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Date: October 18, 2002  
Refer to: ER2002-0734

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

OCT 2002

**SUBJECT: SEPTEMBER 2002 CORRECTIVE MEASURES STUDY (CMS) PROGRESS REPORT FOR POTENTIAL RELEASE SITE (PRS) 16-021(c)**

Dear Mr. Young:

Enclosed are two copies of the September 2002 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,

David McInroy, Acting Program Manager  
Environmental Restoration Project  
Los Alamos National Laboratory

Sincerely,

Everett Trollinger, Project Manager  
Department of Energy  
Office of Los Alamos Site Operations

DM/ET/NR/rq

Enclosure: September 2002 CMS Progress Report (ER2002-0733)



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Mr. John Young  
ER2002-0734

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October 18, 2002

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**Monthly Progress Report**  
**Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)**  
**September 2002**

This report summarizes Los Alamos National Laboratory (LANL) activities completed during September 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]), 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 meet during September 2002.

The next HPT meeting is scheduled for October 21, 2002. Agenda items may include the RFI Report outline, CMS bench and pilot results, a data update, and points of compliance.

**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. No BMP repairs were required in September.

**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. SWSC spring remains dry.

The alluvial and deep wells were checked for presence and level of water. All five alluvial wells in Canon de Valle contained water. The Steam Plant drainage well contained water for the first time in several months. No water was present in the three alluvial wells in Martin Spring Canyon. All of the intermediate depth boreholes were dry.

The fall quarterly sampling, including flow-integrated sampling, was completed. Samples were collected at all of the prescribed localities that contained water. The system remains relatively dry, although, as noted above, the Steam Plant drainage alluvial well contained water for the first time in several months. The headwaters of Canon de Valle were dry, however. A new water seep area was found in the headwaters of Canon de Valle on Forest Service land. It is unknown whether this is a transient event. No sample was collected. The field team will continue to monitor it in future months. The system became more moisture rich at the end of the month due to September precipitation; however, this is not yet manifest in the surface water flow.

One sample each from two precipitation events were collected and archived for analysis during this reporting period.

A geophysical study was completed to aid in siting intermediate depth boreholes at TA-16. Zonge Engineering Inc. (the geophysical contractor) used the controlled source auto magneto-telluric technique (CSAMT) to attempt to image the deep-perched zone at TA-16. Preliminary results appear promising.

Work continued on the Well Completion Report for CdV-R-37-2. The final LA-UR draft was completed, including incorporation of all peer review comments. This will now be converted into a Los Alamos Manuscript Series (LAMS) report.

Quarterly sampling was completed at the CdV-R-15-3 and CdV-R-37-2 wells. The second screen in well CdV-R-37-2 had a high turbidity. The vadose zones screens for each of these wells were dry.

Groundwater modeling to investigate conceptual models for the deep-perched zone at TA-16 was continued.

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

Work continued on consolidating the aquatic and terrestrial system study and implementation plans. Data analysis to support the combined MDA-P and TA-16-260 ecorisk evaluations continued. Data from the ecological toxicity sampling was received and are currently being evaluated.

***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. The internal report was completed on these studies. It is anticipated that this will be discussed in the HPT and will be an appendix of the CMS Report.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and further investigations are ongoing.

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.

ITRD reported on the status of the oxidation, reduction and in-situ bioremediation studies. All of the studies provided promising results. The next phase of this study will include engineering and cost evaluations of the technologies.

***Interim Measure (IM) –***

No activities. The IM Report is in review by the regulators.

***RFI and CMS Report –***

Work was begun on the background sections of these reports.

***Public and Stakeholder Involvement–*** No activities.

**Percentage of CMS Completed**

LANL estimates 91 % 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 October 2002**

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

- DQOs for intermediate depth boreholes will be further developed.
- Writing of a CMS Addendum for intermediate depth boreholes.

#### ***BMPs***

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

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

- Maintenance of autosamplers
- Stream profiling to determine monsoonal runoff response in Canon de Valle.
- Checking for levels and presence of water in alluvial and deep wells.
- Continued precipitation monitoring and sampling for stable isotopes.
- Data analysis
- Writing of RFI and CMS reports
- Groundwater and natural attenuation modeling

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

- Submittal of rodent samples to the laboratories. Continued evaluation of data from macroinvertebrate studies.

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

- Evaluation of data from Stormwater units. Evaluation of Stormwater media based on literature and contacts with TA-50 personnel.
- Stabilization studies

### ***IM***

- Task complete.

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

- None anticipated.