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INTEROFFICE MEMORANDUM

DATE: January 11, 1996

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FROM: *M.C.* M. C. Broussard, RMRS Accelerated Actions, Bldg. T893B, X6007

SUBJECT: CLOSED CELL FOAMING OF STRUCTURES, PROPOSED ACTION
MEMORANDUM (PAM) - MCB-001-96

Attached is the Closed-Cell Foaming of Structures PAM. The scope of this PAM has been revised at the direction of RMRS Management. Changes supporting this revised scope are reflected in the document. If you wish to review the Closed Cell Foaming of Structures, PAM, Revision 5, your comments will be addressed along with comments received from Kaiser-Hill. Please return your comments to me no later than January 17, 1996. Your cooperation in this matter is appreciated.

If you have any questions or need additional information regarding the above document you can contact Susan Myrick of my staff at extension 5051 digital page 4343.

SLM:la

Attachment:
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SW-A-003543

Proposed Action Memorandum

Closed-Cell Foaming of Structures

Draft
Rev. 5

January 10, 1996

U.S. Department of Energy
Rocky Flats Environmental Technology Site
Golden, Colorado

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1.0 PURPOSE

The purpose of this Proposed Action Memorandum (PAM) is to present the Department of Energy/Rocky Flats Field Office's (DOE/RFFO) plan for the stabilization of structures at the Rocky Flats Environmental Technology Site (RFETS). These structures may include Underground Storage Tanks (USTs), vaults, rooms, buildings, piping, sumps, and other similarly constructed units. Tanks and other structures will be filled with a closed-cell foam which eliminates the potential infiltration or re-entry of ground water or surface water into the structures. The applied foam deters the infiltration of ground water and surface water into the structures through piping, conduit, cracks, or breeches in the containment structure and fixes any residual contamination preventing dispersment/migration into the environment. Additionally, when utilized as the last step of an underground source removal action, the foam provides structural support to prevent settling or subsidence.

Written notification for each separate foaming project will document to the State and EPA a brief summary of the data for the site and specific issues associated with the project identified. For example, the letter of notification may address a single structure or several tanks scheduled for foaming. A single comprehensive "Closed-Cell Foaming of Structures" PAM will streamline the foaming process by eliminating a public comment period for each individual foaming project. The notification letter will be sent 30 days prior to commencement of foaming.

This action effectively and cost efficiently fixes contamination within the structure and prevents further migration of liquids and other media through the structure, and therefore reduces the potential risks posed to human health and the environment. Hazardous constituents or soils that may remain in or around the structures (following foaming activities), will be identified and addressed in the RFETS Accelerated Site Action Project (ASAP) or the appropriate Record of Decision (ROD).

2.0 DATA SUMMARY

Data generated in support of characterization activities at each site will be provided in the notification letter to the State and EPA as stated in Section 3.0

3.0 PROJECT DESCRIPTION

3.1 Proposed Action

Prior to foam filling a structure the scope objectives will document whether the intent of foaming is to fix contamination in place or prevent ground water or surface water infiltration after removing contents/contamination of the structure. If required, a routine removal of the contents (contaminant source) will be performed. After removing the contents, a thorough rinsing will be performed to remove the remaining residue. Following each rinsing action, a rinsate sampling event will occur. The rinsate sample will document the effectiveness of the rinsing process. Surfaces will be prepared to meet manufacturer specifications prior to foam application. Typical materials and equipment used to foam may include: urethane foam, a multi-component high pressure spray unit, and pumps.

Factors taken under consideration before the final decision to use foam was made include structure retrievability, effectiveness, application requirements, and cost. One of the primary advantages of foaming as opposed to using a cementitious material (concrete, grout, etc.) is weight. In the event a tank or structure's final closure action includes removal, the foamed structure can be more easily removed than a cementitious filled structure. For example, the weight for foam in a 20 thousand gallon tank is only 50-70 pounds whereas the same tank filled with concrete would weigh 374,000 lbs (140 lbs/ft³). Other advantages to foaming is it's expansion properties. The foam expands immediately and there are no significant temperature restrictions during foaming, with cementitious filling, a cure time is required and the process is exothermic. A 20 thousand gallon tank can be foam filled in approximately 15 minutes. Since the foam is a non-porous closed cell product, ground and surface water will be prevented from entering the foamed area, and the foam will not act as an absorbent. Foaming costs are generally 30% greater than cementitious fillings, however when considering the advantages of foaming the additional cost is justified.

A work plan or an Integrated Work Control Plan (IWCP) will be approved prior to each foaming activity to ensure procedure compliance, minimum manufacturing requirements, sampling and waste handling issues as well as regulatory drivers are met.

3.2 Waste Management Considerations

Wastes (if any) generated during associated foaming activities (i.e., combustibles, glass, metal, sludge) will be characterized and handled appropriately according to (CCR) 6 CCR 1007-3, Sections 100, 260 through 268, and RFETS waste packaging procedures. If rinsate meets the Waste Acceptance Criteria (WAC) it will be collected and treated at the appropriate

RFETS treatment facility. Source material removed from the structures will be sampled to provide adequate characterization of the wastes and will be managed/disposed of accordingly.

4.0 CONSISTENCY WITH LONG TERM OBJECTIVES

Foaming structures is consistent with the RFETS long term objective, to achieve the most rapid and economical stabilization of the Site. By completing the foaming activities further migration of contaminants will be prevented by fixing any remaining contamination and minimizing risk to human health and the environment.

5.0 APPLICABLE, RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)

These actions are considered interim actions. No chemical, location, or action specific ARARS are identified for foaming implemented under this PAM. Final closure of these structures will be part of the Accelerated Site Action Project (ASAP) or the appropriate Record of Decision (ROD). Specific ARARs are identified in the corresponding documentation.

6.0 SCHEDULE

The first concrete underground storage tank site is scheduled for foaming in June 1996, with five additional concrete underground storage tank sites to follow throughout FY96, identified in the "Accelerated Action Plan For Inter-Agency Agreement Underground Storage Tanks Containing RCRA-Regulated Materials" (Kaiser-Hill Company, 1995). Foaming will continue in outyears after completing an investigation of associated health and environmental risks. Schedules in support of activities at each site will be provided in the notification letter to the State and EPA as stated in Section 3.0.

Draft
Foaming Proposed Action Memorandum

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7.0 REFERENCE

Kaiser-Hill Company, 1995. Accelerated Action Plan For Inter-Agency Agreement
Underground Storage Tanks Containing RCRA-Regulated Materials. Environmental Restoration
Waste Management & Intergration Department.