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**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

December 13, 2005

David Gregory
Federal Project Director
Los Alamos Site Office
Department of Energy
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Los Alamos, NM 87544

David McInroy
Remediation Services Deputy Program Director
Los Alamos National Laboratory
P.O. Box 1663, Mail Stop M992
Los Alamos, NM 87545

**RE: APPROVAL WITH MODIFICATIONS
MORTANDAD CANYON BIOTA INVESTIGATION WORK PLAN
LOS ALAMOS NATIONAL LABORATORY, EPA ID #NM0890010515**

Dear Messrs. Gregory and McInroy:

The New Mexico Environment Department (NMED) is in receipt of the *Mortandad Canyon Biota Investigation Work Plan*, dated May 2005 and referenced by LA-UR-05-2231/ER2005-0191. NMED has reviewed this document and hereby issues this approval with modifications. The University of California and the Department of Energy (collectively, the "Permittees") must provide the requested information within 45 days of receipt of this letter.

The Permittees must document in the Investigation Report for Mortandad Canyon all activities conducted pursuant to this approval, including the modifications outlined in this letter. Noncompliance with the modifications outlined in the approval letter may result in automatic rescission of the work plan approval and potentially subject the Permittees to an enforcement action. Furthermore, the Permittees should not respond to comments in an approval with modifications unless NMED specifically requires a response, in which case the response should



be limited to only those required by NMED.

General Comments:

1. This study must incorporate all available water quality data for comparison to the applicable Water Quality Control Commission (WQCC) water quality standards for all reaches evaluated. The appropriate standards for these reaches that apply to aquatic biota and water quality studies are “wildlife habitat”, “livestock watering”, and “limited aquatic life” (NMAC 20.6.4.128 Rio Grande Basin). In addition, the human health criteria for persistent toxic pollutants (NMAC 20.6.11.G) also apply to the reaches under study. (*No Response Required (NR)*)
2. Throughout the entire document, the Permittees incorrectly site WQCC water quality standards. The Permittees should refer to the *State of New Mexico Standards for Interstate and Intrastate Surface Waters* (NMAC 20.6.4) for the proper designated uses and their associated standards. (*NR*)
3. Because Mortandad Canyon (San Ildefonso to Headwaters: (Assessment Unit ID: NM-9000A-042)) is currently included on the State of New Mexico’s Clean Water Act Section 303(d) list for not supporting the designated use(s) of livestock watering and wildlife habitat, all data collected in these reaches and all available data from the Water Quality and Hydrology Group database must be assessed against these applicable New Mexico water quality standards. (*NR*)
4. Much of the data used during the screening level ecological risk assessment, in some cases going back to 1995, are non-detects. The Permittees must provide all data – including non-detects - in an electronic format (MS Excel or Access) containing the following: sample location, sampling date, medium, fraction (total or dissolved, if applicable), constituent, analytical results, units, qualifier as assigned by the analytical laboratory, detection limit or MDA/MDC (for radionuclides), practical quantitation limit or MDL, total propagated uncertainty (TPU), and background level (if applicable). This table will help ensure that consistent data are being evaluated.
5. During the earthworm bioaccumulation study and the cavity nesting bird monitoring study, selenium should be included as one of the constituents evaluated. This is due to its potential impact to avian infant mortality and the fact that selenium in Mortandad Canyon contributes to its inclusion on the State of New Mexico’s Clean Water Act Section 303(d) list of Threatened or Impaired Waters. (*NR*)

Specific Comments:

1. Section 4.1 Overview and Description of Terrestrial Biota Studies, Soil Characterization, Sample design of soil characterization in small mammal trapping arrays, pg. 6:

Permittees' Statement: "The 0-6 in. interval was selected because it represents the surface exposure concentrations for these animals under the assumption that most exposure occurs during foraging and not in building or maintaining underground burrows."

NMED Comment: Due to their extensive burrowing habits, these animals have high levels of soil ingestion. Exposure to contamination through soil ingestion from building or maintaining underground burrows may actually be higher than that from foraging. The Permittees must cite the literature from where this assumption came, state the reasoning behind the assumption, and discuss its applicability to the project.

2. Section 5.0 Investigation Methods (Study Design), pg. 13:

NMED Comment: The Permittees must provide the ENV-DO-204 R.0, Spring and Water Sampling SOP. A search of the two web links did not provide this document. In addition, the Permittees must provide documentation or a reference/link for the benthic invertebrate SOP used for the sampling during the study.

3. Table 4.1-3 Target Detection for Terrestrial Measures, pg. 32:

NMED Comment: A gamma scan may be appropriate to assess americium concentrations in soil against the eSAL due to its lower detection limits. However, alpha spectroscopy is more appropriate to evaluate americium in vertebrate and invertebrate tissues. If adequate tissue mass is available, the Permittees must include analysis of americium by alpha spectroscopy. In addition, when polychlorinated biphenyls are analyzed, the Permittees must report the concentrations of all seven aroclors analyzed for during the study. *(NR)*

4. Table 4.2-2 Grab Sample Locations and Analytical Suites for Active Channel Sediment and Water Samples, pg. 34:

NMED Comment: See general comments #1, #2, and #3. The applicable standards for comparison are aquatic life (chronic where perennial & acute where ephemeral or intermittent) livestock watering, and wildlife habitat (NMAC 20.6.4). As this may affect the final analysis of the project data and its applicability to water quality standards, the Permittees must use these standards during final project data evaluations. *(NR)*

The Permittees must include reaches E-1E and TS-1E in the list of grab sample locations for active channel sediment and water samples. Data from these reaches may provide additional information on potential impacts to the aquatic and terrestrial biota being studied. *(NR)*

5. Section B-2.0 Problem Formulation For Ecological Screening, pg. B-3:

Permittees' Statement: "Surface water samples were also screened against acute Water Quality Control Commission (WQCC) surface water standards for aquatic life, acute standards for livestock, and WQCC chronic standards for wildlife exposure under New Mexico Administrative Code (NMAC) 20.6.4.

NMED Comment: See general comments #1, #2, and #3 and specific comment #4. (NR)

6. Section B-3.0 Ecological Screening Approach For Mortandad Canyon, second bullet, pg. B-3:

NMED Comment: See general comments #1, #2, and #3 and specific comment #4. (NR)

7. Section B-6.0 Data Evaluation for Screening of Surface Water, pg. B-6:

Permittees' Statement: "The maximum detected concentration of a chemical or radionuclide was compared to the water ESL and also to surface water standards from 20.6.2 NMAC and 20.6.4 NMAC (the wildlife water standard and the chronic livestock watering standard, (respectively)..."

NMED Comment: See general comments #1, #2, and #3 and specific comment #4. The Permittees must include gross alpha and selenium as contaminants of concern for all final evaluations. (NR)

8. Section B.7.1.1 Inorganic Chemicals, pg. B-7:

Permittees' Statement: "None of the maximum detected concentrations of inorganic chemicals exceed the three EPA or NMAC standards (acute aquatic life, livestock watering, and chronic wildlife) to which they were also compared."

NMED Comment: See general comments #1, #2, and #3 and specific comment #4. (NR)

9. Section B-7.3 Radionuclide Evaluation Based on ESLs Compared to DOE BCGs, pg. B-9:

NMED Comment: When radionuclide ESLs and biological concentration guidelines (BCGs) are used in evaluations, the Permittees must use the most conservative value of the two. (NR)

10. Table B-7.2-3a HQs for all Aquatic Receptors for all Americum-241 Detected Concentrations Greater than Minimum ESL in Unfiltered Water at E200 & Table B-7.2-

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3b HQs for all Aquatic Receptors for all Radium-226 Detected Concentrations Greater than the Minimum ESL, pg. B-47:

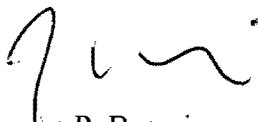
NMED Comment: Due to the magnitude of the algae HQs in these tables, the Permittees must perform toxicity testing on the algae at these stations using Section 14 Method 1003.0, page 196, "Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms". (NR)

11. Section D-2.2.1 Review of Hazard Quotients for Individual Receptors in Mortandad Canyon Watershed; Individual Aquatic Receptors, pg. D-6:

NMED Comment: The Permittees must perform toxicity testing on the algae at these stations using Section 14 Method 1003.0, page 196, "Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms". (NR)

Should you have any questions, please feel free to contact Darlene Goering at (505) 428-2542.

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

JPB:dxg

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file: Reading and LANL '05 TA-3 and TA-50