MEMORANDUM

TO: File

FROM: Teri Davis

DATE: October 20, 1993

SUBJECT: LANL RCRA Comprehensive Ground-Water Monitoring Evaluation (**CME**) Agreement in Principle Program (**AIP**) Technical Comments

On August 3 -6 1993 a RCRA CME was conducted at LANL by EPA Region 6 as a part of an EPA multi-media inspection. The participants included: Greg Lyssy (EPA Region 6), Steve Alexander (NMED, HRMB), Teri Davis (NMED, HRMB, LANL/AIP), Alice Barr (LANL) and Alan Stoker (LANL). The following technical concerns were conveyed to Greg Lyssy by LANL AIP staff:

o A comprehensive regional and facility specific site-wide hydrogeologic characterization is required of Los Alamos National Laboratory (LANL) by Module VIII of RCRA Operating Permit (Task III of Section P). The Module requires the Permittee to collect information that supplements and verifies existing information on the hydrogeologic conditions at the facility. At present, fundamental hydrogeologic issues/questions remain unanswered at LANL:

1) The direction of main aquifer and perched-intermediate ground-water flow as influenced by pumping of the 16 production wells in the Los Alamos area is unknown. The lack of a site-wide potentiometric map prevents the assessment of direction of ground-water flow within the main aquifer and possibly the perched-intermediate zone(s), as impacted by the 16 production wells used at Los Alamos.

2) The recharge area(s) for the main and perched-intermediate aquifers have not been identified. It is unknown at this time if any significant quantity of water is recharging the main aquifer through the fracture-fault zones which exist on the Pajarito Plateau. Characterization of these site-wide fault zones with respect to potential pathways for aqueous migration is not complete. It is unknown what effect if any, these zones may have on the direction of ground-water flow and hydraulic gradient of the main and perched-intermediate aquifers.

3) The nature of the main aquifer has been conceptualized by LANL as generally unconfined except for a wedge-shaped area near the central part of Los Alamos County. Contrary to previous theory, recent transducer data has shown that the

nature of the aquifer is confined or most probably semi-confined. Significant error in calculations of aquifer characteristics can result from the evaluation of pumping test data if the type of aquifer is misunderstood.

- The issue of recharge should be addressed prior to the conclusion that the main aquifer ground water at Los Alamos has not been effected by lab operations and therefore warranting the granting of a ground-water monitoring wavier for LANL as has been proposed.

- The ground-water monitoring waiver at TA-54 states that no perched water exists and no hydrogeologic connection to the main aquifer exists; however, no wells are in place to verify that statement.

- Debris from Area P landfill is entering surface water in Canada De Valle. Also, numerous amber-colored lab bottles were observed in rubble that looked like they still may have liquids contained within them. Soil staining was noted in eastern drainage adjacent to landfill.

- Well MCO-3 was observed to need grout repair.

cc: Steve Alexander