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# OPERABLE UNIT 5 PUBLIC MEETING - MAY 23, 1995, OVERHEADS

05/23/95

DOE-FN PUBLIC
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OVERHEADS

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# FERNALD ENVIRONMENTAL MANAGEMENT PROJECT OPERABLE UNIT 5

## Public Meeting on the Feasibility Study & Proposed Plan

May 23, 1995

Graphics #3441C.1 5/95

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# PUBLIC PARTICIPATION PROCESS -- WHY ARE WE HERE TONIGHT?

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- Share With the Public How DOE Arrived at the Operable Unit 5 Proposed Remedy

- Obtain Feedback from the Public Regarding:
  - Any Possible Technical Errors or Flaws in the Analysis
  - Any Omissions or Technical Considerations not Addressed

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# HIGHLIGHTS OF TONIGHT'S PRESENTATION

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- Description of Operable Unit 5
- Overview of Operable Unit 5 Contamination
- Operable Unit 5 Cleanup Goals
- Path Forward for Operable Unit 5

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# OPERABLE UNITS

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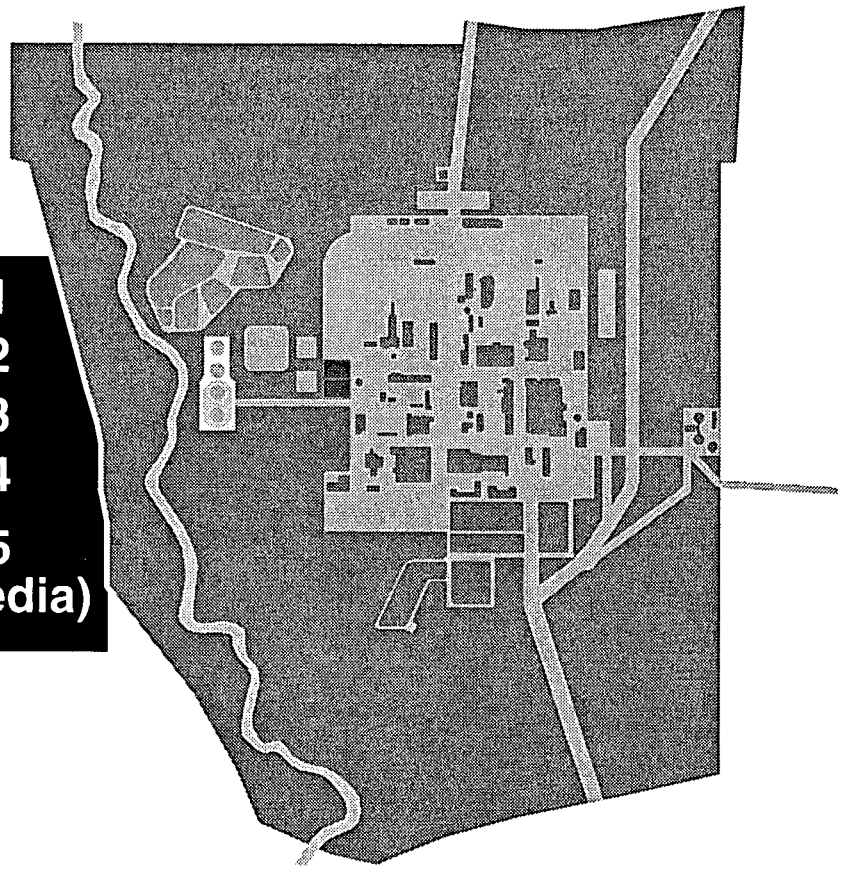

- Operable Unit 1
- Operable Unit 2
- Operable Unit 3
- Operable Unit 4
- Operable Unit 5 (Environmental Media)

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# BACKGROUND DESCRIPTION OF OPERABLE UNIT 5

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Operable Unit 5 represents the environmental media at the Site, specifically:

- Soil
- Surface water and sediment
- Perched groundwater
- Regional groundwater contained in the Great Miami Aquifer
- Flora and fauna

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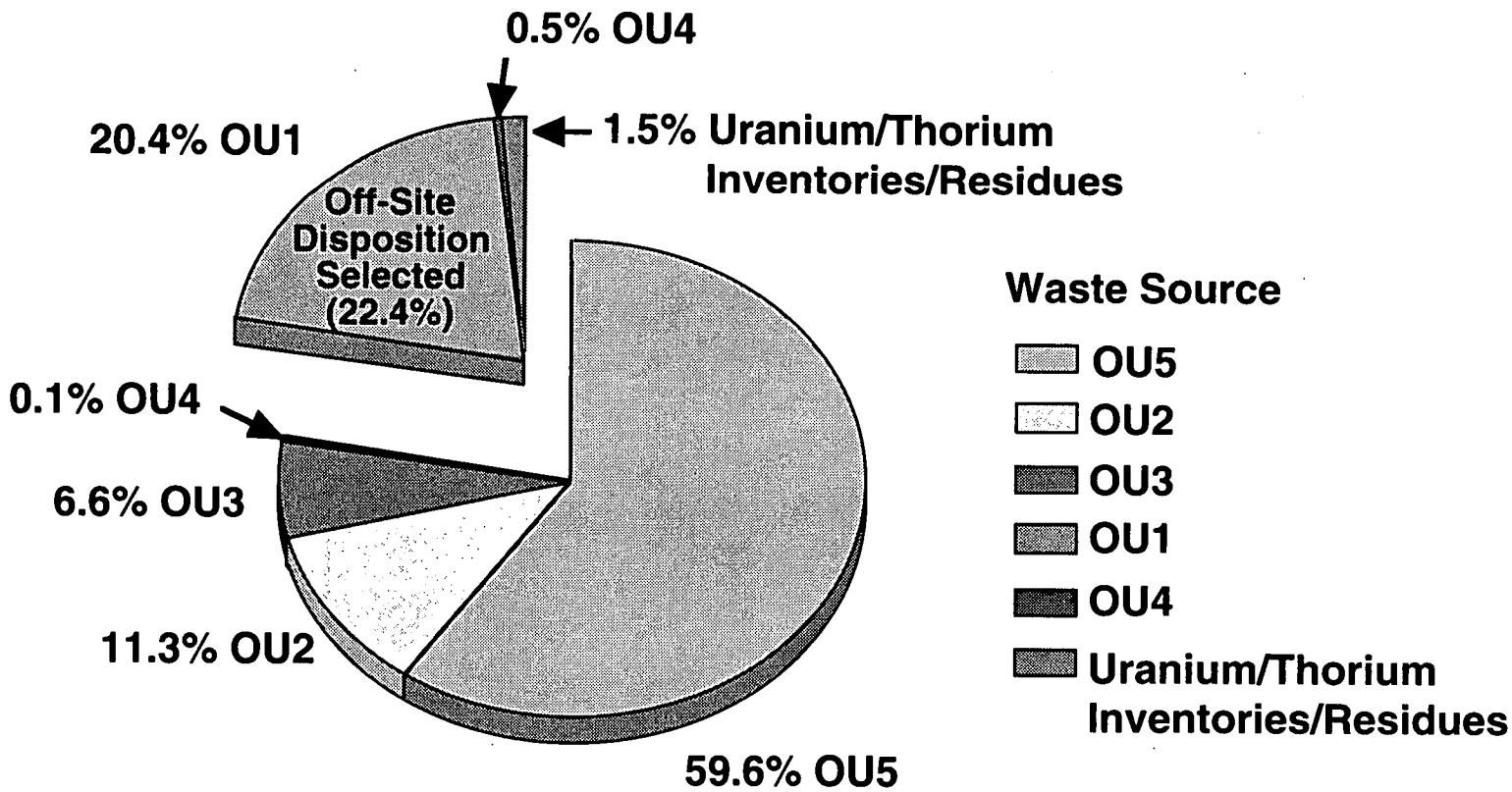
# FEMP WASTE BY VOLUME

FERNALD

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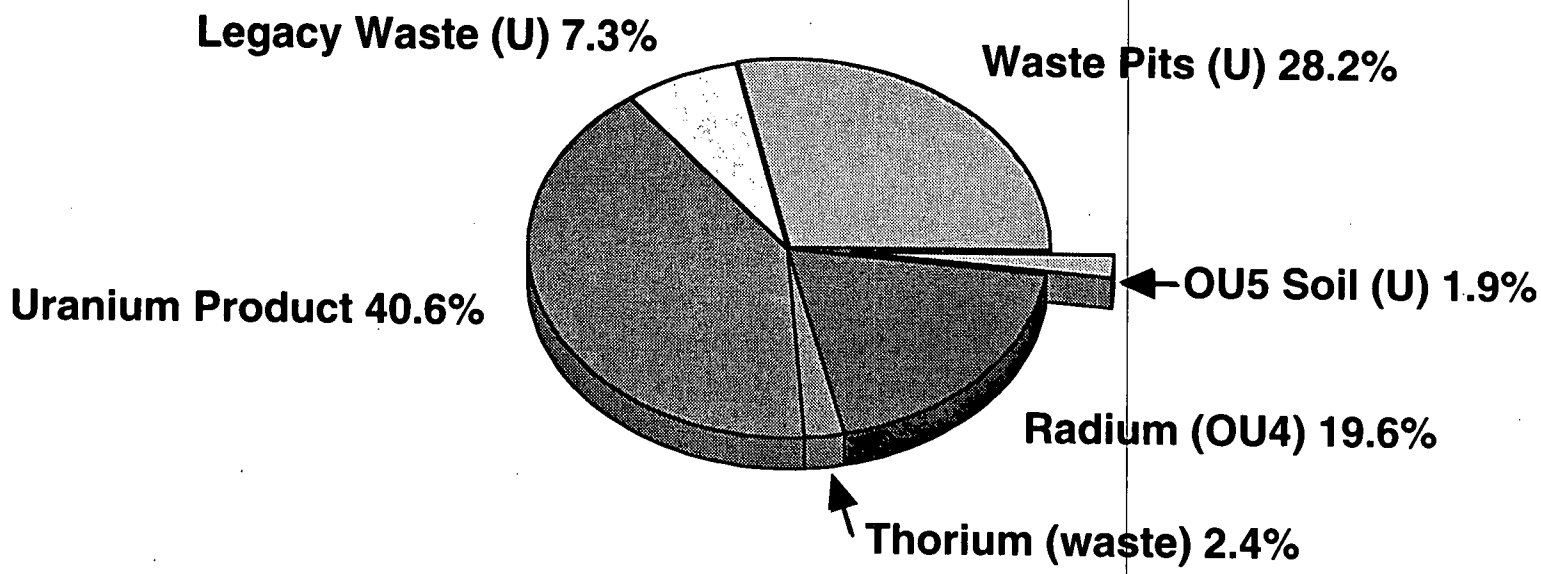
# TOTAL RADIOACTIVITY AT THE FEMP

FERNALD

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# SUMMARY OF RECORDS OF DECISION

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- OU1 - Stabilize & Ship to Envirocare
- OU2 - On-Site Disposal
- OU3 - To be Determined
- OU4 - Vitrify & Ship to NTS
- OU5 - Topic of Tonights Discussion

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# SUMMARY OF THE FINDINGS FROM THE OPERABLE UNIT 5 REMEDIAL INVESTIGATION

FERNALD

## Soil Contamination

- Surface soil - up to 8000 ppm uranium detected at the former scrap metal pile
  - up to 20 ppm uranium (5X background) detected off-site along the eastern and north eastern fenceline
  - residual levels of uranium at concentrations less than two times background were detected within an 11 square mile radius of the FEMP

- Subsurface soil - contamination limited to the FEMP property
  - up to a depth of 20 feet adjacent to plants that utilized acids

# SUMMARY OF THE FINDINGS FROM THE OPERABLE UNIT 5 REMEDIAL INVESTIGATION

FERNALD

## Groundwater Contamination

- Beneath the southeast corner Production Area ( Plant 6: up to 50 ppb)
- Beneath waste storage area (up to 70 ppb)
- Beneath the South Field (up to 2,100 ppb)
- Offsite up to 1 mile south of the FEMP (up to 350 ppb)

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# OPERABLE UNIT 5 CLEANUP GOALS

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- Remediate to Health Protective Levels
- Restore and Protect the Sole-Source Great Miami Aquifer

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# HEALTH-PROTECTIVE SOIL CLEANUP LEVELS

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- **Need to Address Cross-Media Impacts**

  Vertical migration to GMA
  Surface water runoff pathways
  1000-year protection of the GMA at MCL-based concentrations (20 ppb U)

- **Need to Develop Receptor-Specific, Health-Based Levels**

  Based on land use considerations
  Deliberations of Fernald Citizens Task Force
  Range of receptors considered:

  Residential Farming
  Industrial/Commercial
  Developed Parkland
  Undeveloped Parkland

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# HEALTH-PROTECTIVE SOIL CLEANUP LEVELS (continued)

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- **NCP-Based Residual Risk Levels**

  $10^{-6}$ to $10^{-4}$ carcinogenic risk range
  Hazard Index (HI) for non-carcinogenic risks

- **Satisfy ARARs**

- **Satisfy Ecological Benchmarks**

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# HOW IS THE CLEANUP RELATED TO FUTURE LAND USE

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- Cleanup Levels Vary Depending on Anticipated Future Land Use

- Four Representative Future Land Uses Were Developed. Cleanup Goals Were Developed for Each Hypothetical Land Use.

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# LAND USE OBJECTIVES

FERNALD

**1**

Unrestricted Use

**2**

No Access

Unrestricted Use

**3**

No Access

Restricted Use

**4**

No Access

**Note**

Off Site Land Use same in all cases - Unrestricted Use

Objective of Great Miami Aquifer Restoration same in all cases (Full Protection and Cleanup)

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# PROPOSED OPTION FOR GREAT MIAMI AQUIFER

FERNALD

- Restore Aquifer to Full Beneficial Use
- Pump Contaminated Groundwater
- Treat Via Advanced Waste Water Treatment Facility
- Discharge Treated Waters to Great Miami River
- Provide Alternate Water Supply (during restoration)

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# GENERAL CATEGORIES OF SOIL CLEANUP OPTIONS

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**Capping**
- Not adequately protective

**In-Place Treatment**
- No viable technologies available

**Excavate, Wash, Dispose**
- Does not meet cleanup goals

**Excavate and Dispose**
- Retained for detailed evaluation

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# KEY CONSIDERATIONS IN IDENTIFICATION OF THE PROPOSED REMEDY

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- Recommendations of the Fernald Citizens Task Force

  - Future land use should not include farming
  - Development of cleanup levels which are health protective $10^{-4}$ ILCR/HI=1
  - Restore and protect the aquifer Safe Drinking Water Act MCLs
  - On property disposal

- Availability of Offsite Disposal Capacity Over Long-Term

- Cost of Offsite Disposal Versus On Property Disposal

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# PROPOSED REMEDY

FERNALD

*Alternative 3A - full excavation of contaminated soil, with placement in an on-property engineered disposal facility; extraction and treatment of contaminated groundwater within the Great Miami Aquifer*

- Restore and protect the Great Miami aquifer at concentrations not to exceed MCLs. Restoration will be achieved within 30 years;
- Consolidate contaminated soils so as to maximize acreage for more beneficial use;
- Minimize short term risks to human and ecological receptors during implementation of the cleanup;

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# WHAT IS ON-SITE DISPOSAL?

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- Average Concentration of Uranium Anticipated to be in the Engineered Disposal Facility - 100 ppm.
- Maximum Acceptable Concentration of Uranium for Disposal in the Engineered Disposal Facility is 1030 ppm.
- Purpose of the Engineered Disposal Facility is to Protect the Great Miami Aquifer.

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# CONCERNS ASSOCIATED WITH THE OFF-SITE DISPOSAL OPTION

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- Transportation Risks and Logistics of Shipping 1.8 Million Cubic Yards of Contaminated Soil
- Off-Site Disposal Option Relies upon Uncertain Disposal Capacities
- Relies upon State Acceptance of Transportation along the Route and Disposal at the Receiving States
- Cost for Off-Site Disposal is nearly Three-Fold Greater than On-Site Disposal

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# WHAT HAVE WE DONE THUS FAR WITH RESPECT TO COMMUNITY INVOLVEMENT

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- Fernald employed an agressive community outreach plan during the past few months.

- Objective was to communicate key points of the OU5 remedy and on-site disposal facility.

- Operable Unit 5 management attended following meetings:
  - March 22 -- Ross Merchants Meeting, Ross High School
  - March 28 -- Operable Unit 5 Draft Proposed Plan Workshop, Crosby Elementary
  - April 17 -- Morgan Township Trustee Meeting, Oakiana
  - April 18 -- Ross Township Trustee Meeting, Heritage Bank, Ross
  - April 24 -- Crosby Township Trustee Meeting, New Haven Civic Center
  - April 25 -- Ross Lions Club Meeting, Venice Castle, Ross
  - May 17 -- Cooperative Planning and Training Committee, Ross Fire House

- The Operable Unit 5 Proposed Plan was distributed to over 700 residents and was made available through the PEIC and local Merchants Association.

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# PROPOSED REMEDY

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- Full restoration and protection of GMA
- Excavation of contaminated soil that exceeds "Final Remediation Levels" for desired land use.
- Placement of excavated soil in an on-property, above-grade engineered disposal facility.
- Off-site shipment of soil exceeding acceptance criteria.
- Commitment to evaluate technologies that enhance the effectiveness and permanence of on-property disposal.
- Release of lands outside disposal facility for desired land use.

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