

YOWA LANL 3/1082/16  
16-021(c)

**ENVIRONMENTAL  
RESTORATION  
PROJECT**

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Date: December 19, 2001  
Refer to: ER2001-1045

Mr. John Young, Corrective Action Project Leader  
Permits Management Program  
NMED – Hazardous Waste Bureau  
2905 Rodeo Park Drive East  
Building 1  
Santa Fe, NM 87505-6303



**SUBJECT: NOVEMBER 2001 CORRECTIVE MEASURES STUDY (CMS)  
PROGRESS REPORT FOR POTENTIAL RELEASE SITE (PRS)  
16-021(c)**

Dear Mr. Young:

Enclosed are two copies of the November 2001 CMS Progress Report for PRS 16-021(c), the 260 Outfall. This report is being submitted as part of the reporting conditions outlined in Section R, *Scope of work for Resource Conservation and Recovery Act CMS at the Laboratory, Task IV, Reports, Part A, Progress Module VIII* of the Laboratory's Hazardous Waste Facility Permit.

If you have any questions, please call Dave McInroy at (505) 667-0819 or Lance Woodworth at (505) 665-5820.

Sincerely,

Julie A. Canepa, Program Manager  
Environmental Restoration Project  
Los Alamos National Laboratory

Sincerely,

Mat Johansen, Project Manager  
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JC/MJ/nr



Enclosure: November 2001 CMS Progress Report (ER2001-1044)

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**Monthly Progress Report**  
**Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)**  
**November 2001**

This report summarizes Los Alamos National Laboratory (LANL) activities completed during November of fiscal year (FY) 2002 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918]), which was submitted to the New Mexico Environment Department-Hazardous Waste Bureau [NMED-HWB] on 9/30/98, and approved by NMED-HWB on 9/8/99), and other related activities are described herein.

**Description of Activities and Contacts**

**High Performing Team (HPT) Activities** – The 260 HPT did not formally meet during November 2002. Informal contacts between team members, such as at the Technology Information Exchange (TIE) meeting occurred.

The next HPT meeting is scheduled for Monday December 10, 2001. Agenda items may include ecorisk results, a data update and a discussion of the RFI and CMS Reports.

**RCRA Facility Investigation (RFI) Report and CMS Plan**– No new activities occurred during this reporting period.

**Best Management Practices (BMPs)**– BMPs are inspected quarterly and following significant precipitation events. Due to low levels of precipitation in November, no BMP repairs were required.

**CMS Hydrogeologic Investigations**–CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling program includes collecting samples at Martin and Burning Ground spring every other day for stable isotopes.

Geophysical studies in Canon de Valle were completed. High-resolution resistivity studies were performed on two longitudinal sections along Canon de Valle. These studies suggest that water is present in the subsurface in the canyon east of MDA-P, but that much less water is present west of MDA-P. Leakage from the canyon may be associated with tectonic deformation noted within and east of MDA-P. Moisture samples to support the geophysical investigations were collected and analyzed.

The wells, both alluvial and deep, were checked for both presence and level of water. Four out of five alluvial wells in Canon de Valle contained water, the uppermost well was dry. No water was present in all three alluvial wells in Martin Spring Canyon. All of the intermediate depth boreholes were dry.

Two samples from precipitation events were collected and archived for analysis during this reporting period.

For well CdV-R-37-2, the site restoration activities were continued. The site was leveled, cuttings pits were regraded, the concrete pad was completed and mulching and reseeded were initiated.

### ***Ecological Risk Pilot–***

Hantavirus screening results were acquired and small mammals collected during September and October were submitted for analysis. Data analysis of results for small mammal samples collected in the spring suggest minimal impacts on mammals relative to a reference canyon.

***CMS Bench and Pilot Studies–***Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) Program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Studies include:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). The LANL portion of this study has been completed.
3. At Pantex, a study of in situ anaerobic bioremediation of HE using gas-phase carbon additions.
4. A study of ex situ anaerobic bioremediation of HE-contaminated soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment. The LANL portion of this study has been completed.
5. A study of HE composting. Amendments appropriate to northern New Mexico were tested on both clean and contaminated soils. The LANL portion of this study has been completed.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and further investigations are planned for FY 02.
7. Phytoremediation studies in Cañon de Valle. Native plants are being evaluated for their ability to remove HE from surface waters. Preliminary results suggest that low levels of phytoremediation are occurring in the Burning Ground spring area.
8. Oxidation, reduction, and in-situ bioremediation studies of groundwater contamination at Pantex.

Results from the oxidation, reduction and in-situ bioremediation studies at Pantex were received and discussed with ITRD representatives at the TIE meeting. All three technologies appear to be successfully removing HE from water with high efficiency.

### ***Interim Measure (IM) –***

The IM Report is being written by the subcontractor. LANL anticipates that an internal rough draft will be completed in December.

**Public and Stakeholder Involvement**— A presentation on impacts of the Cerro Grand fire on the 260 CMS was made to the TIE meeting. The presentation was well received by an audience of approximately 50 DOE, NMED, and contractor personnel. A presentation on HE transport in Canon de Valle was made at the Geological Society of America meeting. The presentation was attended by approximately 50 individuals, most of whom were Department of Defense (DOD) or DOD subcontractor personnel.

### **Percentage of CMS Completed**

LANL estimates 83 % of the CMS has been completed to date. Note that this percentage does not reflect the deep and potential intermediate wells that will be drilled per the CMS plan addendum.

### **Problems Encountered/Actions to Rectify Problems**

*General Problem (1)* The Cerro Grande fire has severely impacted the 260 RFI/CMS activities. These problems have been discussed in detail in previous monthly reports.

*Action to Rectify General Problem (1):* LANL will work closely with NMED through the HPT to mitigate the effects of the Cerro Grande fire. Effects of the fire on the monitoring data in Canon de Valle continue to be addressed.

### **CMS Hydrogeologic Investigations**

*Problem (1):* Questions relating to the quality of data from well R-25 remains a concern to the TA-16-260 team.

*Action to Rectify Problem (1):* LANL will evaluate the data from the quarterly sampling of the R-25 well to evaluate its reliability.

### **CMS Bench and Pilot Studies**

*Problem (1):* The fact that the Stormwater Management unit does not appear to be removing barium is of concern,

*Action to Rectify Problem (1):* LANL will work with ITRD to determine if there are problems with the barium-specific resin and will potentially evaluate other barrier materials.

### **IM**

None.

## **Key Personnel Issues**

None

## **Projected Work for December 2001**

### ***RFI Report and CMS Plan***

- No work is scheduled for this month.

### ***BMPs***

- Inspection of existing BMPs following significant precipitation events will continue.

### ***CMS Hydrogeologic Investigations***

- Maintenance of autosamplers
- Checking for levels and presence of water in alluvial and deep wells.
- Sampling of flow-integrated autosamplers
- Continued precipitation monitoring and sampling for stable isotopes.
- Data analysis for geophysical investigations in Canon de Valle
- Data analysis
- Finalize site restoration at CdV-R-37-2
- Selection of samples from CdV-R-37-2 for further characterization
- Initiation of CdV-R-37-2 fact sheet
- Review of data quality objectives for groundwater modeling

### ***Ecological Risk Pilot***

- Evaluation of data from ecotoxicity samples

### ***CMS Bench and Pilot Studies***

- Evaluation of data from Stormwater units

- Attendance of ITRD meeting at Pantex

### ***IM***

- Data analysis and writing of IM Report

### ***Public and Stakeholder Involvement***

Presentations on the 260 CMS ecorisk will be made at the Society for Risk Assessors meeting.