Sandia National Laboratories

Albuquerque, New Mexico 87185

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Division of High-Level Waste Management
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Seth,

Enclosed are some examples of how Performance Assessment has redirected some of the site characterization and other activities at the WIPP site. As Performance Assessment has only been active at WIPP for the past 1 1/2 years, we may not see the full impact of this activity for another year or so.

Sincerely,

Robert M. Cranwell

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1. For the last 12 years, WIPP data collection efforts have been primarily directed to address the many concerns raised by the public, EEG (state Environmental Evaluation Group), and the NAS WIPP panel. Thus, resources allocated toward data collection have not always been effectively utilized. For example, a lot of effort was spent studying the Culebra. In fact, most data curently existing is for the Culebra formation. However, once PA was initiated, it was discovered that data was needed on interaction between layers above the repository horizon, and very little if any such data exists. It appears that very little data exists on vertical flow from the repository to the Culebra. Thus, about the only flow and transport capabilities existing for WIPP are of two-dimensional flow in the Culebra, when in fact the critical factor for compliance assessment with EPA Standards is the vertical flow.

2. Although thought necessary, efforts to characterize source term were thought to be less important than other activities. However, as PA activities were initiated, the importance of the source term gained more focus resulting in increased efforts to characterize the source term. Characteristics of

the source term such as precise inventory and original waste void volume are being better characterized to reduce uncertainty.

3. Salt creep calculations, which were previously done for facility design, are now being done to determine the extent of room closure in 100 years. This is due to PA activities indicating the importance of the human intrusion scenario. Thus, experiments and calculations are now focused on better understanding the creep closure process, rather than "curve fitting" to empirical data which has been done in the past to model the creep closure process.

4. Brine inflow into the rooms was felt to be a minor problem in the past, and very difficult to evaluate. Consequently, little data was being collected to reduce the uncertainty. However, because of the potential importance for source term, data is being collected and calculations performed to better understand this problem. Related to this area, calculations performed using the DNET computer code indicated that there could potentially be problems with brine inflow thru the shafts.

5. A tremendous amount of hydrologic and transport data was being collected very near the repository site, while for the far field, only existing data was being used. Thus, the current hydrologic situation near the repository site was well known, but the necessary understanding to evaluate a climate-change scenario was lacking. Thus, some regional data collection will occur to reduce uncertainties on recharge areas and other boundary conditions.