

PROPOSED PLAN FOR SILOS 1 AND 2

April/May 2000



COMPARATIVE ANALYSIS SUMMARY

ITEM	Verification				Chemical Stabilization			
	Strongly Disadv	Disadv	Neutral	Adv	Strongly Disadv	Disadv	Neutral	Adv
Overall Protection of Human Health and the Environment			→				→	
Compliance with Applicable or Relevant and Appropriate Requirements			→				→	
Long-Term Effectiveness and Permanence			→				→	
Reduction of Toxicity, Mobility, or Volume Through Treatment		→						
Short-Term Effectiveness							→	
Implementability							→	
Cost							→	
State Acceptance - TBD								
Community Acceptance - TBD								



COMPARATIVE ANALYSIS OF ALTERNATIVES THRESHOLD CRITERIA

Overall Protection of Human Health and the Environment

Does the alternative achieve and maintain adequate protection, in accordance with specified Remedial Action Objectives?

- o All alternatives meet this threshold criterion
 - All alternatives remove the source term from the FEMP, provide treatment, and offsite disposal
 - All alternatives provide treatment that adequately reduces mobility of Contaminants of Concern (COCs)
 - Similar natural resource impacts result from all alternatives
 - NTS Performance Assessment will demonstrate long-term protectiveness for all alternatives



COMPARATIVE ANALYSIS OF ALTERNATIVES THRESHOLD CRITERIA

Compliance with ARARS

Does the alternative meet specified ARARS?

- o All alternatives meet this threshold criterion
 - NESHAP Subpart Q radon flux limit is met during interim storage and after disposal for all alternatives
 - Emission controls (HEPA filtration, radon control, off-gas control) provide attainment of air emission ARARS for all alternatives
 - Siting, design, and operational procedures meet location-specific ARARS for all alternatives
 - Engineering controls, storage, packaging, and transportation practices meet action-specific ARARS for all alternatives



COMPARATIVE ANALYSIS OF ALTERNATIVES PRIMARY BALANCING CRITERIA

Long-term Effectiveness And Permanence

Attainment of CERCLA residual risk guidelines

Long-term environmental impacts / NEPA values

- Equivalent for All Alternatives
 - FEMP residual risk for all alternatives is less than 1×10^{-6} ;
 - non-carcinogenic effects below 0.2 Hazard Index (HI)
 - Location and design of the NTS disposal configuration assures long-term protectiveness of permanent disposal
 - All alternatives fully address NEPA values

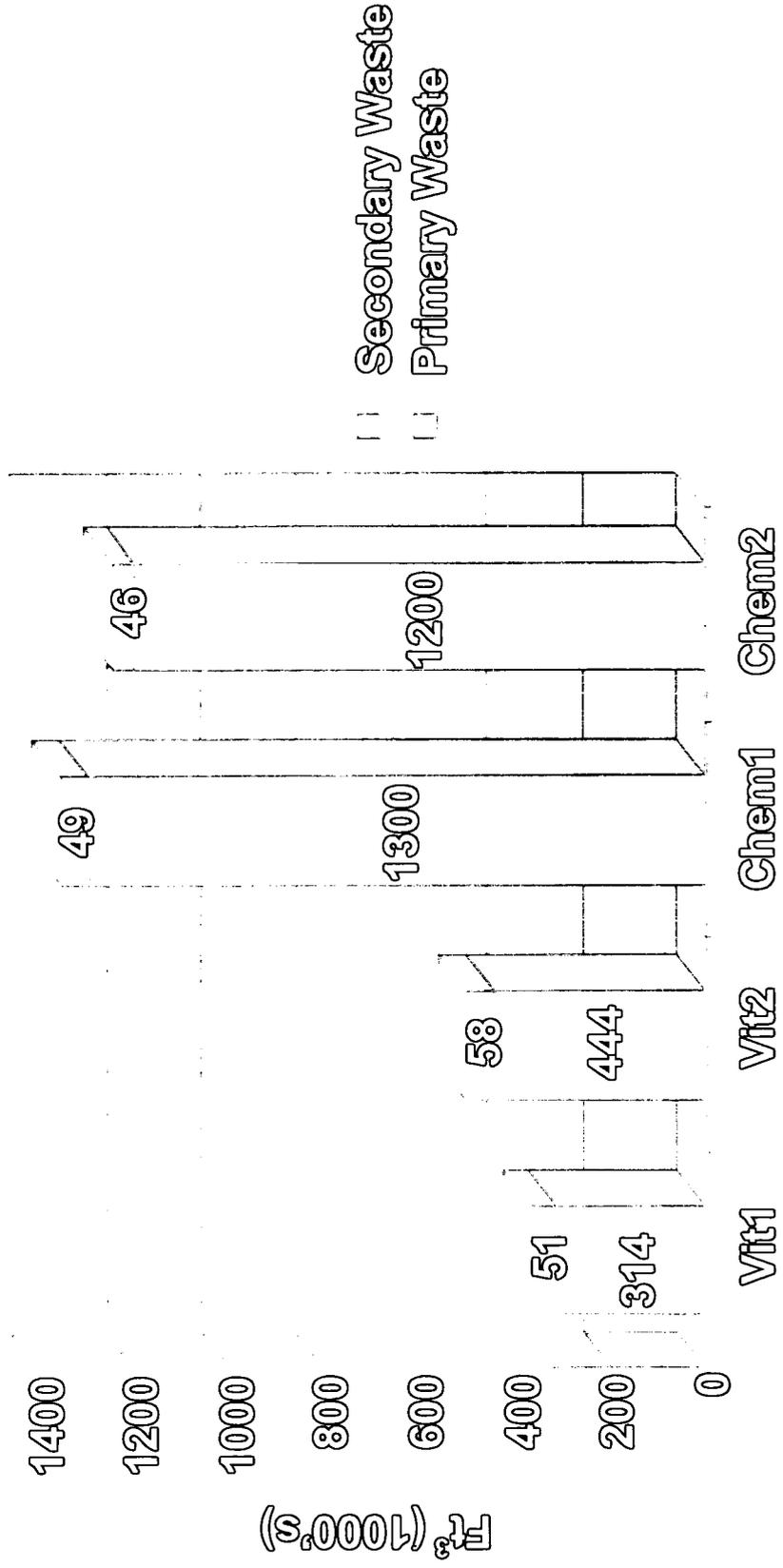


COMPARATIVE ANALYSIS OF ALTERNATIVES DISCRIMINATING CRITERIA

REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT	
Treated Waste Volume	
Secondary Waste Generation	
Reduction in Mobility of COCs	
Radon Attenuation by Treated Waste Form	

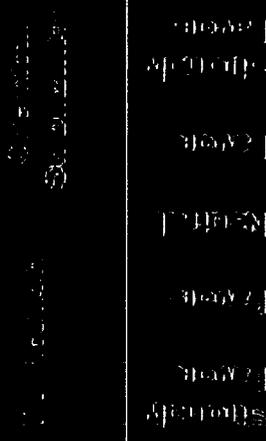
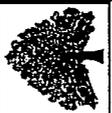


TOTAL SOLID WASTE VOLUME SUMMARY



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COMPARATIVE ANALYSIS OF ALTERNATIVES DISCRIMINATING CRITERIA



	Priority	Work	Work	Work	Work	Work
SHORT TERM EFFECTIVENESS						
Worker Risk						
Transportation Risk						
Off-site / Environmental Impact						
Time to Achieve Protective ness						



COMPARATIVE ANALYSIS OF ALTERNATIVES PRIMARY BALANCING CRITERIA

Short-Term Effectiveness Worker Risk

- Radiological dose to on-site workers is essentially the same for all alternatives
- Greater number of worker hours for Vitrification results in greater potential for worker injury
- The Vitrification process results in greater hazards to workers during operation and maintenance activities



COMPARATIVE ANALYSIS OF ALTERNATIVES PRIMARY BALANCING CRITERIA

Short-Term Effectiveness Transportation Risk

- Higher transportation risks result from Chemical Stabilization alternatives due to higher treated waste volume
- Transportation risks for both alternatives are within CERCLA guidelines
- Vitrified waste form presents a higher risk to emergency response workers in the event of a transportation accident due to higher contact dose



COMPARATIVE ANALYSIS OF ALTERNATIVES DISCRIMINATING CRITERIA

ITEM	Vitrification				Chemical Stabilization		
	Strongly Favors	Favors	Neutral	Favors	Strongly Favors	Favors	Strongly Favors
IMPLEMENTABILITY					↓	↓	
Scaleup			↑				
Commercial Demonstration					↓	↓	
Operability					↓	↓	
Ease Of Acceleration					↓	↓	
Constructability					↓	↓	
COST			↓	↓	↓	↓	

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COMPARATIVE ANALYSIS OF ALTERNATIVES PRIMARY BALANCING CRITERIA

Implementability

Commercial Demonstration

- Vitrification-Joule-heated
 - Limited number of commercial & DOE applications on hazardous/mixed waste
 - None at required capacity
- Vitrification-Other:
 - No commercial applications in a radioactive environment
- Chemical Stabilization-Cement:
 - Extensive DOE and commercial applications on radioactive, hazardous and mixed waste
- Chemical Stabilization-Other:
 - Extensive DOE and commercial applications on radioactive, hazardous and mixed waste



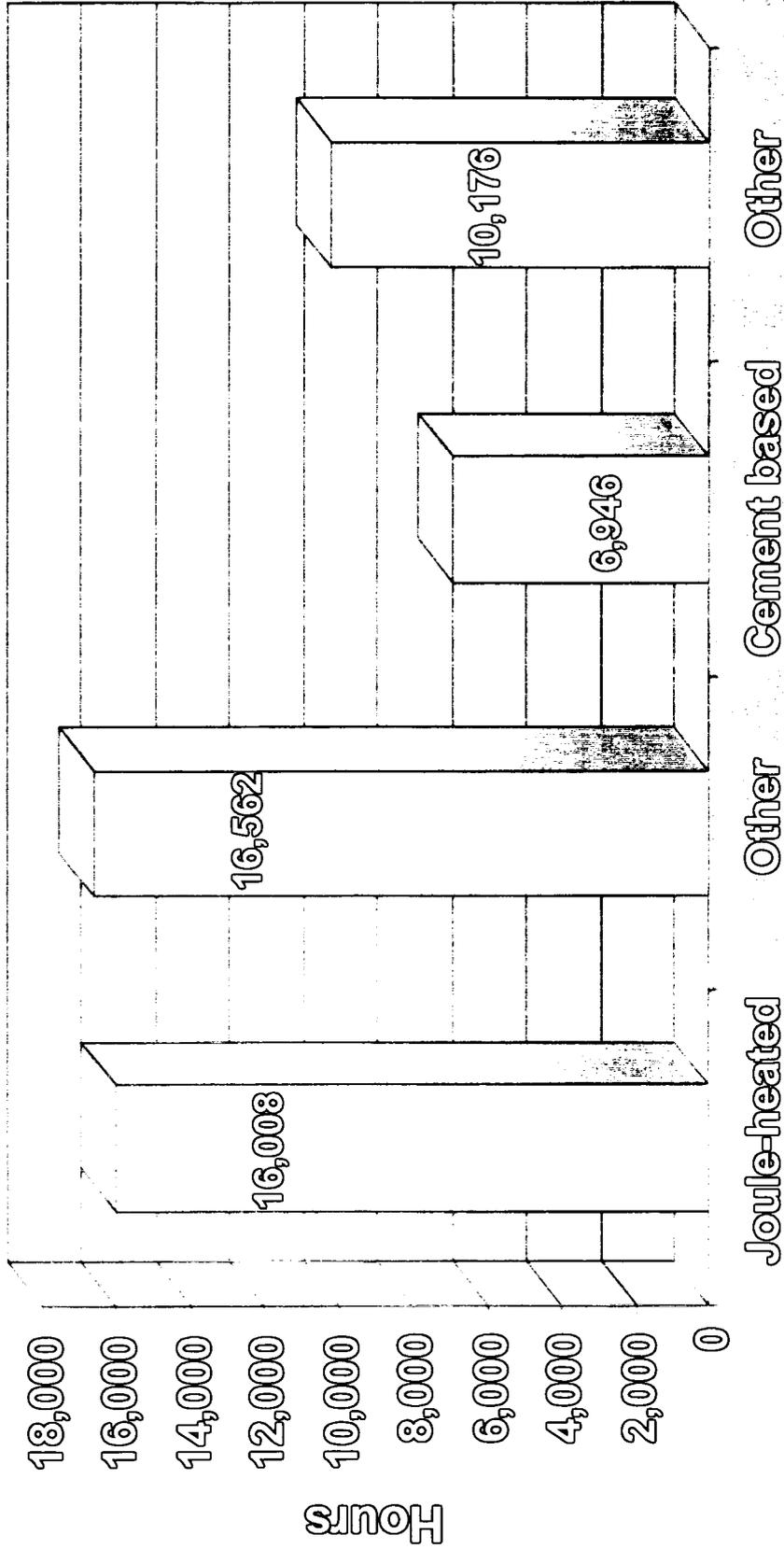
OPERABILITY

- o Operability characteristics of Vitrification increase uncertainty in its ability to be successfully implemented
- Integrated operation of complex systems increases the likelihood of process upsets and resulting downtime for Vitrification
- Complex process control complicates melter operation. Some critical parameters are not readily measured:
 - Viscosity
 - Electrical conductivity
 - Liquidus temperature
 - Sulfate formation
- Hazards inherent to Vitrification process increase risks during maintenance and make recovery from upsets more difficult



TOTAL REQUIRED OPERATING HOURS

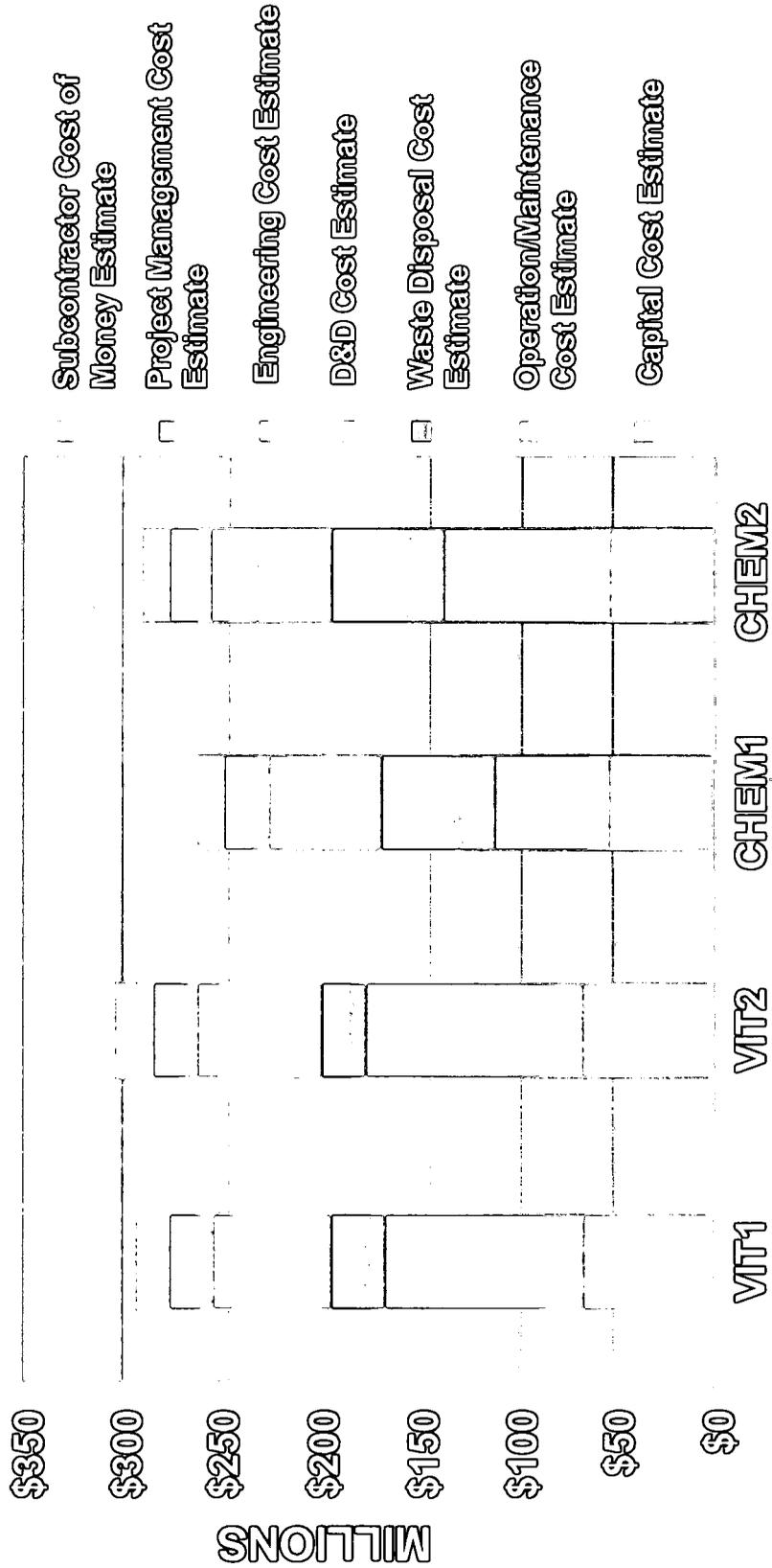
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COST COMPARISON



Public Meeting Evaluation/Comment Card
Silos 1 & 2 Proposed Plan for Remedial Actions
April 25, 2000

The U.S. Department of Energy and Fluor Fernald would like your feedback about this meeting. Please complete this evaluation form to help us better serve your needs. Thank you.

1. The level of information presented tonight was:

_____ Not detailed enough

_____ Adequate

_____ Too detailed

Please explain:

2. The presentation made use of a video explaining the Proposed Plan. Was this approach:

_____ Very useful

_____ Somewhat useful

_____ Not helpful at all

Please explain:

3. I better understand the Proposed Plan for Remedial Actions at Silos 1 and 2 after hearing this presentation.

_____ Strongly Agree

_____ Agree

_____ Disagree

Please explain:

4. Please list specific questions or concerns you have about the Silos 1 and 2 Proposed Plan for Remedial Actions:

- Continued on reverse side-

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5. Please provide other comments about this meeting:

6. If you would like a Fernald representative to contact you to clarify information presented tonight please provide the following information:

Name: _____

Affiliation: _____

Daytime Phone: _____

Question/Concern _____

For more information about the Silos Project, please visit DOE's Public Environmental Information Center, 10995 Hamilton-Cleves Highway, Harrison, Ohio, 45030 or visit our Web site at www.fernald.gov.