSDF but for the entire site. These needs include leachate quality, flow and meteorological monitoring, and passive leachate treatment and monitoring.

Technology, Pettit noted, is not an end in itself on the Fernald project. "This project applies technology to serve the needs of the stewardship program. The real heart of our effort is the diverse team of experts that can match the capabilities of instrumentation and a monitoring system with a well-established list of needs, both technical and programmatic. We can't get enamored with measurement unless we know both what we're measuring and what to do with the information."

By demonstrating, evaluating, and deploying technologies that make sense

for the long haul, the DOE Fernald Environmental Management Project site is serving as a test bed for DOE Long-Term Stewardship projects elsewhere.

Furthermore, by sharing its experience with functional applications of post-closure technology, such as closure cell applications, providing evaluative data for real-world project managers, and developing and using an integrated team approach, Fernald is representative of the DOE's efforts to ensure a protected environment for the future. ■

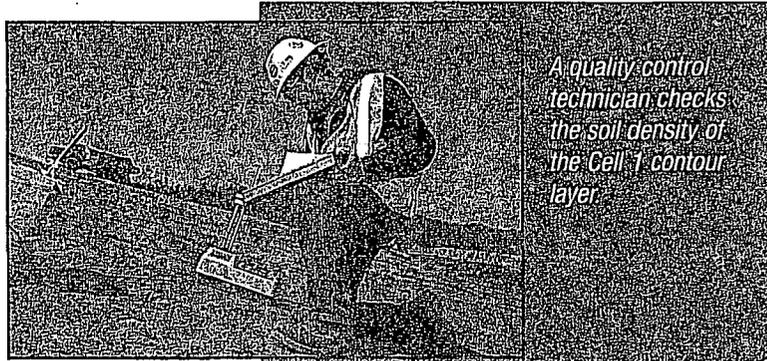
For More Information about closure cell applications at Fernald, contact Paul Pettit at 513-648-4960 or [paul.pettit@fernald.gov](mailto:paul.pettit@fernald.gov)

### The OSDF cap and cover system

is being constructed by adding the following materials on top of the contents:

- a 2-foot thick compacted clay layer,
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- a plastic geomembrane liner cap,
- a geotextile cushion,
- a 1-foot thick drainage layer,
- a gravel layer to shunt water off to the side,
- a 3-foot thick bio-intrusion barrier (a layer of large cobbles that tree roots and burrowing animals can't get through)
- a 1/2-foot thick layer of gravel,
- a 1 3/4-foot thick layer of vegetative soil, and
- a 6-inch thick layer of topsoil to promote growth of grasses.

Altogether, the cap is 8 3/4-feet thick.



A quality control technician checks the soil density of the Cell 1 contour layer.



Cell 1 is shown during construction in this photo taken in early 2001.

# Roadmapping for Long-Term Stewardship

## *Developing an S&T investment strategy*

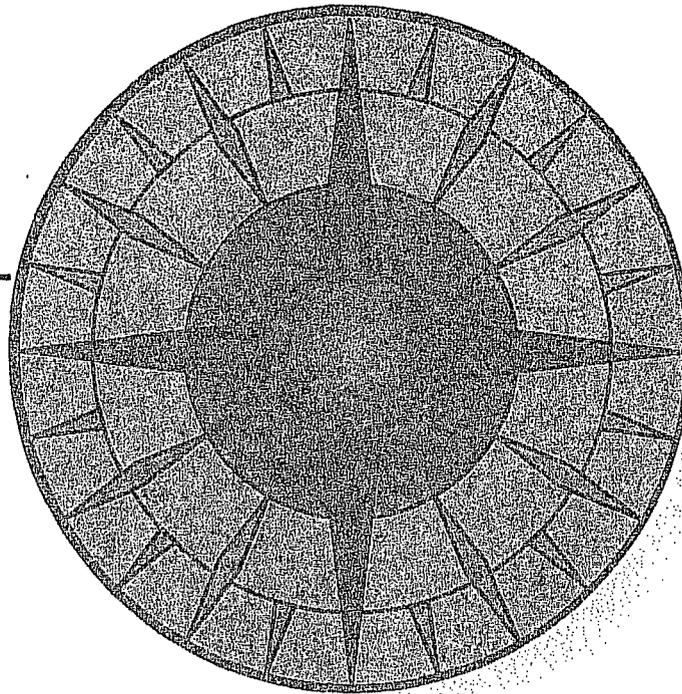
To gain the greatest value for the taxpayer, the DOE must prioritize its investments in science and technology while balancing short- and long-term needs. To achieve this, the LTS Program is initiating a science and technology roadmapping process.

DOE has successfully drafted several roadmaps of this type, including the *Hanford Ground Water / Vadose Zone Roadmap*, the *Complex-wide Vadose Zone Roadmap* and the *Robotics and Intelligent Machines Roadmap*, but the challenges of long-term stewardship extend beyond the scope of these efforts.

## ***Science and technology will be the enabling portion of the LTS roadmap.***

"We plan to adapt the processes of DOE's other successful roadmapping projects and tailor them to the needs of long-term stewardship," said Bruce Hallbert, director of the LTS roadmapping effort. "Science and technology will be the enabling portion of the LTS roadmap. However, one area that will distinguish the LTS roadmap from its sister documents will be an emphasis on embedding societal issues into the process."

"Issues that are tractable in the near-term become extremely challenging when they are extended thousands of years into the future," Hallbert said. "We need to make the problem more tractable by dividing the problem space



into time periods—as was done in the *Robotics and Intelligent Machines Roadmap*—but we also have to factor in intergenerational considerations."

By necessity, the LTS roadmap must also consider the phasing of sites into the LTS Program.

The roadmapping process for the LTS Program is currently getting underway. Beginning with a framework developed last year, the project has assembled the kernel of an executive committee and expects to have a broad array of participants identified and committed to the effort by September 2001. Like other science and technology roadmaps, the effort will draw extensively from the leading thinkers in academia, DOE's National Laboratories and other agencies.

Mike Wright, now the Director of the INEEL's Subsurface Science Initiative, participated in the development of the *Complex-Wide Vadose Zone Roadmap* while at the University

of Utah. According to Wright, "Participating in roadmap development is both exciting and fulfilling. The end product significantly shapes DOE's research and development priorities."

"The INEEL's role in the roadmapping process is that of a project manager," Hallbert noted. "We are really here to facilitate the process. Our role is to organize, focus, and guide the effort to ensure the product meets the needs of the LTS Program."

Developing the LTS roadmap will be an iterative process that identifies and addresses the science and technology needs of long-term stewardship as its scope and baseline become clearer.

Typically, science and technology roadmaps identify basic research needs as well as technological or applied science needs. However, initial roadmapping efforts will focus on identifying current needs and capabilities, performing gap analyses, and developing an approach for meeting high-priority needs. The LTS Program's goal is to have an initial roadmap developed by May 2002. ■

*For More Information about the LTS Program S&T Roadmap, contact Bruce Hallbert at 208-526-9867 or hallbp@inel.gov*

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## UPCOMING EVENTS

### August

- 3 .....28th Annual Waste Management Symposium (WM '02) Abstract Submission Deadline  
Submit abstracts to: WM Symposia, P.O. Box 35340, Tucson, AZ 85740  
phone 520-696-0399; fax 520-696-0487; email [abstracts@wmsym.org](mailto:abstracts@wmsym.org)  
<http://www.wmsym.org>
- 26-28 ....Environmental Council of States Annual Meeting, Honolulu, Hawaii  
Contact: Lia Parisien, [lparisie@sso.org](mailto:lparisie@sso.org)  
<http://www.sso.org/ecos/>

### September

- 19 .....DOE Environmental Management Advisory Board: LTS Subcommittee,  
DOE Headquarters, 1000 Independence Ave., Washington, DC  
Contact: James Melillo, 202-586-4400  
<http://www.em.doe.gov/emab/>

### October

- 10-11 ....DOE Environmental Management Advisory Board Meeting,  
DOE Headquarters, 1000 Independence Ave., Washington, DC  
Contact: James Melillo, 202-586-4400  
<http://www.em.doe.gov/emab/>
- 16-18 ....International Dixie Lee Ray Memorial Symposium  
Renaissance Washington DC Hotel, Washington, DC  
Contact: Paula Miller, 301-596-1700, [moghissi@NRSI.org](mailto:moghissi@NRSI.org)  
<http://www.nars.org/dlrsymposium.html>
- 17-19 ....Energy Communities Alliance (ECA) Fall Conference  
Contact: Audrey Eidelman, 202-828-2318, [conf@energyca.org](mailto:conf@energyca.org)  
<http://www.energyca.org/ecaconferences.html>
- 22-25 ....Weapons Complex Monitor Waste Management & Cleanup, Decisionmakers Forum,  
Amelia Island, FL  
<http://www.exchangemonitor.com/forumreg.htm>
- November
- 4-10 .....Thirteenth Technical Information Exchange Workshop, Albuquerque, New Mexico  
<http://www.em.doe.gov/tie/13thtie.html>
- 5-8 .....Interstate Technology Regulatory Cooperation 2001 Fall Conference, Long Beach, CA  
<http://www.itrcweb.org>

*Long-Term  
Stewardship*

Long-Term Stewardship Program  
Idaho National Engineering and Environmental Laboratory  
MS 3404  
P.O. Box 1625  
Idaho Falls, ID 83403-9987

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July 2001  
 Long Term Stewardship newsletter  
 Pages - 6 -14  
 "Closure Cell Applications"

Page 1 of 3

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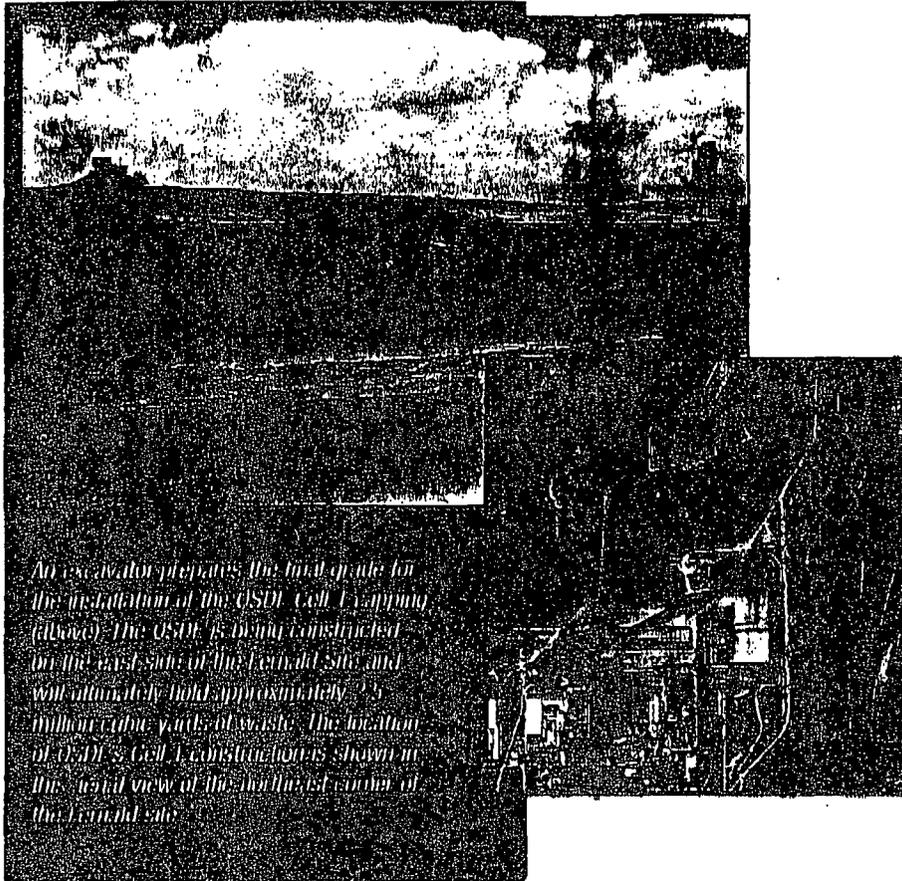
While the IST Team was formed just in the last year, Pettit said, it's a tried-and-true mechanism for this kind of complex project.

The concept of an integrated team approach originated with Dr. Paul Hart, a former director of the Deactivation and Decommissioning Focus Area. The approach was first used in 1995-96 for the successful Plant 1 Decontamination and Decommissioning technology demonstration and deployment project at Fernald.

Fernald's IST Team is composed of nationally recognized experts in disposal-facility design, such as professors Craig Benson of the University of Wisconsin, David Daniel of the University of Illinois, and Gary Foose, of the University of Cincinnati. It also includes regulators—such as the Ohio EPA—and stakeholders—such as community members and the Fernald Residents for Environmental Safety and Health (F.R.E.S.H.).

At their January 2001 meeting, the IST Team directed their attention to the Post Closure Stewardship Technology Project's current primary focus: the On-Site Disposal Facility (OSDF), the main engineered structure to remain at the Fernald site and the source for most of the site's post-closure technology needs. The OSDF will be filled with wastes composed primarily of contaminated soil and debris from demolished buildings at the site.

The OSDF is an area some 3,600 feet long, 800 feet wide and 65 feet above ground at its highest point. The facility is located largely aboveground to preserve as much as possible of the natural clay layer that underlies it and protects the aquifer. It was purposefully established in a location where the natural clay layer is the thickest, about 40 feet thick.



An excavator prepares the final grade for the installation of the OSDF Cell 1 capping (above). The OSDF is being constructed on the east side of the Fernald site and will ultimately hold approximately 2.5 million cubic yards of waste. The location of OSDF Cell 1 construction is shown in this aerial view of the southwest corner of the Fernald site.

## Closure Cell Applications

### *Preliminary activities underway at Fernald*

Preliminary long-term stewardship activities are underway at the DOE Fernald Environmental Management Project site near Cincinnati, Ohio. (Fernald is a former uranium processing facility; production ceased in 1989.)

The Post Closure Stewardship Technology Project, sponsored by the Subsurface Contaminants Focus Area of the DOE Office of Science and Technology, is helping Fernald project management and stakeholders develop a comprehensive, long-term, post-closure care, inspection and monitoring plan.

"We are trying to do everything possible and reasonable to ensure that, years from now, somebody doesn't say 'I wish we'd done this' or 'They should have done that,'" Fluor Fernald Technology Programs Manager Paul Pettit said. "Our goal is being responsible in stewardship for the legacy the site will leave behind."

One differentiator at Fernald is the Integrated Stewardship Technology (IST) Team, which was assembled to guide the identification, screening, demonstration, deployment, and evaluation of post-closure stewardship technologies.

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The OSDF will be composed of seven "cells," separate units which will each consist of an engineered bottom, content (the majority of the site's contaminated material will be placed in the OSDF), and a final cover. Cell 1 began receiving waste in December 1997 and has reached its capacity. Construction of the final cover for Cell 1 began in Spring 2001. Cells 2 and 3 are now receiving waste. The remaining four cells are to be built between 2002 and 2006, with plans for the OSDF to be completed by 2009.

"There's some urgency in applying monitoring technologies to Cell 1, since it will be closed this year," Pettit said. "We want to use the energy and

momentum achieved in Cell 1 as a dress rehearsal for Cell 2, and then strive for additional improvements in subsequent cells."

The IST Team's first task was to choose the monitoring parameters where measurements are the most necessary to provide the best assurance that the final cover is performing as it was designed. The IST Team selected critical monitoring parameters, including hydraulic head measurement, settlement/subsidence, soil moisture/soil-water potential, soil temperature, and visual observation.

Of the various technologies envisioned for monitoring these parameters, the IST Team chose four:

- Pressure transducers and thermocouples,
- Plate and Rod,
- Ground Penetrating Radar targets, and
- Remote sensing benchmarks.

These were parameters that could feasibly be installed during 2001 to meet the tight construction schedule for the closure of Cell 1.

"We're looking at using technology for providing a better overall diagnostic of the integrity of the final cover system," said Kathi Nickel, Technology Programs Officer for the DOE at

Fernald. "These are not new technologies, but the sum total of their use for this application is not being done elsewhere."

In addition, engineers at Fernald hope to develop a data collection system for wireless communication of data to a remote location. The development of a Long-Term Data/Image Repository is part of the overall plan for Fernald Stewardship. It is intended that current and historic data should be accessible through a Web site or other user-friendly medium, not only to engineers but also to regulatory personnel, community members and other stakeholders.

The Fernald Post Closure Stewardship Technology Project is also

concentrating on other monitoring needs, not just for the OSDF but for the entire site. These needs include leachate quality, flow and meteorological monitoring, and passive leachate treatment and monitoring.

Technology, Pettit noted, is not an end in itself on the Fernald project. "This project applies technology to serve the needs of the stewardship program. The real heart of our effort is the diverse team of experts that can match the capabilities of instrumentation and a monitoring system with a well-established list of needs, both technical and programmatic. We can't get enamored with measurement unless we know both what we're measuring and what to do with the information."

By demonstrating, evaluating, and deploying technologies that make sense

for the long haul, the DOE Fernald Environmental Management Project is serving as a test bed for DOE Long-Term Stewardship projects elsewhere.

Furthermore, by sharing its experience with functional applications of post-closure technology, such as closure cell applications, providing evaluative data for real-world project managers, and developing and using an integrated team approach, Fernald is representative of the DOE's efforts to ensure a protected environment for the future. ■

*For More Information about closure cell applications at Fernald, contact Paul Pettit at 513-648-4960 or paul.pettit@fernald.gov*

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Page 3 of 3

## Technologies chosen for critical monitoring parameters

### Pressure transducers

These instruments will be installed in riser pipes from the drainage layer to measure pressure changes that might indicate plugging of the drainage layer.

### Thermocouples

Moisture and temperature in the soil of the vegetative layer will be monitored with thermocouples. These are extremely important parameters in maintaining a healthy vegetative cover, which will aid in quick movement of water from the top of the cell and prevent erosion and downward percolation.

### Plate and Rod

Settlement plates will be installed on top of the drainage layer, with rods extending up to the surface. Periodic surveying of the rods will determine whether any subsidence or movement has occurred, indicating whether the integrity of the cover system has been compromised.

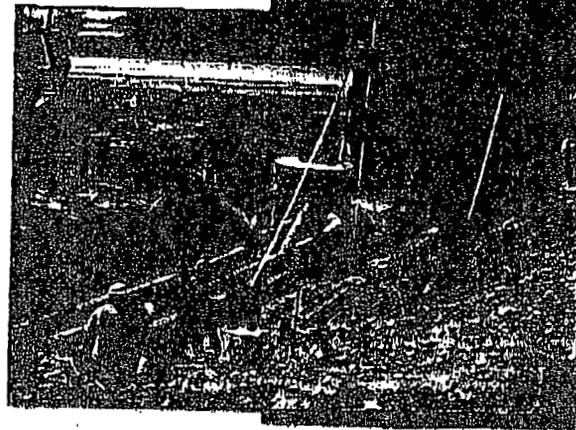
### Ground Penetrating Radar Targets

Steel plates will be installed in various interfaces between layers for potential future use as "targets." The targets would be available if new technologies, such as improved versions of ground penetrating radar, are developed. New or improved versions of technologies could then replace the more labor-intensive plate and rod system.

### Remote Sensing Benchmarks

Fernald is investigating the possibility of using flyovers or satellite imagery to collect data on such parameters as vegetative stress or erosional problems. Associated test plots could provide benchmarks for interpretation of remote imagery.

Problems, and all the rest, section of piping from Cell 1 to a valve house (below). The Enhanced Permeable Leachate Transmission System has been designed to collect leachate water from the On-Site Disposal Facility cells and transfer that water to the Advanced Wastewater Treatment facility. After treatment, the water will be released to the Great Miami River.

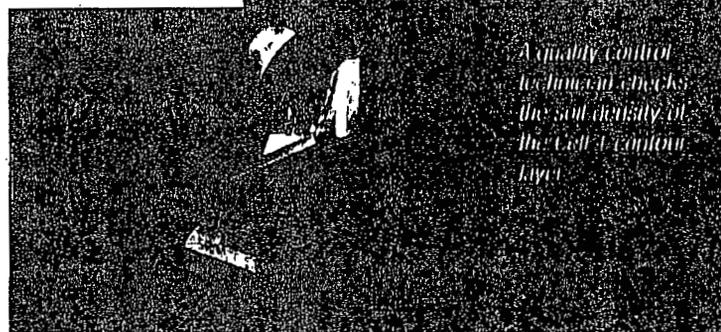


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- a 6-inch thick layer of topsoil to promote growth of grasses.

Altogether, the cap is 8 3/4-feet thick.



A quality control technician checks the soil density of the cap's bottom layer.



Cell 1 is shown during construction in this photo taken in the fall.

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August 6, 2001

Weapons Complex Monitor

Page 13

"NTS LLRW Disposal Volumes"

## NTS LLRW Disposal Volumes

DOE APPROVED GENERATORS	W/E 01 July 01			FY 01 TOTAL			WMP TOTAL	
	No. of Ship.	Volume (Cu. Ft.)	Volume (Cu. M.)	No. of Ship.	Volume (Cu. Ft.)	Volume (Cu. M.)	Volume (Cu. Ft.)	Volume (Cu. M.)
ABERDEEN	0	0	0.00	8	6,012	170.24	79,987	2,264.98
ALLIED SIGNAL	0	0	0.00	0	0	0.00	413	11.69
BECTHEL NEVADA	0	0	0.00	10	11,368	321.90	311,494	8,820.52
BNFL	3	5,136	145.44	57	69,514	1,968.41	69,514	1,968.41
FERNALD	4	8,109	229.62	142	229,606	6,501.71	6,098,609	172,693.09
GENERAL ATOMIC DOE	0	0	0.00	103	57,669	1,633.00	746,142	21,128.35
GENERAL ATOMIC CORP.	0	0	0.00	25	12,810	362.74	12,810	362.74
IT CORPORATION	0	0	0.00	2	216	6.12	8,771	248.37
LLNL, CA	1	1,345	38.09	22	18,724	530.20	198,252	5,613.87
LRRI	0	0	0.00	0	0	0.00	8,254	233.73
MOUND	0	0	0.00	25	49,621	1,405.11	1,945,590	55,092.89
OAK RIDGE NTL LAB	0	0	0.00	37	9,537	270.06	20,457	579.28
PANTEX	0	0	0.00	1	1,698	48.08	149,457	4,232.14
RMI (EARTHLINE)	0	0	0.00	4	1,929	54.62	42,558	1,205.10
ROCKETDYNE	0	0	0.00	1	1,132	32.05	99,719	2,823.72
ROCKY FLATS	7	16,987	481.02	216	383,281	10,853.30	3,378,175	95,659.11
SANDIA NTL LAB, CA	0	0	0.00	1	537	15.21	19,852	562.15
SANDIA NTL LAB, NM	0	0	0.00	9	7,231	204.76	66,222	1,875.20
SAVANNAH RIVER	0	0	0.00	1	2,962	83.87	2,962	83.87
inactive offsite waste	0	0	0.00	0	0	0.00	128,634	3,642.51
inactive onsite waste	0	0	0.00	0	0	0.00	8,288,033	234,690.57
<b>GRAND TOTAL</b>	<b>15</b>	<b>31,577</b>	<b>894.17</b>	<b>664</b>	<b>863,847</b>	<b>24,461.38</b>	<b>21,675,905</b>	<b>613,792.29</b>

Total offsite waste received in FY 01 = 852,263 Cu. Ft., 24,133.36 Cu. M.  
 Total onsite waste received in FY 01 = 11,584 Cu. Ft., 328.02 Cu. M.

Offsite waste comprises approximately 60.29% of the total waste inventory  
 Onsite waste comprises approximately 39.71% of the total waste inventory

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August 6 2001

Weapons Complex Monitor

Page 10

## "Cracked Shipping Container Found During Nevada Border Inspection"

Shipments of low-level radioactive waste from the West Valley Demonstration Project in New York to the Nevada Test Site have been suspended for at least two weeks after a crack was discovered in a shipment cask during a July 30 inspection at the border of Utah and Nevada. Inspectors found an inch-long crack in one of the seven low-level waste containers comprising the shipment after they noticed white foam on the bed of the transport truck. Radiological inspectors detected no radiation on the cask or in the foam, which was believed to consist of a packing material called Waterworks. "There has been no radiological release. It was basically a leak of what we believe to be the packing material, but we're taking this very seriously," DOE spokesman Joe Davis told *WC Monitor*. Davis said a decision will be made on resuming shipments from West Valley after a procedural review that will take between seven and 10 days to complete. "We're taking a look at things now and once this review is completed, we should have a better idea of where we stand," he said.

**Damaged Container Will Return to West Valley**

While the six undamaged casks continued on to the Nevada Test Site July 31, the cracked container will be sealed in plastic and placed in a cargo container for shipment back to West Valley. "The Nevada Test Site does not accept shipments that have been modified from the original condition so by our own rules and regulations we have to ship it back to West Valley where it will be examined as part of the review," Davis said. "It was wrapped and double packaged and the transport is entirely safe."

**Gov. Guinn Demands Investigation**

Nevada Gov. Kenny Guinn (R) called on the Energy Dept. to suspend all shipments from West Valley until the agency completes a thorough review of its waste-transportation program. In an Aug. 1 letter to Energy Secretary Spencer Abraham, Guinn brought up a December 1997 incident in which a leak was discovered in a shipment of low-level radioactive waste from the Fernald Site in Ohio to NTS. DOE suspended all waste shipments from Fernald until mid-1999 in order to conduct a systemic analysis of the site's waste-shipment program. Guinn called on the DOE to take similar action at West Valley.

"It appears that many, if not most, of the recommendations [in the Fernald study report] were either ignored or

simply brushed aside," Guinn charges. "It appears DOE's protocol for the transportation of nuclear waste is seriously ineffective in protecting public health and the environment. We believe DOE should engage in a fundamental study of the transportation of radioactive waste which includes a collective investigation and analysis of all incidents in which radioactive waste was released into the environment during the transportation process, rather than analyzing these accidents on a case by case basis."

**Senators Warn of Transport Dangers**

Meanwhile, Sen. Harry Reid (D-Nev.), who has questioned the safety of transporting high-level nuclear waste and spent nuclear fuel across the country to the proposed repository at Yucca Mountain, said at press conference last week the leaking low-level canister illustrates the dangers of transporting radioactive waste. "The Department of Energy has suspended shipment for two weeks from the West Valley site, but I am concerned about the hundred of trucks carrying dangerous materials from other sites across the country," Reid said. "Accidents happen and it's time we understand the very real and immediate danger of transporting radioactive waste."

Reid called the press conference with Sens. John Ensign (R-Nev.) and Tom Carper (D-Del.) in the wake of last month's railroad tunnel fire in Baltimore during which hazardous chemicals leaked from tanker cars. That incident, Reid said, should serve as a "wake-up call to the nation" about the dangers of transporting hazardous materials. The senators called on DOE to supply citizens with more information about where and when radioactive waste shipments will travel and to provide training to emergency response crews. "There have been two hazardous waste accidents in the past two weeks," Ensign said. "Americans have the right to know if nuclear waste is being transported near their homes, schools and playgrounds. I want to make sure that when an accident happens the first responders to the scene, such as the police officer that comes upon a crash, are equipped to effectively handle the situation."«

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August 8, 2001

Journal News (Hamilton, OH)

Page A3

"Department of Energy at Fernald Extends Comment Period and Plans Public Hearing"



# FERNALD

Environmental Management Project

## DEPARTMENT OF ENERGY AT FERNALD EXTENDS COMMENT PERIOD AND PLANS PUBLIC HEARING

The Department of Energy at Fernald is extending the public comment period on the *draft final Explanation of Significant Differences (ESD) for Operable Unit 5 (OU5)* to August 31, 2001. The ESD is changing both the final remediation level for uranium in the Great Miami Aquifer as well as the discharge standard for uranium to the Great Miami River from 20 parts per billion (ppb) to 30 ppb. A public hearing will be held:

Thursday, August 23; 7:00p.m.  
Alpha Building, Classroom D  
10967 Hamilton-Cleves Highway

The OU5 ESD is available at the Public Environmental Information Center, 513-648-7480, located at 10995 Hamilton-Cleves Highway. Comments should be submitted to

Gary Stegner, DOE  
Public Affairs, P.O. Box 538705,  
Cincinnati, OH 45253-8705;  
phone: 513-648-3153;  
e-mail: [gary.stegner@fernald.gov](mailto:gary.stegner@fernald.gov)

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2857-1030

August 8, 2001  
The Cincinnati Enquirer  
Page B2

**3855**

"Fernald Extends a Public Comment Period and Will Conduct a Public Hearing on  
OU5"

**Fernald Extends Public Comment Period and  
Will Conduct a Public Hearing on OU5 ESD**

The U.S. Department of Energy (DOE) at Fernald is extending the public comment period on the draft final *Explanation of Significant Differences (ESD) for Operable Unit 5 (OU5)* to August 31, 2001. The ESD is changing both the final remediation level for uranium in the Great Miami Aquifer as well as the discharge standard for uranium to the Great Miami River from 20 parts per billion (ppb) to 30 ppb. A public hearing will be held at the Alpha Building, Classroom D, 10967 Hamilton-Cleves Highway, on August 23 starting at 7:00 p.m.

The OU5 ESD is available at the Public Environmental Information Center, 513-648-7480, 10995 Hamilton-Cleves Highway. Questions or comments should be directed to Gary Stegner, DOE Public Affairs, P.O. Box 538705, Cincinnati, OH 45253; phone: 513-648-3153; e-mail: [gary.stegner@fernald.gov](mailto:gary.stegner@fernald.gov)

August 15, 2001  
The Cincinnati Enquirer  
Page B1, B5  
"Nuclear scrap: safe?"

# Nuclear scrap: safe?

Recycling metal from dismantled weapons plants debated

By Tim Bonfield  
*The Cincinnati Enquirer*

During the next 35 years, the federal government expects to generate more than 1 million tons of slightly radioactive scrap metal as

crews dismantle unneeded parts of America's nuclear weapons complexes.

Most of that scrap will come from uranium enrichment plants near Portsmouth, Ohio; Paducah, Ky.; and Oak Ridge, Tenn. Some

will come from the former Fernald plant near Ross, the Mound plant near Dayton, Ohio, and other sites nationwide.

The big question: Is it OK?

See RECYCLING, Page B8

## Recycling: Safety of nuclear scrap debated

From Page B1

for the government to sell that scrap metal to recyclers, who in turn could melt it down and resell it for use in making any number of consumer products - from construction materials to braces for a teen-ager's teeth?

Deciding the fate of radioactive scrap metal was the focus Tuesday of a public hearing at the Omni Netherland Plaza Hotel downtown. The hearing was one of several to be held before the Department of Energy sets a new recycling policy, expected by July 2002.

Proponents of recycling, primarily from within DOE, say large amounts of metal from former weapon-making sites barely register above normal background radiation emanating from the soil. They say there is no need to ship such metal to special waste sites intended for much more radioactive materials.

Opponents, however, say the government cannot be trusted to follow its own rules. They predict that scrap recycling will result in exposing an unwitting public to potentially dangerous metals.

"We have serious concerns about this," said Lisa Crawford, president of FRESH, a citizens group that has been raising concerns about Fernald. Mrs. Crawford planned to testify at an evening session of Tuesday's public hearing.

The metals involved are not the enriched uranium, plutonium or other highly radioactive materials produced for bomb-making. Instead, the new DOE policy would address the steel, nickel and aluminum from plant buildings, tanks and equipment; copper from electrical wiring and pipes; and small amounts of gold and platinum used in discarded equipment.

Several thousand tons of scrap metal have accumulated at the

Fernald plant, where dozens of buildings have been torn down since 1989.

The debate will have little, if any, impact on the Fernald site because the cleanup is so far along, said Fernald DOE spokesman Gary Stegner. Nearly all of Fernald's scrap is destined for on-site burial or for disposal at the Nevada Test Site, he said.

But as other DOE sites are dismantled, the issue will grow.

Between now and 2035, the Department of Energy predicts it will generate 942,071 tons of scrap carbon steel, another 37,070 tons of stainless steel, 2,928 tons of iron and unspecified amounts of nickel, copper, aluminum, lead and other metals.

Nearly 84 percent of the steel will come from facilities in Oak Ridge, Paducah and Portsmouth, according to Ken Picha, DOE program manager for the scrap-metal disposition plan.

The DOE is seeking public comment about whether to dispose of the waste or allow some or all of it to be recycled, Mr. Picha said.

So far, the response has been against recycling.

"We do not believe that metals from DOE sites should be permitted to be released into unrestricted commerce, based on our firsthand experience at a major DOE site," said Mike Gibson, vice president of PACE Local 5-4200, a union that represents cleanup workers at the Mound plant in Miamisburg.

Despite detailed policies already in place, Mr. Gibson said, materials from the Mound and Oak Ridge facilities that were assumed to be safe were shipped to foundries or landfills, only to be found to be contaminated.

Even more problems can be expected if scrap recycling is expanded in years to come, Mr. Gibson said.

### How to submit comments

The Department of Energy will accept written comments about recycling radioactive scrap metal until Sept. 10.

Another comment period will open after January, when a draft policy is expected to be issued.

Send comments to Kenneth G. Picha, Office of Technical Program Integration, EM-22, Attn:

Metals Disposition PEIS, Office of Environmental Management, U.S. Department of Energy, 1000 Independence Ave. SW, Washington, D.C. 20585-0113.

Or, send a fax to Metals Disposition PEIS at (301) 903-9770.

Or, send e-mail to: Metals Disposition, PEIS@em.doe.gov.

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August 17, 2001  
The Cincinnati Enquirer  
Page A6  
"Recycling of radioactive metal opposed"

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## Recycling of radioactive metal opposed

*The Associated Press*

ARLINGTON, Va. - Environmentalists urged the Bush administration Thursday not to lift a Clinton-era ban on recycling scrap metals from Department of Energy nuclear facilities.

They say allowing the metals to be recycled into other items puts the public's health at risk.

"It's dispersing radioactivity into everyday items," said Diane D'Arrigo, radioactive waste project director at the Nuclear Information and Resource Service in Washington. "It could be in the braces on your kid's teeth. It could be in the car you're riding in."

Supporters of recycling say it is a useful way to dispose of materials as Cold War-era facilities are decommissioned. They argue levels of contamination are too low to pose a health threat.

Both sides were represented Thursday at the latest in a nationwide series of public hearings on the subject that the Bush administration is holding to gather testimony as it decides whether to lift the ban.

The Energy Department estimates surplus metals in its inventory and materials generated over the next 35 years will total more than a million tons.

The Energy Department says the largest amount of surplus metals comes from uranium enrichment plants in Oak Ridge, Tenn., as well as Kentucky's Paducah plant and a Piketon, Ohio, facility. The agency says the most common types of metals found there are carbon steel, stainless steel and nickel.

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August 23, 2001  
 The Energy Daily  
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 "Fluor Dumps Subcontractors In Recasting Fernald Cleanup"

# Fluor Dumps Subcontractors In Recasting Fernald Cleanup

BY GEORGE LOBSENZ

The operator of the Energy Department's Fernald uranium plant in Ohio this week announced a leadership realignment—and confirmed the termination of two subcontractors—as the site moved to get troubled waste silo cleanup projects back on track.

Fluor Fernald, a subsidiary of California-based Fluor Corp., named Jamie Jameson as president, responsible for day-to-day operations, and Dennis Carr as chief operating officer, with direct oversight of the silo cleanup operations, which have fallen behind schedule.

Fluor officials said Jameson, a Fluor Fernald executive for the past

six years, brings extensive construction and project management experience to his new post.

Jameson succeeds John Bradburne, who has served as Fluor Fernald's president since 1996. Bradburne was named chairman and chief executive officer of Fluor Fernald; Fluor officials said he will focus on planning for closure of the site and will also help Fluor's corporate efforts to secure more federal contracts.

The announcement follows DOE's decision last November to extend and revamp its contract with Fluor at Fernald in hopes of meeting a 2006

closure date for the site.

While initial baseline schedules projected closure could not be achieved until 2010, the contract offers Fluor hefty incentive payments to accelerate the cleanup effort. In that regard, company officials say recent cost-cutting efforts and project streamlining have given them enough confidence to move their projected closure date to 2009. And they say an additional \$20 million provided by Congress in the current fiscal year will help accelerate the schedule further.

Fluor is also taking advantage of changes in the new contract allowing it to self-perform more cleanup work; the previous contract had requirements that Fluor contract out most cleanup projects, under the belief that specialized subcontractors could do  
*(Continued on page 4)*

work faster and more cheaply. Fluor was supposed to provide oversight and integration of the subcontracted projects.

However, with the new contract Fluor has moved to take back direct control of the most difficult project at the site—the cleanup of three huge storage silos containing tens of thousands of pounds of radon-emitting uranium and thorium wastes. The wastes are left over from decades of nuclear weapons production at the site.

Fluor in June terminated a subcontract held by Foster Wheeler Environmental Corp. to carry out the accelerated removal of uranium wastes from Silos 1 and 2. The wastes were to be removed due to concerns about the silos' stability and their ability to contain high levels of radon gas emitted by the wastes.

Foster Wheeler was supposed to build new storage tanks to hold the wastes, install a radon control system and transfer the Silo 1 and 2 wastes into the new tanks to await final stabilization and disposal.

While not caucmerating the problems with Foster Wheeler's operations, Fluor officials said they were taking over the project because they believed they could reduce overall costs and speed up the work.

The negotiated termination of Foster Wheeler followed Fluor's decision in late 2000 to terminate a similar contract held by Rocky Mountain Remedial Services to clean up the thorium-contaminated wastes in Silo 3.

Again, Fluor did not publicly explain the action, but

DOE subsequently asked the U.S. Environmental Protection Agency to push back a May 1 deadline for submitting cleanup plans for Silo 3. EPA granted the extension and Fluor is now working with DOE and citizen groups to reassess proposed waste processing options for the Silo 3 wastes.

On other aspects of the Fernald cleanup, Fluor continues to make progress on decontaminating and tearing down the hundreds of old weapons production buildings at the site. To date, workers have demolished 92 of the more than 250 structures at Fernald.

Massive efforts to clean up and dispose of contaminated soil and groundwater from other areas of the site also are moving forward. Crews have removed about 250,000 tons of waste from numerous waste pits on the site—about one-third of the total waste in the pits. The waste is being shipped to offsite disposal areas on trains.

The site also continues to pump and treat huge amounts of groundwater to remove contamination, with pumping running at 3,000 gallons a minute.

Costs for the groundwater cleanup are likely to decrease if DOE and regulators finalize a proposal to boost the permissible level of residual uranium to remain in groundwater following cleanup. The proposal would raise the final remedial level for uranium in the Great Miami aquifer from 20 parts per billion to 30 parts per billion, consistent with revised EPA standards. A public meeting is to be held on the revised standard today.

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**BRADBURNE GIVES UP DAY-TO-DAY  
MANAGEMENT AT FERNALD SITE**

*Is Named Fluor Fernald CEO; Jameson Named President*

Fluor Fernald President John Bradburne last week stepped back from the day-to-day management of the Fernald Site and will assume a broader oversight role as chairman and chief executive officer of Fluor Fernald. Jamie Jameson, formerly in charge of project execution at Fernald, will replace Bradburne as Fluor Fernald president and Fluor Fernald Executive Vice President Dennis Carr will become the company's chief operating officer. The company's board of directors approved the changes last week, Fluor Fernald officials said. "I knew when to stand back and get out of the way," Bradburne told *WC Monitor* in an interview. "I'm not stepping aside, I'm just making sure we have the strongest team we could muster in place to bring this [site] to closure. Fluor is committed, and incentivized under our contract, to do that, and we want to be sure we have the best leadership available anywhere in the country."

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"Bradburne gives up day-to-day management at Fernald site"

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### Project Management Needed

Bradburne has served as president of Fluor Fernald since 1996 and was responsible for negotiating the company's closure contract with the Energy Dept. last year. The contract presumes level funding of roughly \$290 million per year and requires Fluor to finish the Fernald cleanup by December 2010 for a total cost of \$2.4 billion (*WC Monitor*, Vol. 11 No. 46). After completing those contract negotiations, Fluor Fernald officials developed a new project baseline for the remaining years of the cleanup which moved the end-date up by one year, to 2009, and reduced the cost estimate to \$2.3 billion. "We were able to do that through efficiencies and by analyzing the skills mix we'll need through the end of the job. That has allowed us to develop a far more effective estimate of labor costs," Bradburne said. The new baseline was submitted to the Energy Dept. five weeks ago for validation.

But the rebaselining effort also revealed the company needed to approach the cleanup from a construction management perspective, Bradburne said. "It was clear that we needed to again refocus our strengths on taking this project to closure," he explained. "Jamie has [more than] 30 years' management experience with Fluor. We've asked him to be responsible for the day-to-day oversight of...everything going on here." According to a company news release, Jameson worked on the Trans-Alaskan pipeline in the 1970s and helped build gas refineries and chemical facilities in Saudi Arabia during the 1980s. "He knows the challenges of bringing a project to closure without losing focus on safety," said Fluor Corp. Group Executive Ron Peterson.

### Nuclear Materials Work Targeted

Carr's responsibilities as chief operating officer will include day-to-day oversight of the site's silos project, which aims to treat and dispose of some 8,900 cubic yards of thorium- and radium-bearing wastes, and of the site's nuclear materials disposition project. "We've got about one million pounds of nuclear material left on the site, but all the easy stuff has been done," Bradburne said. "When the last of the nuclear materials go, our classification as a nuclear site goes with it. Dennis will be responsible for that."

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### Bradburne In Oversight Role

Bradburne's new responsibilities as chairman and chief executive officer of the Fluor Fernald board will have both Fernald-specific and Fluor corporate components. "Fernald is extremely important to Fluor, so I have always had a corporate focus," Bradburne explained. "My job will be to continue to look outside and inside [the company] to provide guidance to [Jameson and Carr] to keep this going. My job will be as intense as it ever was, but I can focus on things other than day-to-day project reviews."

### Money Needed for 2006 Closure

The Fernald project, notwithstanding the 2010 closure date envisioned in the Fluor Fernald contract, continues to be funded and managed from the Energy Dept.'s Closure Projects, and Bradburne acknowledged the company is under pressure to meet that date. But he said the Energy Dept., and Congress, must provide the necessary funding to accelerate the cleanup schedule. "We are committed to doing everything we can humanly do without compromising safety to meet 2006, but we'll clearly need additional funding...to meet [the] 2006 time frame. There are no technical problems left at Fernald; we are strictly funding limited."

The Fernald project received an additional \$20 million in the Fiscal Year 2001 Supplemental Appropriations legislation signed by President Bush in July (*WC Monitor*, Vol. 12 No. 29), and Bradburne said that money will allow the site to accelerate work. "We are currently rebaselining based on that additional \$20 million," he said. "We should know [the effect] relatively soon, but I guarantee we can bring the end date in more and bring the cost down more with that money." Bradburne said the 2009 end-date and \$2.3 billion cost targets are no longer "in focus" because of the supplemental appropriation, which boosted the site's FY 2001 budget to \$310 million. "If we could get roughly the same amount of money as this year in 2003 and 2004, that would allow us to meet the 2006 date," he asserted.◀

August 25, 2001

Journal-News (Hamilton, Ohio)

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"Feds eye new uranium standard for Fernald"

## Feds eye new uranium standard for Fernald

By Kristin McAllister  
Journal-News

ROSS TOWNSHIP

While federal officials assert the safety of a new and less restrictive federal standard for uranium in ground-water under the Fernald site, some residents fear the government is prioritizing cost savings over health.

The U.S. Department of Energy is considering adopting the new standard — already in place with the U.S. Environmental Protection Agency — as part of its clean-up of the former Fernald uranium processing plant.

DOE and EPA officials on Thursday presented information regarding the new standard during a public meeting at Fernald.

Officials overseeing the Fernald ground-water cleanup project currently apply a standard with a maximum contaminant level of 20 parts per billion of uranium. The new limit would increase the standard to 30 parts per billion.

If the DOE decides to adopt the new standard at Fernald, it likely would go into effect by year's end, according to federal officials.

In comparing the risk factors associated with each maximum contaminant level, the difference is minimal but the cost savings are significant, according to Rob Janke, soil and water projects leader at the site.

"(The risks) are essentially in the same ballpark," he said.

But implementing the new standard would yield the federal government about \$5 million to \$5 million for each year saved in the ground-water cleanup operation, Janke said.

In terms of time, the less restrictive level lessens the amount of ground-water clean-up, resulting in an accelerated clean-up. He said it reduces the plume of contamination by 74 acres, or 30 percent, and the volume of ground-water requiring remediation by 30 percent.

"We hope to be done within 10 years," Janke said.

EPA representative Miguel Del Toral assured the group that the EPA thoroughly investigated the adverse health effects of uranium on kidneys and other organs and found the new standard to be safe.

"At 30 parts per billion, we're not

seeing any adverse health effects in the kidney," Del Toral said. "It's a very small change compared to the huge savings."

But after hearing from Janke and Del Toral, residents expressed their uneasiness.

"We didn't ask for the government to come in here and pollute our wells," said Lisa Crawford, a longtime Fernald-area activist. "This is a 50 percent increase. We were a little dismayed to just be told it's 30 now, and we felt shut out."

"We're afraid this is going to set a precedence for other clean-up projects at Fernald, and I'm really afraid that what we're going to end up with is a (half-hearted) clean-up," Crawford said, to which Janke replied that the clean-up would not be compromised.

"It really makes me angry that we have to base everything on costs," Crawford said. "That \$2 to \$5 million doesn't mean anything to me."

However, fellow Fernald-area resident Louis Bogar disagreed with Crawford, siding with federal officials.

"The concept here is ... re-evaluation of risk," he said, later adding, "I strongly support the 30 micrograms per liter limit. ... The clear benefits we should all look at real hard."

DOE Fernald site Director Steve McCracken said it boils down to one thing.

"How far can we go beyond what is required to protect health without any significant increase of costs," he said.

Citing several new federal Centers for Disease Control studies, Fernald resident and activist Edna Yocum said the DOE is turning its back on the reality of the reports, which make a strong case in linking increased kidney and liver function disease with the Fernald site contamination.

"Again, the Fernald residents are faced with a situation that's cost vs. health. ... It only lessens the DOE's accountability to clean up the Fernald site," she said.

The public comment period ends Friday. To comment, contact Gary Stegner, Department of Energy Public Affairs, P.O. Box 638705, Cincinnati, OH 45263-8705; call 648-3153; or e-mail gary.stegner@fernalddoe.gov.

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# Questions linger over Fernald

## But health committee disbanded

**By Tim Bonfield**  
*The Cincinnati Enquirer*

Edwa Yocum says she still has 472 questions about the health risks of pollution from the closed Fernald uranium plant, just 2 miles from her home.

Each of those questions is represented by a pin on a map she has kept since 1988. Each of those pins represents a person with a rare or unexplained illness who lives within 5 miles of

the plant.

More than 400 pins are people with cancer - red for people thought to be alive, black for those known to be dead. A few dozen orange pins denote non-cancer illnesses, such as kidney disease, birth defects and learning disabilities.

Many - maybe even most - of the illnesses may have nothing to do with exposure to Fernald, the region's biggest environmental cleanup

project. But Mrs. Yocum doesn't know.

People may never get answers to their questions about Fernald, said Mrs. Yocum, despite the public pressure that shut down the plant 12 years ago, despite more than \$6 million in health-related studies, and despite a health advisory committee formed nearly five years ago.

On Wednesday, the federal Centers for Disease Control and Prevention disbanded the Fernald Health Effects Subcommittee after

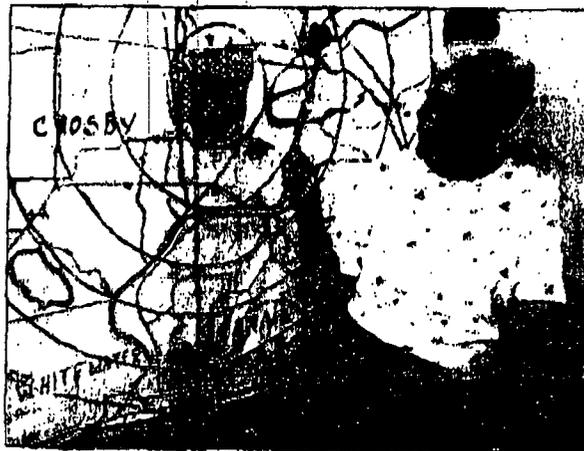
agency officials said their work there is done.

"When you sit here and listen to all these people, you have to wonder. Why are all these things happening?" said Mrs. Yocum, who has served on the health committee from the start.

"There has been some basic (research) done, but it hasn't been thorough enough. The work is not done, in my opinion."

The committee was

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The Cincinnati Enquirer/TONY JONES

Edwa Yocum, shown with her map showing incidences of illnesses and deaths possibly connected to Fernald, says more study is needed.

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## Fernald: Questions linger about illnesses

From Page A1

formed in 1996, along with three similar committees at other nuclear weapons sites, to provide advice about health concerns to the CDC, to a branch agency called the Agency for Toxic Substances and Disease Registry (ATSDR), and to the National Institute for Occupational Safety and Health (NIOSH).

That committee served as a forum through which the public learned the results of several health studies involving Fernald. Compared to the 1980s — when government officials initially refused to admit that any contamination had escaped the plant site, much less caused harm — the information that emerged about Fernald in the late 1990s was groundbreaking.

In several studies, government agencies confirmed that workers and residents suffered elevated health risks from their exposure to the facility:

■ In 1998, a \$6 million dose reconstruction study advanced methods used nationwide to estimate radiation risks at America's

nuclear weapons production sites.

That study surprised many by concluding that radiation from radon gas emitting from two waste storage silos was more dangerous than radiation from hundreds of tons of uranium dust polluting the air, soil and groundwater around Fernald.

■ A year later, the CDC used the dose data to estimate that the radon gas emissions have caused or will cause about 85 deaths from lung cancer. In a worst-case scenario, the CDC estimated that Fernald radiation might have caused or may still cause neighbors to suffer 23 cases of leukemia, four cases of kidney cancer, three cases of breast cancer, and four cases of bone cancer.

■ A NIOSH study released in 1995 reported an above-normal death rate from lung cancer among hourly workers and from stomach cancer among salaried staff.

■ As recently as Wednesday, new health data was still coming out. According to University of Cincinnati researchers, neighbors who participated in a court-ordered medical monitoring pro-

gram are suffering higher-than-average rates of kidney disease, thyroid disease (including goiter), bladder disease and liver damage. Some of the rates are two to four times higher than normal.

However, those findings should be viewed with caution, said Dr. Susan Pinney, the chief UC researcher on these studies.

"This is all preliminary information. There is no way to relate these cases to exposures from Fernald," she said.

### Separating workers, neighbors

So far, the potential dangers linked to Fernald have appeared anti-climactic in comparison to the long-voiced fears of neighbors, unions and environmentalists.

The lack of shocking findings has contributed to low attendance at public hearings, spotty coverage by local news media, and lack of interest among health agencies and politicians to invest in more studies, Mrs. Yocum said.

Yet without the health advisory committee, getting more information about Fernald will become that much harder.

"Once the CDC leaves, it

comes across that everything must be fine and dandy now. But people don't know the real story," Mrs. Yocum said.

The general public, politicians, and even doctors working in communities near Fernald have no clue how many gaps exist in the health information that has come out so far, Mrs. Yocum said.

Information so far has been related to exposure to radioactive materials. And that data focuses primarily on the risks faced by neighbors, not workers.

For example, the groundbreaking dose reconstruction study started at Fernald's fence line: Fernald employees, who worked far closer to the K-65 silos and often with no special protection, are still waiting for estimates of their radon gas exposure.

The separate treatment of worker health concerns versus neighbor concerns has been a problem for years, said Louis Doll, a union representative for building trades workers at Fernald.

For example, the medical monitoring program for neighbors has money to pay for computer analysis of data collected from its

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8,000-plus participants. But no money has been authorized to study worker data from a similar, but separate, monitoring program.

Beyond the radiation-related concerns, people face potential health risks from the many toxic chemicals used at Fernald. Far less information about those risks has been made public, health com-

information about what a "normal" number of cases might be, that a study might not be able to detect an increased risk even if it was real, Dr. Smith said.

During all this time, the government has never attempted to count all the cancer cases and other illnesses that actually affected people living near Fernald.

It would take an epidemiologic

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**"Survey Remote Prismless Total Station"**

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As environmental cleanup at the Fernald Environmental Management Project (Fernald) accelerates toward closure, the innovative Survey Remote Prismless Total Station (RPTS) plays a key role – since land survey measurements are vital in supporting engineering, construction and environmental remediation activities. This sophisticated system incorporates reflectorless laser distance measuring technology into the surveying instrument, the latest advancement in "total station" technology. "Reflectorless" or "prismless" measurements allow a single instrument operator to make highly accurate survey measurements to remote, inaccessible, or hazardous locations. The surveying instrument has an onboard data collection computer, and the robotic total station utilizes an internal servo tracking system that automatically follows the surveyor's position. It also includes a coaxial automatic target recognition system capable of providing prismless measurements of more than 500 feet. Since the total station deployment in February 2001, Fernald has achieved safer work practices, reduced worker exposure to hazardous environments, and significantly reduced personnel costs.

RPTS provides daily support to construction of the Fernald On-Site Disposal Facility (OSDF), a multi-layer cap and liner system constructed of natural materials, such as clay and gravel, and man-made materials, such as high-density plastic. It is being built to permanently store low-level radioactive waste produced during 37 years of uranium processing. During construction, borrow soil is excavated and screen sized for use in the multi-layer liner and cap. Land survey measurements are taken at multiple intervals during construction of the liner, dur-



*The Survey Remote Prismless Total Station supports Fernald's engineering, construction, and environmental remediation activities.*

ing waste placement, and throughout construction of the cap – to verify the disposal cell is being constructed in accordance with its design and to create a map that provides tracking of waste placement for post closure use.

The technology's real-time measurement analysis and automatic remote operation make it possible to take survey measurements constantly during site sampling. The prismless system and automated scanning feature allows instrument operators involved in construction of access and haul roads to monitor progress of excavation activities, document the precise location of facilities, and make highly accurate survey measurements on remote or inaccessible locations. Focusing prior to measurement is unnecessary, since the instrument is simply aimed at the target using a visible laser dot which confirms the measurement position.

Robotic operation of RPTS automatically tracks the surveyor's position, reducing the survey crew size from three to one. Robotic operation also eliminates the need for personnel to enter potentially hazardous work areas. Contamination risks, Personal Protective Equipment quantities, and personnel monitoring activities are all decreased as the necessity to physically enter radiological controlled areas is reduced. These advantages contribute to improved worker safety and to true time and cost savings.

RPTS technology is also utilized to monitor erosion along Paddy's Run, an intermittent stream flowing from north to south along Fernald's western boundary. The path of this very active stream is changing with time. Each month, RPTS collects measurement data, stores it on a compatible computerized memory log card, then seamlessly places the information into a surveying program which tracks the meandering stream path. The survey technology was instrumental in early corrective action required to shore and re-enforce the stream's bank after it undercut a security fence. The technology provides immediate information in the field to alert project engineers and to mitigate the stream's impact on man-made structures, including the Fernald Silos. Two of the four silos store low-level radium-bearing residues dating back to the 1950s. The automatic remote operation of this integrated system reduces the need for workers to climb hazardous stream banks, and the user-friendly database – with unlimited point storage capabilities – greatly increases surveying productivity. These features increase worker safety and lower costs.

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*Steve McCracken, Director (left) of DOE-Fernald observes the surveying instrument at work at the On-Site Disposal Facility*

RPTS is useful for verifying the amount of excavated material from six waste pits that range in area from one to five acres and vary in depth from 10 to 40 feet. Collectively, they contain about one million tons of low-level radioactive waste. The variety of RPTS coordinate geometry programs, including an area feature, enables Fernald users to automatically estimate soil volumes and to determine the volume of waste removed from waste pits. The surface-scanning feature is used to scan the bottom and embankments of each pit to measure and analyze cleanup progress. The visible red laser dot on the prismless instrument allows workers to aim at the waste pit measurement locations simply and precisely without having to look through the telescope. This feature increases accuracy, convenience, and productivity.

"RPTS is proving to be an effective measuring instrument during Fernald's remediation process, with improved worker safety and tremendous savings in money and time" said James Schwing, Fernald land surveying and mapping manager. "The instrument pays for itself within nine months." The state-of-the-art optical total station provides highly accurate measurement of horizontal and vertical angles and linear distances. It is used across the site, increases productivity, reduces manpower hours and keeps personnel exposures ALARA (As Low As Reasonably Achievable).

*For more information, contact James Schwing, Fernald Environmental Management Project, Fluor Fernald at (513) 648-3471 or james.schwing@fernald.gov*

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