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AMARAL, M.E.		
BURLINGAME, A.H.		
BUSBY, W.S. dlb	X	X
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DAVIS, J.G.		
FERRERA, D.W.		
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GEIS, J.A.		
GLOVER, W.S.		
GOLAN, P.M.		
HANNI, B.J.		
HARMAN, L.K.		
HEALY, T.J.		
HEDAHL, T.		
HILBIG, J.G.		
HUTCHINS, N.M.		
JACKSON, D.T.		
KELL, R.E.		
KUESTER, A.W.		
MARX, G.E.		
McDONALD, M.M.		
McKENNA, F.G.		
MONTROSE, J.K.		
MORGAN, R.V.		
POTTER, G.L.		
PIZZUTO, V.M.		
RISING, T.L.		
SANDLIN, N.B.		
SCHWARTZ, J.K.		
SETLOCK, G.H.		
STEWART, D.L.		
STIGER, S.G.		
TOBIN, P.M.		
VOORHEIS, G.M.		
WILSON, J.M.		
D. ERLEWINE		
J. K. HOPKINS		
M. LONG		
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CORRES. CONTROL	X	X
ADMN RECORD/080	X	X
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IN REPLY TO RFP CC NO:

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September 14, 1994 94-RF-09564

N. I. Castaneda
Environmental Restoration Division
DOE, RFFO

REPLACEMENT OF SOLIDIFICATION/STABILIZATION TREATABILITY STUDY WITH TEST WORK PERFORMED BY WASTE PROJECTS GROUP - WSB-094-94

Action: None

Over the past three years the Sitewide Treatability Studies Program, a part of the Environmental Restoration Program Division at Rocky Flats Plant (RFP), has been developing and conducting Treatability Studies as directed by the Interagency Agreement and outlined in the Final Treatability Studies Plan. These Treatability Studies provide valuable site-specific data necessary to support CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) Remedial Investigations (RI) and Feasibility Studies (FS) and serve two primary purposes; 1) to aid in the *selection* of the remedy, and 2) to aid in the *implementation* of the selected remedy.

One technology selected for the Treatability Studies Program at RFP is the Solidification/Stabilization of contaminated environmental media. Currently, the Treatability Studies Group has been working on the Treatability Study Work Plan for the Solidification/Stabilization of Radionuclide Contaminated Soils Fines at RFP. This Work Plan, deliverable to the Regulatory Agencies November 12, 1994, would set forth the proposed technical approach for completing this Treatability Study, along with assigning responsibilities and establishing the project schedule and costs. After review and approval of the Work Plan by the Regulatory Agencies, and the regular proposal/procurement period, this project would likely proceed to bench-scale testing of Solidification/Stabilization technologies in early February 1995. Technology testing, laboratory analysis, and preparation of a final report would take approximately 4-6 months to complete (approximately August 1995).

The information obtained from the Solidification/Stabilization Treatability Study would be most applicable to the soils contamination problems encountered in Operable Unit (OU) 2. The final report would be evaluated along with the reports for other applicable Treatability Studies during the "Analysis of Alternatives" phase of the OU 2 FS. Unfortunately, the initial screening of alternatives is already in progress, and the detailed analysis of alternatives phase of the OU 2 FS, a critical path activity, is scheduled to begin as early as May 8, 1995; three months before we would receive results from the Solidification/Stabilization Treatability Study. In order to provide important Solidification/Stabilization data to the OU 2 Feasibility Study Team, and to significantly

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expedite the schedule and minimize the cost of the project, we would like to propose the following alternative.

As part of the ongoing effort to stabilize various waste forms produced during the production years of RFP, the Waste Projects Organization has been developing various onsite technologies for stabilization/solidification. Two of these technologies, Microwave Melter and Polymer Encapsulation, have already been funded to perform solidification studies on plutonium contaminated soils fines as a supplemental project to the Solidification/Stabilization Treatability Study. In addition to these two technology groups, we have recently learned that Waste Projects has a Cementation and Solidification Projects group which is available to perform solidification testing on environmental soil samples.

The Cementation and Solidification Projects group has had extensive experience developing and performing test work to solidify various waste streams. Previously evaluated waste streams include laboratory solutions, nitrate salts, sludge wastes, Resource Conservation and Recovery Act (RCRA) wastes, and incinerator ash. In addition, Waste Projects is familiar with the Land Disposal Restrictions governing low-level radioactive waste disposal, and the acceptance criteria for stabilized waste forms.

Test work for a stabilization study of plutonium contaminated soils fines would include preparation of a Cementation Test Plan, Experimental Test Work (including preparation of samples and freeze-thaw cycling studies), Toxic Characteristic Leaching Procedure (TCLP) analysis, Structural and Strength Testing, and delivery of a Final Report. Test work would first be performed on "cold" surrogate samples to develop optimal formulation data for the "hot" sample test work. This data would include waste loading, water/cement ratio, cement type, and fly ash addition.

Waste Projects has already indicated a willingness to commit resources to conduct this Solidification Study and assist in meeting the May 8, 1995 deadline. Therefore, the following is proposed as a substitution for the Treatability Study for the Solidification/Stabilization of Radionuclide Contaminated Soils Fines at RFP:

- Waste Projects Cementation and Solidification Group would prepare a Cementation Test Plan in lieu of the above mentioned Treatability Study Work Plan. This Test Plan would contain the Technology Descriptions, Test Objectives, Experimental Design and Procedures, Safety and Regulatory Issues, and Quality Assurance Procedures.

- Waste Projects would begin surrogate testing possibly as soon as mid-October and would mobilize resources to begin "hot" testing in early January 1995.

- Waste Projects would prepare a Final Treatability Report which would include not only the Cementation Studies, but also the Polymer Encapsulation and Microwave Melter Studies. This report would be prepared according to CERCLA guidance given for the preparation of Treatability Study Final Reports.

The advantages to performing the Solidification studies in this manner are numerous. By using onsite facilities and personnel, we eliminate the need to evaluate outside companies for radioactive material licenses and we avoid the often lengthy procurement cycle. The final report will be in the format of the Treatability Studies, but will be more comprehensive than the individual reports for each study would be. An accelerated schedule will be critical to the effective utilization of this data during the OU 2 Feasibility Study, and the cost savings could also be substantial.

We would like to discuss this with you as soon as possible.

Wanda S. Busby
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Environmental Restoration Program Division

SH:pap

cc:
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