

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



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Date: September 20, 2001
Refer to: ER2001-0771

Mr. John Young, Corrective Action Project Leader
Permits Management Program
NMED – Hazardous Waste Bureau
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SUBJECT: AUGUST 2001 CORRECTIVE MEASURES STUDY (CMS) PROGRESS REPORT FOR POTENTIAL RELEASE SITE (PRS) 16-021(c)

Dear Mr. Young:

Enclosed are three copies of the August 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
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Sincerely,

Mat Johansen, Project Manager
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Enclosure: August 2001 CMS Progress Report (ER2001-0769)

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

This report summarizes Los Alamos National Laboratory (LANL) activities completed during August of fiscal year (FY) 2001 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 combined 260 HPT and ecorisk team meeting was held on August 6, 2001. The discussion included: 1) an update on ongoing TA-16-260 CMS activities; 2) a discussion of the aquatic ecorisk study design and implementation; 3) a review of water data for the TA-16-260 investigations; and 4) a brief discussion of data quality objectives for groundwater in the TA-16 region.

LANL representatives noted that the CDV-R-37-2 well has been drilled to total depth at ~ 1660 ft. LANL described the geology and occurrence of groundwater in the borehole. LANL requested participation in well design by HWB representatives later in the week. HWB indicated that they could provide this support. The status of the Interim Measure, the Stormwater Management installation, and the quarterly sampling were updated (see detailed discussion in the July CMS Progress Report and below).

The ecorisk HPT updated all on the aquatic ecosystem study. It was noted that sediments would be 'split' with Environmental Protection Agency (EPA) toxicologists for a method-development study for a new toxicological test. It was agreed that LANL would supply research materials for EPA, but that the decisions for Canon de Valle would be based on the *Chironomous tentans* (midge) results, because this is an appropriate receptor for the alluvial system. In response to HWB's concerns LANL noted that the uncertainty analysis for the ecological risk assessment would discuss bat and swallow receptors. HWB noted that the magnitude of exceedance of the hazard quoria for these receptors might influence this uncertainty analysis. LANL proposed that barium screening by XRF would be used to select the locales for the toxicological tests. HWB agreed with this approach, and requested to be included in the field reconnaissance to select these sites. The sampling locations for the previous aquatic invertebrate surveys will also be staked on this tour. This tour occurred on August 31, 2001 (see below). The sampling for the toxicological studies will occur in mid September. LANL raised the question of QA/QC and curation protocols for macroinvertebrates. This issue was not resolved; it will be addressed in future discussions. The data analysis methodologies for the macroinvertebrate studies were also briefly discussed. This issue will also be further discussed by LANL and HWB representatives. Bioavailability studies were discussed. It was agreed that these would be a useful complement to the bioassays. LANL will explore

analytical laboratory options for these tests and will collect a split sample for EPA for that purpose. LANL noted that the macroinvertebrate study results would be required during the spring of 2002, in order to support the ecorisk evaluations.

LANL reviewed data for HE in TA-16 springs. It was noted that RDX and HMX abundances in SWSC and Burning Ground spring were similar, but lower than Martin spring, whereas for Ba and HMX/RDX Burning Ground and Martin are similar and lower than SWSC. This is probably due to different source regions for the springs. Flow, temperature, pH, and conductance data for three stream profiles were reviewed. There is dramatic evidence for influx of alluvial water into the surface system just downgradient from the well pair in Canon de Valle, particularly in the temperature record. These data will be useful in selecting points of compliance within the alluvial system.

DQOs for upcoming wells at TA-16 were discussed. HWB expressed interest in intermediate-depth wells rather than an additional deep-groundwater well. This issue will be addressed again in future HPT meetings.

The next HWB meeting was scheduled for September 10, 2001. Agenda items may include DQOs for deep groundwater, the CMS and RFI Report outlines, a data update and an update of the 260 schedule.

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 recent rains at TA-16-260, BMP repairs were required including replacement of plastic sheeting over the troughs. These will all be completed before the end of 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. Samples from the quarterly sampling were field screened. Recalibration of flow integrated samplers was completed.

The wells, both alluvial and deep, were checked for both presence and level of water. All five alluvial wells in Canon de Valle contained water. Overall water levels in the hydrologic system are low. No water was present in two alluvial wells in Martin Spring Canyon, in 90s Line Pond, or at the Fishladder waterfall area. All of the intermediate depth boreholes were dry.

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

Drilling and well completion activities were completed at the CDV R-37-2 CMS well site. Drilling was completed to a total depth of 1664 ft. on August 4, 2001. The video logging, LANL gamma logging and Schlumberger geophysical logging were later that week. The static water level was at ~ 1190 ft. Based on the downhole logs and observations during drilling four Westbay screens were sited at depths of ~ 915-940 ft, 1190-1215 ft, 1355-1375 ft and 1550-1555 ft. These locations represent: 1) a zone of visible water and a geophysical anomaly potentially indicative of formation water; 2) the top of the regional water table; 3) a zone within the regional water table where extensive water productivity was first observed; and 4) a zone near the bottom of the borehole where geophysical indications suggested high productivity. DOE-OB personnel were involved in the well screen decisions. The well screens and well steel were installed and well development was initiated. Tshicoma dacite was observed from ~ 1200 ft to ~ 1600 ft; this observation is not consistent with the 3-D hydrologic model. No indications of HE have been noted in screening samples collected and analyzed to date.

Ecological Risk Pilot-

LANL and NMED personnel revised the draft study design for the aquatic ecosystem. The design was discussed in the August HPT meeting (see notes above). A tour of potential sampling localities for the aquatic toxicological study was completed on August 31, 2001.

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. The installation of the pilot-scale Stormwater Management units in Martin spring has been completed.
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 next fiscal year.
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.

Interim Measure (IM) –

Activities at the TA-16-260 IM were continued. 1310 cubic yards of soild-waste soil was shipped offsite to the Rio Rancho landfill. This included both the material excavated last year and the 'hot spots' that were removed in July. Site restoration was initiated including decommissioning of the zero discharge dam.

Public and Stakeholder Involvement– None

Percentage of CMS Completed

LANL estimates 80 % of the CMS has been completed to date. Note that this percentage does not reflect the deep 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 are being 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

None.

IM

None.

Key Personnel Issues

None

Projected Work for September 2001

RFI Report and CMS Plan

- No work is scheduled for this month.

BMPs

- Inspection of existing BMPs following significant precipitation events will continue.
- Replacement of plastic over TA-16-260 troughs

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.
- Geophysical investigations and potholing in Canon de Valle.
- Quarterly sampling
- Data analysis
- Continued well development for CMS well CDV-R-37-2.
- Hydrologic testing for CMS well CDV-R-37-2.
- Westbay installation for CMS well CDV-R-37-2.

Ecological Risk Pilot

- Collection of toxicological samples for the aquatic ecosystem study in Canon de Valle.

CMS Bench and Pilot Studies

- Evaluation of data from Stormwater units

IM

- Shipping of D003 waste to Lake Charles Louisiana
- Finalization of site-restoration activities
- Data analysis and writing of IM Report

Public and Stakeholder Involvement

None planned