

**The Fernald Preserve Visitors Center
The Fernald Experience—Revealing, Engaging, and Preserving**

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ABSTRACT

The U.S. Department of Energy (DOE) Office of Legacy Management's public involvement activities at the Fernald, Ohio, site include continued communication about groundwater remediation, the management of legacy waste, and the future of the Fernald site. The completion of the Fernald Preserve Visitors Center, in August 2008, ensures that information continues to be readily available and effectively communicated to the public. A primary goal of the Visitors Center is to function as an informational and educational center within the surrounding community, with the information available at the Visitors Center serving as an institutional control. By offering information on a variety of topics, from the site's history to its current condition, the Visitors Center increases public awareness and helps prevent unsafe disturbances to and uses of the site. The Office of Legacy Management maintains and operates the Visitors Center, continues to solicit stakeholder opinion, and will periodically reevaluate the use of the Visitors Center and its programming.

INTRODUCTION

The U.S. Department of Energy (DOE) Office of Legacy Management opened the Fernald Preserve Visitors Center, located on site, to the community on August 20, 2008. The Visitors Center contains information on and context for the remediation of the Fernald Preserve, including information on site restrictions, ongoing maintenance and monitoring, and residual risks. The Visitors Center also houses a computer (so that visitors may access electronic copies of documents and records), a meeting place, and other educational materials as appropriate. A primary goal of the Visitors Center is to perform an informational and educational function within the community. The information in the Visitors Center serves as an institutional control, makes visitors aware

of the Fernald Preserve's history and current condition, and helps prevent unsafe disturbances to and uses of the site.

HISTORY OF FERNALD

The Fernald site played a critical role in the support of weapons production for the nation's defense. The Soviet Union emerged as a new threat to world peace shortly after World War II. To combat the threat of communism, the United States embarked upon a dangerous but necessary journey of a nuclear arms race. From the 1950s through the mid-1980s, Fernald workers produced 500 million pounds of pure uranium metal products for the nation's defense program.

In the 1980s, the site's mission shifted from production to environmental restoration. For the first time, the public became aware of the scope of the site's contamination and demanded a voice in the cleanup decisions. Nearly 40 years of nuclear materials production left soils and groundwater severely contaminated. The site was shut down in 1989, and since then, it has undergone extensive remediation pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act. The site has been cleaned to standards established by the community and approved by the U.S. and Ohio Environmental Protection Agencies as being protective of human health and the environment. Remedial activities and subsequent ecological restoration converted the site from an industrial production facility to an undeveloped park, encompassing a series of wetlands, prairies, and forested communities. The \$4.4 billion cleanup effort was completed in October 2006.

It was crucial that the site create a positive legacy for the people of Southwest Ohio. When the cleanup was complete, DOE agreed to establish a multi-use educational facility, now referred to as the Visitors Center, in an on-site structure, known as the Silos Warehouse. The Visitors Center was to contain information on the remediation of the Fernald site; store historical documents, items, and photographs; contain a reading room; and provide educational programs.



An existing warehouse was repurposed to become the Visitors Center

THE VISION

Fernald has a long history of engaging the community in decision making. The very concept of a Visitors Center originated from a community visioning project during the

late 1990s, which focused on the future of Fernald. This effort consisted of numerous workshops that allowed a broad range of stakeholders to be fully engaged in deciding how to effectively transform a warehouse into a functioning educational facility with spaces for displays, meetings, education, research, and communications.

Based upon the series of workshops, the Fernald Citizens Advisory Board (FCAB) presented the following vision to DOE in 2001:

A Stakeholder Vision for the Future of Fernald Adopted by Fernald stakeholders at the third Future of Fernald Workshop, 9/26/00:
Fernald stakeholders envision a future for the Fernald property that creates a federally owned regional destination for educating this and future generations about the rich and varied history of Fernald. We envision a community resource that serves the ongoing information needs of area residents, education needs of local academic institutions, and reinterment of Native American remains. We envision a safe, secure, and partially assessable site, integrated with the surrounding community that effectively protects human health and the environment from all residual contamination and fully maintains all aspects of the ecological restoration.

Using recommendations from the FCAB and feedback from “Future of Fernald” public workshops, the DOE Office of Environmental Management and Fluor Fernald developed the *Master Plan for Public Use of the Fernald Closure Project* in 2002. This plan described DOE’s proposed action to limit public access to restored areas of the site, during daytime hours, to educational purposes, a fundamental component of the site’s long-term stewardship plan. The proposed action included a series of walking trails, overlooks, and interpretive signs that would provide information about the site’s role during the Cold War, as well as cultural and ecological points of interest. Site visitors could observe Native American reburial areas and Fernald’s Cold War Garden, a memorial to workers, local residents, and others who made significant contributions to the site during its uranium production and cleanup missions. While DOE supported public use of the site, as well as the construction of public use amenities, the final settlement to resolve the State of Ohio’s 1986 claim against DOE for damages to natural resources from site operations was still being negotiated, and the funding sources for the stewardship of public use amenities still needed to be identified.

In fiscal 2005, the Office of Environmental Management committed to develop an educational outreach program, generally considered to include refurbishing an existing warehouse into a multiuse educational facility, or visitors center. This commitment was confirmed for the U.S. and Ohio Environmental Protection Agencies and to the Fernald community when the Fernald site’s *Comprehensive Legacy Management and Institutional Controls Plan* was finalized. The institutional controls at Fernald serve two functions: first, to eliminate disturbances to and monitor the use of the Fernald Preserve, and second, to minimize human and environmental exposure to residual contaminants (as described below). As part of the informational devices, the Visitors Center was established to house site information as well as to present the methods of controlling,

restricting, or prohibiting recreational activities. In addition, the Visitors Center provides educational information on the site remedy and the measures required to monitor and maintain it. These include routine inspections, permits, continuing groundwater remedial activities, routine maintenance and monitoring, and leachate management.

In 2005, DOE contracted with the University of Cincinnati's Center for Design Research and Innovation (CDRI) at the College of Design, Architecture, Art, and Planning (DAAP) to assist with the redesign of the warehouse and the design of the exhibits. A team of faculty, researchers, and designers met on several occasions, from February to August 2006, with DOE and the contractor, and facilitated a series of public meetings with various community groups and individuals from the area, including Fernald Residents for Environmental Safety and Health, the Ohio Environmental Protection Agency, and Crosby Township. Each of these meetings built upon the previous one by incorporating responses to comments and suggestions. The result of those meetings, and work from CDRI at DAAP, is *Fernald Reborn, Fernald Report 2006, University of Cincinnati DAAP/CDRI*, referred to as the conceptual design report. The final design and construction of the Visitors Center, including the exhibits, were based on recommendations in this conceptual design report.

The Office of Environmental Management and the Office of Legacy Management jointly funded the Visitors Center, and in 2006, the Office of Environmental Management turned over responsibility to the Office of Legacy Management to complete the design and construction of the Visitors Center.

PREPARATION AND PLANNING

The 2006 conceptual design report provided an overall plan, or guide, for the new Visitors Center, addressing all aspects of the project, including the design of the building, exhibits, and surrounding landscape. While this report was the guide submitted to the selected commercial architect–builder team for implementation, additional work was required to complete the exhibit design.

The design phase of the Visitors Center included community involvement from the very beginning. From June to September 2007, a University of Cincinnati summer studio from DAAP worked to deliver a conceptual design specifically for the exhibits within the Visitors Center. Two subsequent presentations were given to community members, and their final recommendations were taken into account. Throughout 2007 and the first 6 months of 2008, the community was involved in meetings to finalize the design of the Visitors Center and the exhibit area.

Information on the development and progress of the Visitors Center was provided through quarterly meetings between the Office of Legacy Management and the community, through monthly Fernald Community Alliance meetings, through regular e-mail updates, and at the Public Environmental Information Center.

The design of the building and the design of the exhibits were completed simultaneously. The Visitors Center was planned and constructed in a manner that allowed it to achieve Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council. The Council sponsors the LEED rating system, which is the nationally recognized benchmark for the design, construction, and operation of high-performance, “green” buildings. (“Green” buildings emit fewer greenhouse gases and use less energy.) While the contents of the exhibits were designed to communicate information effectively to the visitors, the actual construction of the exhibits had to support the LEED certification. The exhibits constitute nearly half of the building’s total square footage and incorporate salvaged, refurbished, and reused materials. Fifty percent of the exhibit panels use a wheatboard substrate. In addition, bio-solvent printing ink was used in the exhibits to minimize the impact on indoor air quality. The Visitors Center was awarded LEED platinum certification in September 2008.

COMMUNICATING THE MESSAGE

The completion of the Fernald Preserve Visitors Center illustrates how the Office of Legacy Management is effectively managing the Fernald property and its assets. Through a series of exhibits, the Visitors Center details the diverse history of Fernald, from the time Native Americans inhabited the site, to the arrival of settlers and farmers, to the uranium-production years, to the eventual environmental cleanup and the legacy-management period that continues today. Consistent with its new role as a nature preserve, the Visitors Center also houses information on the Fernald Preserve’s natural attractions.

Communicating information to the public is accomplished in many ways via the Visitors Center, such as exhibit displays, the media resource room, brochures, and guided tours. In addition, staff members are available to answer questions and direct visitors.

EXHIBITS



The entrance to the exhibit area explains the theme, "The Fernald Experience, Revealing, Engaging, and Preserving our History"

The exhibits were designed to communicate a wide range of information to visitors of all ages and backgrounds, in a manner that would be stimulating and thought-provoking. Throughout the exhibits, information is disseminated to the visitors using not only written text and photos but also audiovisual pieces, interactive activities, and displays of significant artifacts. Together, all of these techniques have created an inspiring and effective method of communicating an abundant amount of important information to visitors.

There are 12 exhibit areas within the Visitors Center, each carefully designed around its specific purpose and message, conveying information that can be appreciated and comprehended by visitors who are of different ages and who have divergent interests (for example, elementary-school students and former Fernald employees).

The “Before Fernald” exhibit area takes a look at the life of the Native Americans, the first settlers, and the farmers who lived on the land that would eventually be taken under the federal government’s eminent-domain process. Native American artifacts uncovered on site during excavation activities are on display. An interactive multimedia display allows visitors to hear the stories of the 11 families displaced by the construction of the site.

The “Cold War” exhibit area focuses first on the end of World War II and then on the Cold War, the Iron Curtain, nuclear arms, and what it meant to be an American living during these troubling times. The importance of this section became more evident when working with the University of Cincinnati’s DAAP summer students who assisted with the exhibit design. These students represent the recent generations that cannot directly relate, on a personal level, to the information being presented. Unlike earlier generations, they are removed from the Cold War era. It was, therefore, important to define the Cold War and subsequent events so that visitors—even young ones—could place the Fernald site into context and answer questions like “Why was it built?” and “What was its purpose?” As part of this exhibit area, there are two multimedia pieces: a video clip that portrays the Trinity explosion, and one that plays the 1950s “duck and cover” movie that school children across America were shown in order to be prepared for a nuclear attack.



The 50's living room brings back memories.

The “Construction” exhibit area focuses on this historic undertaking, the amount of labor, the massive amounts of materials, and the high quality of the work that was accomplished in just a few short years. In addition to the artifacts on display, a video that uses historical photos to recreate the 1950s construction sequence can be viewed.

The “Hiring and Economic Impact” exhibit area identifies how the construction and operation of the Fernald site altered the social and economic structure of the surrounding area. Not only did local businesses benefit from the site, but positions at the facility were highly desirable because the salaries and benefits were generous in comparison to those of other jobs available in the community.

The “Plant Operations” exhibit area walks visitors through each of the 10 main plants at Fernald, each playing its own unique role in the production process. This exhibit explains how the ores, oxides, and recycled uranium went through various processes to become refined uranium products. For many visitors and long-time residents of the area, this display provides the first explanation of what actually happened at the site. A large, interactive, multimedia display is a key feature; it allows users to select the various plants and learn specifically about each one’s role in production, and it includes narratives by former workers.

One of the multimedia displays includes an interactive screen so visitors can choose a particular subject area.



The “Laboratory” exhibit area points out that while Fernald was seen as just a factory by many people, it was actually a very scientific, highly precise production facility. The laboratory technicians and scientists were invaluable to ensuring that only the highest-quality materials were used and that processes performed at the plant produced the finest products possible. The lab area provides a hands-on experience for individual visitors as well as touring school groups.

The “Radioactivity” exhibit area educates visitors about the fundamentals of radiation by explaining, in easy-to-understand terms, what radiation is, what types of radiation exist, and what the different sources of radiation are. It also identifies how radiation can be measured and how people can protect themselves from it. Finally, there is information presented on the biological effects of radiation and a discussion of what levels of radiation existed at Fernald.

The “Culture of Fernald” exhibit area allows visitors to get a glimpse of the complex interactions at Fernald during the operational days, from workers and families, to safety, secrecy, and security. It took all different types of employees to keep Fernald running, including those who worked in production, finance, sanitation, security, and food service, to name just a few fields. Organized labor played an important role during the construction and production years and through cleanup. Sports teams, family picnics, holiday parties, and clubs of all kinds played a part. The display conveys that Fernald operated as a small city, completely independent of the surrounding communities.

The “Contamination” exhibit area picks up in the mid-1980s when news that Fernald was releasing contamination into the environment was first announced. This was a turning point for Fernald. The previously limited public communication was quickly turned into a massive communication effort, and a new level of community participation in decision making commenced. A large multimedia piece plays continuous news clips regarding the contamination released at Fernald. These clips allow visitors to recognize that these events at Fernald were not just a local issue but of national interest, making headlines across the country, even internationally. The events that unfolded at Fernald sparked a series of changes across the country regarding environmental regulations and worker protection.

The “Community Activism” exhibit area reviews the roles of DOE, the workers, the community, and the stakeholders during this turbulent time. The display covers contamination and cleanup, and shows how Fernald moved from operations to remediation. The tie between community activism/, worker involvement, and the development of the Energy Employees Occupational Illness Compensation Program is also highlighted.

The “Cleanup” exhibit area covers all aspects of the large-scale cleanup, including the shutdown of operations and the identification and quantification of contamination. The roles of the regulators, the citizens, and the workers are defined. The cleanup process is explained, including the five operable units, as is the Office of Legacy Management’s continuing mission. A cleanup video explains the massive cleanup and depicts the

different activities completed during the remediation—building demolition, waste shipment, the on-site disposal facility, and environmental restoration. The video helps visitors understand the incredible challenge that the cleanup presented and the creativity needed to make it a success.

The “Site Orientation” exhibit area concentrates on the continuing mission of the Fernald Preserve. Displays educate visitors about the ongoing natural restoration activities at the site, which were developed by the Natural Resource Trustees. During cleanup activities, along side the demolition crews, the site ecologists worked to create wetlands and other habitats that were in line with the natural restoration plan. Displays also educate visitors about the ongoing groundwater cleanup. As a result of uranium-production operations at the site, levels of uranium in the groundwater are above the U.S. Environmental Protection Agency’s health-protective concentration limit of 30 parts per billion. DOE is in the process of restoring the portion of the aquifer and bringing the uranium-concentration level down to the drinking water limit. There is also a display that shows a cross-sectional model of the on-site disposal facility; it also points out basic facts about the disposal facility’s construction and contents.

In addition to the communication of information by means of exhibits, the Visitors Center comprises a resource room and a large meeting room, which provide other ways to disseminate information. The resource room houses a collection of Fernald documents, a computer station for viewing the Administrative Record electronically, and oral history interviews of more than 130 individuals who all were involved, in some way, with the Fernald site. The fully equipped meeting room is available for use by community and school groups. Visits to the site are exceptional educational opportunities for classes studying a number of subjects, ranging from history to the life sciences.

In addition to information on historical and current site activities, other types of information are distributed at the Visitors Center and at kiosks around the site. One example is the message concerning the potential discovery of contaminated debris. The Fernald Preserve was once a uranium-processing facility. It has undergone a comprehensive environmental cleanup, and every effort was made to remove and dispose of all demolition debris. However, weather-related erosion and earthmoving activities occasionally reveal small pieces of debris that were not visible during the cleanup. The discovery of contaminated debris is infrequent and isolated, and what debris is found exists in very small quantities. Visitors are asked to be careful not to handle any debris that is discovered, and to inform any member of the Fernald Preserve staff if they should find any debris, so that it can be safely removed, if necessary. This information is contained in brochures available at the Visitors Center and on postings around the site.

OPENING AND OPERATIONS



The Fernald Preserve Visitors Center became the first building in the state of Ohio to achieve LEED platinum certification.

On October 16, 2008, DOE Deputy Secretary Jeffrey Kupfer dedicated the Visitors Center in a ceremony to unveil the building and announce that it had been awarded platinum certification from the U.S. Green Building Council. The Visitors Center is the first building in the State of Ohio, the second DOE building, and one of only 100 buildings worldwide to achieve LEED platinum certification, the highest level achievable under this system.

When he made his remarks, Deputy Secretary Kupfer was pleased to tell the crowd, “We made a commitment more than a decade ago to do three things here at Fernald: to close it, to clean it up, and to give it back to the community. We remember and seek to preserve the many contributions Fernald has made to our national security. We also celebrate Fernald’s future—the future of America—as we forge ahead to achieve energy security in an environmentally responsible way.”

ONGOING AND FUTURE PLANS

The 1,050-acre Fernald property has now come full circle. The property’s natural features have been restored, including one of the largest manmade wetlands in Ohio, large tracts of open water, upland forests, a lengthy riparian corridor, and the beginnings of a tall grass prairie. The successful cleanup efforts are reflected in the broad array of wildlife species that now inhabit the site.

Since the Visitors Center’s opening, thousands of people have come to witness the changes that have taken place at Fernald. The Visitors Center has been well used by groups from senior centers, schools, and a variety of organizations such as the Hamilton County Soil and Water Conservation District, the American Society of Safety Engineers, and Scout groups.

WM2009 Conference, March 1–5, 2009, Phoenix, Arizona

A local high school honors class is now engaged in a yearlong, interdisciplinary project that integrates biology, chemistry, English, and geography. These students are working toward a baseline inventory of plants and animals at the Fernald Preserve. This is just the beginning of this type of hands-on learning, which will continue into the future.

As guests stroll through the Visitors Center, they often leave comments such as:

“Wonderful example of hope and what people can do to bring about good.”

“Outstanding! Beautiful facility—Great job by all parties.”

“After living in [the] area for a lifetime we are very impressed with the site. Keep up the work.”

An amazing transformation has taken place. The land has been transformed into a living tribute to all that occurred here. The commitment has been fulfilled, making the Fernald property an asset of which neighboring communities can be very proud.



A transformation has taken place.