

# 2006

**FERNALD**  
*committed to Safe closure*



**1992-2006**

**Fluor Fernald**



# SILOS 1 AND 2 PROJECT



## WORK SCOPE

- Remove 8,900 cubic yards of low-level waste from two concrete silos
- Chemically stabilize waste and ship off site for disposal

## CLEANUP REMEDY

- Record of Decision signed in December 1994
- Record of Decision Amendment for Operable Unit 4 Silos 1 and 2 Remedial Action approved in July 2000
- Use hydraulic mining to transfer waste into storage tanks
- Blend waste with flyash and concrete to reduce leachability and decrease moisture content, package and ship off site for disposal

## STATUS

- Facility design/build – **COMPLETE**
- Accelerated Waste Retrieval – **COMPLETE**
- Awarded \$7.5 million waste storage contract to Waste Control Specialist (WCS) in Texas which is now pursuing a permanent disposal license
- Silos 1 and 2 Waste Treatment – **COMPLETE**
  - Produced nearly 3,784 steel canisters of treated waste
  - 11 month waste stabilization and packaging operation
  - 12 month, 5 million mile shipping campaign to WCS
- Safe shutdown and demolition – **COMPLETE**



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**PROJECT COMPLETION - 2006**

# SILO 3 PROJECT



## WORK SCOPE

- Remove 5,100 cubic yards of low-level waste from one concrete silo
- Ship waste off site for disposal

## CLEANUP REMEDY

- Record of Decision signed in December 1994
- Explanation of Significant Differences for Operable Unit 4 Silo 3 Remedial Action approved in March 1998
- Record of Decision Amendment to allow for treatment only as required to meet permitted disposal facility's waste acceptance criteria
- Pneumatic retrieval system as well as remotely controlled and manned mechanical excavators used to remove the silo waste
- Condition material to reduce dispersability, package and ship off site for disposal

## STATUS

- Facility design/build - **COMPLETE**
- Packaging operations - **COMPLETE**
  - Produced nearly 2,300 soft-side packages of waste
  - 13 month extraction and packaging operation
  - 12 month, 1 million mile shipping campaign to Envirocare
- Safe shutdown and demolition - **COMPLETE**

## PROJECT COMPLETION - 2006



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# WASTE PITS PROJECT



## WORK SCOPE

- Remediate the contents of six waste pits, which range in size from a baseball diamond to a football field and vary in depth from 13 feet to 30 feet
- Pits contain nearly 1 million tons of low-level radioactive waste byproducts of uranium and thorium processing generated during Fernald's 37-year production mission

## STATUS

- Project - **COMPLETE**
- Largest waste shipping campaign in DOE history
- 154 unit trains transported 979,000 tons of waste off site
  - Six year shipping campaign to Envirocare
  - 9,100 railcars traveled 580,000 miles without incident
- Facility demolition completed August 2005

## PROJECT COMPLETED - 2005



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# OFF SITE WASTE DISPOSITION



8148D-110



## WORK SCOPE

- Transfer soil and debris with contamination levels higher than the on-site waste acceptance criteria for off site disposition
- Transfer contaminated soil and debris generated after the On-Site Disposal Facility is closed

## STATUS

- Project - **COMPLETE**
- Shipping status
  - 47 unit trains
  - 2,731 railcars
  - 288,838 tons of contaminated soil and debris
  - 3,345 tons intermodal

## PROJECT COMPLETION - 2006



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# SOIL AND DISPOSAL FACILITY PROJECT



## WORK SCOPE

- Remediate and dispose of contaminated soil
- Certify site as "clean" and perform natural resource restoration

## CLEANUP REMEDY

- Records of Decision signed in 1995 and 1996
- Excavate approximately 2.5 million cubic yards of soil, foundations and below-grade piping
- Certify that remaining soil meets EPA-established cleanup levels
- Design, construct and operate an On-Site Disposal Facility with the capacity to hold 3 million cubic yards of contaminated soil and debris



## STATUS

- Project - *COMPLETE*
- Designed, built and closed the On-Site Disposal Facility
- Excavated and dispositioned over 2.95 million cubic yards of contaminated soil and debris

## PROJECT COMPLETION - 2006



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# DECONTAMINATION AND DEMOLITION PROJECT



## WORK SCOPE

- Dismantle 259 former production plants, support structures and associated components

## CLEANUP REMEDY

- Record of Decision for Interim Remedial Action signed in July 1994
- Record of Decision for Final Remedial Action signed in September 1996
- Complete safe shutdown of former production facilities by removing uranium material from process lines and piping, disconnecting utilities and gross decontamination
- Dismantle plants, structures and associated components

## STATUS

- Project – **COMPLETE**
- Dismantled 256 structures and 146 trailers
- Completed Safe Shutdown in March 1999, two years ahead of schedule and \$7 million under budget
- Last production building dismantled May 2004

## PROJECT COMPLETION - 2006



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# AQUIFER RESTORATION AND WASTEWATER



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## WORK SCOPE

- Remediate contaminated portions (approximately 225 acres) of the Great Miami Aquifer, one of the largest sole-source aquifers in the nation
- Treat storm water and wastewater resulting from site remediation activities

## CLEANUP REMEDY

- Record of Decision signed January 1996
- Restore impacted portions of the aquifer by treating extracted groundwater
- Treat site remediation wastewater and storm water
- Maintain comprehensive sitewide environmental monitoring program
- Meet EPA groundwater cleanup standard of 30ppb total uranium

## STATUS

- Project - *51 percent complete*
- Extracted more than 20.1 billion gallons from aquifer
- Treated more than 12 billion gallons of aquifer water
- Removed more than 7,870 pounds of uranium from the aquifer

## 2006 STRATEGY

- Designed and constructed a Converted Advanced Wastewater Treatment facility to serve the site's long-term groundwater treatment and aquifer restoration needs

# WASTE MANAGEMENT PROJECT



## WORK SCOPE

- Characterize, visually inspect, sample, package and dispose of low-level radioactive, hazardous and mixed waste inventories
- Provide sitewide support for waste planning and off-site shipping
- Emphasize waste minimization, recycling or reuse wherever practical

## STATUS

- Project - **COMPLETE**
- Shipped 6.6 million cubic feet of low-level waste to the Nevada Test Site
- Shipped 174,912 gallons of low-level mixed waste off site for incineration
- Shipped 59,147 cubic feet of low-level mixed waste off site for treatment
- Transferred 595,266 cubic feet of low-level waste to WPP
- Transferred 792,510 cubic feet of low-level waste to OSDF



PROJECT COMPLETED - 2005



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# NUCLEAR MATERIALS DISPOSITION



## WORK SCOPE

- Characterize, package and ship nuclear materials off site

## STATUS

- Project – **COMPLETE**
- Dispositioned 31 million pounds of nuclear product through:
  - Transfer to other DOE sites for programmatic use
  - Sale to private sector
  - Transfer 9.1 million net pounds to Portsmouth Facility for interim storage under DOE's Uranium Facility Management Group
  - Off-site disposal of Department of Defense materials

## PROJECT COMPLETED - 2002



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# RESTORATION PROJECT



## WORK SCOPE

- Ecological restoration of 900 acres of the site
- Enhance site vegetative and wildlife communities to reflect native ecosystems present in pre-settlement southwestern Ohio

## FINAL LAND USE

- 395 acres of woodlots
- 332 acres of prairie
- 120 acres of OSDF
- 81 acres of wetlands
  - One of the largest man-made wetlands in Ohio
- 60 acres of open water
- 33 acres of savanna
- 29 acres of infrastructure



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