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State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us

Bill Richardson
GOVERNOR

Ron Curry
SECRETARY

MEMORANDUM

TO: Neelam Dhawan, Environmental Scientist and Specialist O
Permits Management Program

FROM: Kirby Olson, Environmental Scientist and Specialist O, KO
Permits Management Program

SUBJECT: REVIEW OF RISK ASSESSMENTS FOR LANL PRS 14-003

DATE: January 27, 2003

The Request for Permit Modification for SWMU 14-003 includes both a human health and ecological risk assessment. Both assessments have deficiencies that need to be corrected for us to adequately assess the risks from residual contamination at the site.

Human Health Risk Assessment

- The human health risk assessment compared residual contaminant levels to industrial screening levels. Because the requested permit modification is to remove this SWMU from the permit (and thus from oversight under the Corrective Action program) by granting a No Further Action determination), residential human health screening levels are the appropriate levels for comparison.

- For those contaminants that were nondetect in the confirmatory sampling (antimony, cadmium, and RDX), the document does not state whether the detection limits were below the applicable screening levels for human health.

- Page 10 of the VCA completion report (attachment B) compares uranium detections to a background level (5.45 mg/kg) that exceeds both the soil and Bandelier tuff approved UTL for LANL. The origin of this value is not provided in the report. Values above the applicble UTLs should be compared to human health screening levels

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- Zinc detections above background were eliminated as background as well.

Human health chronic toxicity for 2-amino-4,6-dinitrotoluene was estimated using 2,6-dinitrotoluene as a surrogate compound because of the lack of toxicity data on the first compound. Looking at the TRVs for mammals (extrapolated from LD50s) for these two compounds in version 1.5 of the LANL ESL database, the TRV value for the surrogate based on rat studies has a value almost an order of magnitude lower than the original compound (0.36 mg/kg/d and 2.81 mg/kg/d respectively). This lower TRV for the surrogate compound would seem to indicate that the 2,6-dinitrotoluene would therefore be a conservative surrogate for 2-amino-4,6-dinitrotoluene for a human health risk assessment and not underestimate the toxicity of residual contamination.

Ecological Risk Assessment

The ecological risk screening in attachment C of the request for permit modification provides the HQs for each LANL screening receptors for barium, silver, and the two explosive compounds found at the site. The text indicates that the HIs are reduced by using mean concentrations, but doesn't provide revised HQs for each receptor and COPEC based on means nor provide how means were calculated. The text also states that HQs would be reduced when home ranges are considered compared to the contaminated site size of 0.03 acres, but doesn't provide a (contamination area/home range) factor to show the impact on the hazard quotients. The discussion of reducing the hazard quotients to within acceptable limits is completely qualitative. This section needs to be revised to include:

- how means were calculated
- revised HQs for each receptor and COPEC based on mean contaminant concentration
- revised HQs for each receptor and COPEC based on use of a (contamination area/home range) factor