



date: April 1, 1997

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subject: Disposition Options for High-Specific Activity Canisters Residing at the Mixed Waste Landfill

### Summary Recommendation

Sandia National Laboratories, New Mexico recommends that the canisters contained in Pits 35 and 36 at the Mixed Waste Landfill remain there and that the pits be backfilled with clean soil.

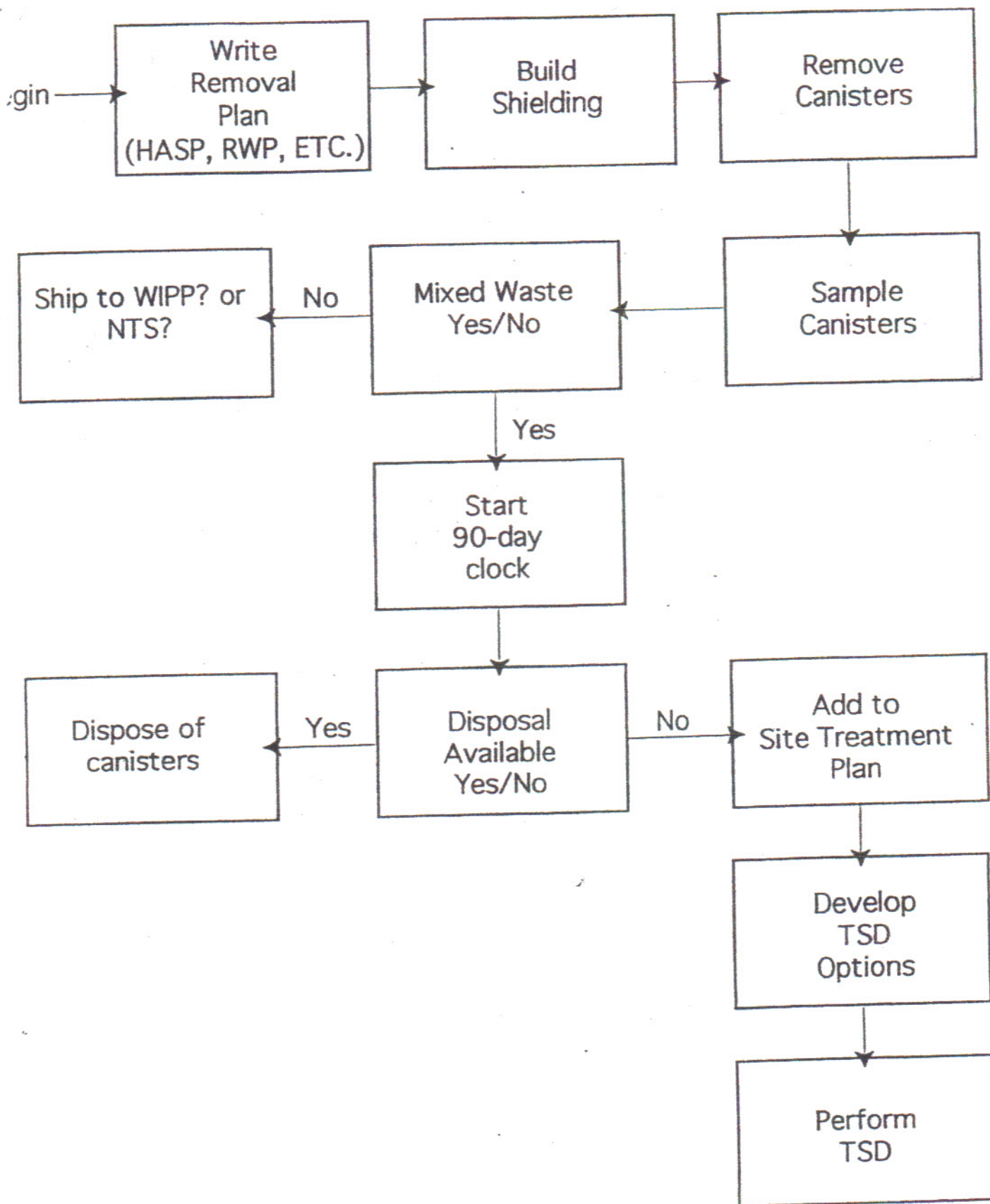
### Discussion

Mixed Waste Landfill classified area pits 35 and 36 contain 4 stainless steel canisters. These canisters are 9 inches in diameter and 20 feet long and were used in TA 5 in the mid-1980s for experiments involving oxide nuclear reactor fuels. Oxide fuels were placed in these canisters and the nested configuration was placed next to the core of the ACRR. The core generated temperatures of 2500°K which vaporized or melted the fuels. The canisters were then removed from the core and disassembled to study the source term of a simulated meltdown of nuclear reactor fuels. The fuels were removed from the canisters before disposal but the canisters became activated during the tests due to neutron capture.

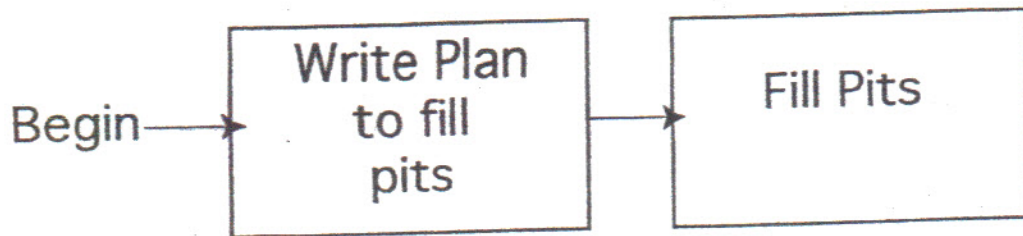
The Mixed Waste Landfill has been proposed for NFA under the SNL, NM Hazardous and Solid Waste Amendment (HSWA) permit process. Pits 35 and 36 need to be backfilled to move the HSWA process along towards completion. The outstanding issue is whether or not the canisters should be removed from the pits and managed as waste. If the decision is made to require SNL, NM to remove the canisters from the pits and manage them as waste, the following key waste management issues complicate the situation and need to be considered:

1. Based on interviews with TA 5 personnel, there may be hazardous constituents in the canisters. Each canister would have to be dismantled, sampled and analyzed by TCLP methods for suspected hazardous constituents. It will be very difficult to obtain representative samples for analysis. Handling and sampling of the canisters will be very difficult, resulting in unnecessary exposure to radiation fields as high as 5 R/hr to sampling personnel. SNL, NM feels that this characterization would be inconsistent with the ALARA principle as set forth in 10CFR835. If metallic sodium is present, as suspected by TA 5 personnel, sampling could be very dangerous as a result of this metal's reactivity.

# Remove Canisters



# Leave Canisters



Alara      Cost      Risk      Environmental Protection      Ability to Achieve NFA Status

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Remove  
Canisters



Leave  
Canisters

