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Symbol: ER2000-0245

Mr. John E. Kieling, Supervisor, DOE Corrective Action Section
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street
P.O. Box 26110
Santa Fe, New Mexico 87502

SUBJECT: REQUEST TO ALLOW IN-SITU BLENDING OF POTENTIALLY REACTIVE SOILS AT SOLID WASTE MANAGEMENT UNIT 16-021(c)-99

Dear Mr. Kieling:

The purpose of this letter is to request approval for in-situ blending of soils contaminated with potentially detonable concentrations of high explosives (HE) as part of the interim measure (IM) activities at TA-16-021(c)-99. As discussed amongst LANL and HRMB staff, in-situ blending is necessary to render safe soils that might otherwise pose a substantial threat to workers as the soils are exhumed. Approval of the in-situ blending is necessary for the IM at Solid Waste Management Unit (SWMU) 16-021(c)-99, to proceed in a safe and efficient manner. EPA has acknowledged the inherent risks in working on and remediating sites that are contaminated with HE, writing *"It is imperative that any persons working on sites believed to be contaminated with explosive residues ... take all measures as may be prudent and/or prescribed by law to protect life, health, and property."*¹ The LANL ER Project is proposing to blend HE contaminated soils using a remote excavator or by hand when necessary; maintaining adequate soil moisture during the blending process to help minimize the potential for an unplanned detonation during the operation.

The DOD, DOE, and EPA have generally agreed that HE concentrations in soil of 10% by weight is an appropriate threshold above which the contaminated soils are considered to be susceptible to initiation and propagation. EPA stated in 1996 that *"Secondary explosives concentrations above 10% (> 100,000 ppm) in soil are also of concern from a potential reactivity standpoint and may affect sample and material handling processes during remediation."*² In an earlier publication (1993) EPA proposed soil blending as one possible solution, *"If contamination is above the 10 percent limit in some areas of the site, the contaminated material could be blended and screened to dilute the contamination and produce a homogenous mixture below the 10 percent limit. This blending is not by itself a remedial action but a safety precaution...Once blending is completed, soil treatments such as incineration...can proceed."*³ LANL intends to

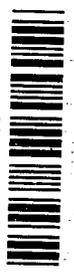
¹ EPA/540/R-97/501 November 1996; EPA/540/S-97/501 Dec. 1996; EPA/600/S-99/002 May 19, 1999
² EPA/540/R-97/501 November 1996 – Field Sampling and Selecting On-Site Analytical Methods For Explosives in Soils.
³ EPA/625/R-93/013 September 1993, Handbook - Approaches for the Remediation of Federal Facility Sites Contaminated with Explosive or Radioactive Wastes.

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proceed with blending both for safety and as a preparatory step to composting type treatment of HE contaminated soils.

The LANL Engineering Sciences & Applications (ESA) Division is responsible for operating the TA-16 facility and for ensuring an appropriate safety envelope for all operations within the facility. ESA Division has instructed the ER Project to blend soils to a level of five percent by weight to ensure safety of the operations. **Recent conversations with ESA personnel indicate that drop weight tests were performed on LANL HE-bearing soils many years ago, and that 10% soils exhibited a higher degree of reactivity than 5% soils, which exhibited no reactivity. These data have not yet been located by ESA personnel. The probable cause for the higher reactivity of LANL soils compared to DOD soils is the much higher percentage of HMX and RDX in LANL soils than in DOD soils, which contain primarily TNT and RDX.** Therefore, to reduce the average concentration of HE to below five percent weight, soils with high concentrations (>5%) of HE will be mixed with adjacent contaminated soils containing lower concentrations (<5%). To further enhance environmental protection and minimize generation of contaminated media that must ultimately be treated or disposed, contaminated soils will not be blended with uncontaminated soils. High HE concentrations will be targeted using data gathered during Phase I of the IM, and HE concentrations will be confirmed using field-based High Performance Liquid Chromatography.

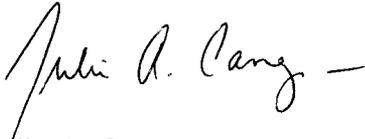
The precise volume of soil that will require blending is difficult to predict because of variable field conditions. As reported in the already submitted IM Plan, the total volume of contaminated soils to be blended, based on a 10% criterion, was expected to be approximately **220** cubic yards. However, that estimate is being revised upward to 550-600 cubic yards based on conditions discovered during the first phases of the remediation and on the need to blend down to five percent. This estimate includes approximately 270 cubic yards of soil containing HE above five percent and about 300 cubic yards of soil containing lower concentrations of HE that will be blended together to bring the overall concentration to below five percent.

Most of the soils that will require blending are located in the pond area (approximately 58 x 23 x 5.5 feet) and in the pedestals, highly localized areas of high HE contamination that were left in-place during the initial excavation, in the upper drainage. The volume of contaminated soil in the pedestals that will require blending is estimated to be approximately **5 cubic yards**

Pending the outcome of discussions with HRMB regarding blending and the availability of remotely operated equipment currently in use at MDA-P, blending would likely occur between June 16 and July 30, 2000. Lastly, because this letter describes an activity specifically designed to alleviate a serious threat to worker safety, it is largely silent on the implications to future regulatory determinations and waste management that may be encountered after the contaminated media is generated. Those issues are being discussed by LANL and HRMB staff and will be resolved in the near future.

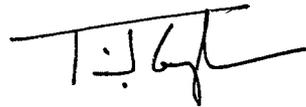
Although the IM Plan has not been approved by HRMB, IM activities are proceeding at SWMU 16-021(c)-99, through frequent and substantial coordination between HRMB and LANL staff. The LANL ER Project is requesting HRMB approval of in-situ blending, as described above and at this location only, for protection of workers. The LANL ER Project appreciates HRMB's continued effort to develop an appropriate remediation strategy for this IM. If you have any questions or would like to discuss this matter further please contact Tony Grieggs at 665-0451.

Sincerely,



Julie A. Canepa, Program Manager
Los Alamos National Laboratory
Environmental Restoration

Sincerely,



Theodore J. Taylor, Program Manager
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