

TA 05

**Goering, Darlene, NMENV**

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**From:** Goering, Darlene, NMENV  
**Sent:** Tuesday, June 13, 2006 2:15 PM  
**To:** 'Danny Katzman'  
**Subject:** RE: Mortandad Canyon Investigation Report Outline

Danny,

John and I reviewed the outline you provided and have two comments. In section 5.0, you need to add WSALs as a regulatory driver. We also strongly suggest you separate the risk assessment into its own document to be submitted at a later date. This IR looks like its going to be unwieldy. I think its best to first present the data, perform additional work if required then perform a risk assessment based on an approved data set. Let's not forget LAPSAR. Let me know what you decide, given that the Order gives you the option to do either an appendix or a separate report.

Other than that, I approve the outline.

Thanks

Darlene

-----Original Message-----

**From:** Danny Katzman [mailto:katzman@lanl.gov]  
**Sent:** Friday, May 26, 2006 3:50 PM  
**To:** Goering, Darlene, NMENV  
**Cc:** dewart@lanl.gov  
**Subject:** Mortandad Canyon Investigation Report Outline

Hi Darlene- Attached is the proposed annotated outline for the Mortandad Canyon Investigation Report. The report is due to NMED on October 30, 2006. The goal of the annotation is to provide enough detail for you to be able to get a feel for the content of each section. Much of the report is envisioned to be very similar to the LA/Pueblo Investigation Report. However, per your previous comments, we've attempted to simplify the screening approach and screening presentation.

Don't hesitate to contact me with questions or comments. We' can also accommodate a brief presentation of the outline if that would be helpful.

- Danny

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## **Mortandad Canyon Investigation Report –Proposed Outline**

### **5-26-06**

The following outline is proposed for the Mortandad Canyon Investigation Report (MCIR). This report presents the results of investigations in the Mortandad Canyon watershed which includes Effluent and Ten Site Canyons and an unnamed tributary canyon that heads in TA-5. The report integrates information collected for several media including sediment, surface water, storm water, groundwater, and biota.

The report will present information collected under the Mortandad Canyon work plan and the Hydrogeologic Work Plan, as well as relevant information from other historical and current monitoring activities in the watershed, other ER investigations, and NMED and EPA.

All this information will be presented in the investigation report format as described in Section XI of the Consent Order. LANL proposes to include human-health and ecological risk assessments in Section 8 and as appendices to the investigation report. The ecological risk assessment will present the results of the approved Mortandad Canyon Biota Investigation Work Plan. The human-health risk assessment will address risk for the trail-user scenario, and will also include a residential land-use risk assessment. The Laboratory proposes that the human-health risk assessment only include sediment and surface water data since those media represent the exposure pathways for the present-day scenarios. Alluvial, perched-intermediate, and regional groundwater data will be compared to applicable standards in accordance with the Consent Order.

The proposed outline also organizes some of the information into appendices in attempt to maintain a flow to the main body of the report. Please review the annotated outline and provide your comments or approval. We look forward to dialogue related to the Mortandad Canyon project.

## **MORTANDAD CANYON INVESTIGATION REPORT**

### **EXECUTIVE SUMMARY**

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#### **1.0 INTRODUCTION**

##### 1.1 Purpose

- discuss nature and extent
- update the conceptual model
- evaluate trends in contaminant distribution and migration
- assess potential risk to human health and the environment
- identify areas and media that require further action (CME phase driven by exceedances in alluvial and intermediate gw + fate and transport uncertainty for vadose zone inventory)
- provide support to SWMU and AOC decisions
- provide information for monitoring

##### 1.2 Organization of Investigation Report

##### 1.3 Watershed Description

##### 1.4 Current Land Use

#### **2.0 BACKGROUND**

##### 2.1 Sources and History of Contaminant Releases

###### 2.1.1 TA-35

###### 2.1.2 TA-etc.

###### 2.1.3 Runoff from Developed Areas (non-point source)

##### 2.2 Contamination in Canyons Media

- 2.2.1 Environmental Surveillance Program
- 2.2.2 Environmental Sciences Group
- 2.2.4 Ecology Group
- 2.2.5 Environmental Restoration Project (incl relevant data from projects other than this investigation)
- 2.2.6 NMED and EPA

- 2.3 Remediation Activities
  - 2.3.1 Sediment Traps
  - 2.3.2 Pratt Canyon
  - 2.3.3 Ten Site Canyon
  - 2.3.4 Other

### **3.0 SCOPE OF ACTIVITIES**

This is a set of short subsections that provide an overview of the scope that was implemented in the context of Canyons work plans. The sections are intended to provide the information to demonstrate that we met the requirements of the work plans. Tables are useful here for summarizing the information. (limited to those activities conducted under Canyons work plans and Hydrogeologic work plan)

- 3.1 Sediment Investigations
- 3.2 Surface Water and Groundwater Investigations
  - 3.2.1 Monitoring Well Installations (incl discussion of downhole geophysics)
  - 3.2.2 Piezometer Installations
  - 3.2.3 Surface Water and Groundwater Sampling
  - 3.2.4 Water-Level Measurements (manual and automated)
  - 3.2.5 Infiltration Investigation
  - 3.2.6 Surface Geophysics
  - 3.2.7 Characterization Coreholes
  - 3.2.8 RES holes

- 3.3 Biological Investigations

### **4.0 FIELD INVESTIGATIONS**

This section focuses a little more than section 3 on what was done and why for each of the scope pieces.

- 4.1 Sediment
- 4.2 Surface Water and Groundwater (same subsections as above)
- 4.3 Biota

### **5.0 REGULATORY CRITERIA**

This section is a general overview of the regulatory drivers and regulatory guidelines (SALs, sw and gw standards, ESLs)

- 5.1 Regulatory Context
  - Consent Order discussion
- 5.2 Human Health Screening Levels
- 5.3 Surface Water and Groundwater Standards

### **6.0 CANYONS CONTAMINATION**

#### 6.1 Data Preparation

Discussion of the validation practices. Validation flags from both the analytical laboratory and LANL qualifiers will be presented.

##### 6.1.1 Binning of data as applicable

#### 6.2 Contaminants in Sediment

This section describes the screening process for sediment, surface water and groundwater and is supported by figures that describe the process.

##### 6.2.1 Identification of Sediment COPCs

##### 6.2.2 Comparison to SALs

#### 6.3 Contaminants in Surface Water and Groundwater

##### 6.3.1 Identification of Surface Water and Groundwater COPCs (based on detection)

##### 6.3.2 Comparison to Standards

#### 6.4 Summary

### 7.0 PHYSICAL SYSTEM CONCEPTUAL MODEL

#### 7.1 Contaminants in Sediments

This section addresses spatial distribution and concentration of key COPCs that drive risk and presents the conceptual model for expected future trends.

##### 7.1.1 Radionuclides in Sediments

##### 7.1.2 Inorganic Chemicals in Sediments

##### 7.1.3 Organic Chemicals in Sediments

#### 7.2 Hydrologic System Conceptual Model

This section describes the hydrologic system with emphasis on sources of water, temporal and spatial trends in water occurrences, the relation of the hydrology to contamination, and expected future trends

##### 7.2.1 Watershed Hydrology

##### 7.2.2 Radionuclide Contaminants

##### 7.2.3 Inorganic Chemicals

##### 7.2.4 Organic Chemicals

### 8.0 RISK ASSESSMENTS

#### 8.1 Baseline Ecological Risk Assessment

Ecological risk assessment screening was used to help refine the COPECs for the Mortandad Canyon Biota Investigation Work Plan (approved with modifications). Sediment and water sampling has occurred subsequent to writing this work plan and LANL proposes to review these new data to determine if any additional COPECs warrant consideration in the baseline ecological risk assessment.

##### 8.1.1 Problem Formulation

##### 8.1.2 Study Design, Field Verification, and Site Investigation

##### 8.1.3 Characterization of Exposure and Effects

##### 8.1.4 Risk Characterization

##### 8.1.5 Summary

#### 8.2 Site-Specific Human Health Risk Assessment

The human-health risk assessment will address risk under the trail-user scenario as the decision scenario, and will also include a residential land-use assessment for information purposes. The human-health risk assessment for the trail-user scenario will include sediment and surface water since those media represent the exposure pathways for the present-day scenarios. Alluvial, perched intermediate-depth, and regional groundwater data will be compared to applicable standards in accordance with the Consent Order.

- 8.2.1 Problem Formulation
- 8.2.2 Data Collection and Evaluation
- 8.2.3 Exposure Assessment
- 8.2.4 Toxicity Assessment
- 8.2.5 Risk Characterization
- 8.2.6 Uncertainty Analysis
- 8.2.7 Summary of the Human Health Risk Assessment

## **9.0 CONCLUSIONS AND RECOMMENDATIONS**

## **10.0 REFERENCES**

## **APPENDICES**

- Appendix A Acronyms and Metric Conversion Table
- Appendix B Field Investigation Methods and Results
- Appendix C Analytical Results
- Appendix D Contaminant Trends and Inventory
- Appendix E Statistics and Risk Information