DOE PUBLIC WORKSHOP
SILO 3 PATH FORWARD
JULY 29, 1997

7:00 p.m.	Welcome/Opening Remarks	Gary Stegner, DOE-Fernald
7:10 p.m.	Proposed Path Forward to be Carried Forward for Silo 3 Remediation	Terry Hagen, FDF
7:45 p.m.	Conclusion of Silos Project Dispute Resolution Process	Jim Saric, U.S. EPA
8:00 p.m.	Informal Question and Answer Session	
8:30 p.m.	Review of Action Items/ Closing Remarks	Gary Stegner
9:00 p.m.	Meeting Concludes	

PUBLIC MEETINGS/WORKSHOPS FOR 1997 (some TBD)

JANUARY	FEBRUARY	MARCH
7 CRO Meeting 11 Citizens Task Force 22 STCG 23 FRESH	4 CRO Meeting 12 IRT Availability Session 12,13 Health Effects Subcommittee 26 IRT Public Briefing	4 CRO Meeting 13 CTF/FRESH & DOE/FDF 15 Citizens Task Force 18 STCG 19 CP&T
APRIL	**MAY**	**JUNE**
1 CRO Meeting 3 FRESH 15 DOE Community Mtg. 22 DOE 10-Year Plan Mtg.	6 CRO Meeting 7 WM Subcommittee 7,8 Health Effects Subcommittee 10 Task Force 14 Silos Project Workshop 20 Joint Response 21 CP&T Mtg. 21 EM Subcommittee 22 FRESH 27 OU2/OU5 Workshop	3 Silos Project Wkshp. - Nevada 3 CRO Meeting 9 WM Subcommittee 10 STCG 12 MPN/FRESH Roadshow 16 Silos Project Workshop 23 Accelerated Cleanup Plan/Budget 24 OSDF Roundtable
JULY	**AUGUST**	**SEPTEMBER**
7 Efficiency Committee 8 Recycling Methodology 9 Citizens Task Force 14 Public Involvement Workshop 16 CP&T 22 A. Alm Video Conference 23 STCG 23 EM & Efficiency Subcommittees 24 FRESH 29 Silos Project Workshop	7 Water/Soils Project 12 Community Meeting 20,21 Health Effects Subcommittee	2 CRO Meeting 9 Cleanup Progress Briefing 17 CP&T 17 Efficiency Committee 20 Citizens Task Force 25 FRESH 24 STCG TBD Natural Resources Workshop
OCTOBER	**NOVEMBER**	**DECEMBER**
7 CRO Meeting TBD OU1/ARASA TBD Soils/Water	4 CRO Meeting 15 Citizens Task Force 19 CP&T 20 FRESH TBD STCG TBD Community Meeting TBD Health Effects Subcommittee	2 CRO Meeting

For more information, please call Gary Stegner at 648-3153.

July 25, 1997

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- Why not vitrification
  - Uncertain implementability due to high sulfate content in waste
  - High cost compared to viable alternatives

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Evaluation of Silo 3 Stabilization/Solidification Alternatives Threshold Criteria

Evaluation Criteria	Cement (Chemical) Stabilization	Polymer (micro) Encapsulation	Sulfur/Polymer Encapsulation
Protection of Human Health and the Environment		All alternatives are very protective: Waste form effectively immobilizes all hazardous and radiological constituents to meet disposal facility Waste Acceptance Criteria (WAC) Potential disposal facilities are in remote, arid locations with no nearby receptors, thereby minimizing the potential for human or ecological exposure Engineered disposal design minimizes potential for access by inadvertent intruders Short-term transportation risks to the public are maintained well within CERCLA criteria (see short-term effectiveness evaluation)	
Compliance with ARARs		All three alternatives can comply with current ARARs No modifications to ARARs approved in OU4 ROD will be required or requested	

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Evaluation of Silo 3 Stabilization/Solidification Alternatives
Long Term Effectiveness

Cement (Chemical) Stabilization	Polymer (micro) Encapsulation	Sulfur/Polymer Encapsulation
	All three alternatives provide adequate long-term effectiveness Disposal facility design and location minimizes exposure of treated waste to potential degradation mechanisms (freeze/ thaw, groundwater infiltration, etc.), thus maintaining the protectiveness discussed above	

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Evaluation of Silo 3 Stabilization/Solidification Alternatives Reduction of Toxicity, Mobility, or Volume Through Treatment

	Cement (Chemical) Stabilization	Polymer (micro) Encapsulation	Sulfur/Polymer Encapsulation
Toxicity		None of these alternatives provide destruction of toxic constituents - no significant reduction of toxicity is accomplished. All three alternatives provide effectiveness by immobilizing toxic constituents	
Mobility	Demonstrated ability to immobilize Contaminants of Concern present in Silo 3 waste through OU4 FS and subsequent testing, and both FEMP and commercial treatment of similar wastes	Pilot-scale testing on wastes similar to Silo 3 waste shows ability to successfully immobilize hazardous constituents	Pilot-scale testing on wastes similar to Silo 3 waste shows ability to successfully immobilize hazardous constituents
Volume	Estimated 20% volume increase	Assumed equivalent to cement (chemical) stabilization, based on US EPA literature review. Could potentially provided lower treated waste volume than cement stabilization - development work is required to confirm actual treated waste volume	Assumed equivalent to cement (chemical) stabilization, based on US EPA literature review. Could potentially provided lower treated waste volume than cement stabilization - development work is required to confirm actual treated waste volume

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Evaluation of Silo 3 Stabilization/Solidification Alternatives Implementability

	Cement (Chemical) Stabilization	Polymer (micro) Encapsulation	Sulfur/Polymer Encapsulation
Administrative		NTS provides preliminary confirmation of acceptability of treated waste under existing Performance Assessment	
Technical	Implementability most certain of the three alternatives Least complex equipment and facility requirements of the three alternatives Has been successfully implemented on a commercial scale to treat mixed waste at numerous DOE and non-DOE superfund sites Has been successful at FEMP on wastes (thorium waste) very similar to Silo 3 waste	More uncertain than cement stabilization due to limited commercial implementation More complex facility and equipment requirements than cement stabilization Successful on bench scale with mixed waste and pilot-scale at Brookhaven National Lab	More uncertain than cement (chemical) stabilization due to limited commercial implementation More complex facility and equipment requirements than cement stabilization or polymer (micro) encapsulation Successful on a pilot scale; small-scale commercial facility exists

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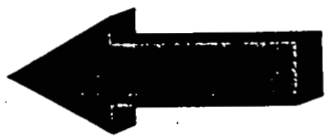
Evaluation of Silo 3 Stabilization/Solidification Alternatives

Short-Term Effectiveness

	Cement (Chemical) Stabilization	Polymer(micro) Encapsulation	Sulfur/Polymer Encapsulation
Worker Risks	Least of three alternatives due to ambient (room) operating temperatures and minimal particulate (i.e. off gas) emissions	Slightly higher than cement (chemical) stabilization due to higher operating temperature and more significant off-gas issues	Slightly higher than cement (chemical) stabilization due to higher operating temperature and more significant off-gas issues
Cleanup Time	Cleanup time is most certain of the three alternatives based upon OU4 treatability testing and commercial experience with similar wastes Less than 9 months operations time - actual cleanup time will be determined by selected subcontractor	US EPA literature indicates clean-up time should be roughly similar to that achievable by cement (chemical) stabilization/solidification	US EPA literature indicates clean-up time should be roughly similar to that achievable by cement (chemical) stabilization/solidification
Transportation Risks		Calculated transportation risks well within EPA guidelines	

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Evaluation of Silo 3 Stabilization/Solidification Alternatives

Cost

Cement (Chemical) Stabilization	Polymer(micro) Encapsulation	Sulfur/Polymer Encapsulation
Due to wide spread commercial implementation and more certain implementability, cost is most certain of the three alternatives $25 million *	Assumed roughly equivalent to cement (chemical) stabilization due to expected similar treated waste volume and capital costs (based on US EPA literature review) Cost is slightly more uncertain than for cement (chemical) stabilization due to limited commercial-scale basis for estimate	Assumed roughly equivalent to cement (chemical) stabilization due to expected similar treated waste volume and capital costs (based on US EPA literature review) Cost is slightly more uncertain than for cement (chemical) stabilization due to limited commercial-scale basis for estimate

* Rough order-of-magnitude cost estimate

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- Treatment with off-site disposal
- Acceptable treatment technologies:
  - Cement (chemical) stabilization/solidification
  - Polymer-based encapsulation