

Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
August 2000

This report summarizes Los Alamos National Laboratory (LANL) activities completed during August of fiscal year (FY) 2000 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 met on August 14, 2000. The HPT reviewed on-going activities and identified those activities that are going to be completed during the remainder of the fiscal year.

LANL personnel reviewed the latest information concerning the displaced screen locations in well CdV-R-15-3. The gamma log for the completed well was discussed in detail. It appears that well screens #1, #4 and #6 are not impacted. Screens #2, #3, and #5 all should produce water because each contains sand pack adjacent to the screen. However, there may be problems with bentonite modification of water chemistry on these three screens. LANL suggested that Screen #3 could be packed off to eliminate this problem. It was noted that the well development had yielded water characterized by low turbidity (< 2 N.T.U.)

The progress of the Interim Measure (IM) was updated. LANL noted that pure HE had been located under the trough between the TA-16-260 building and the outfall. It was agreed that LANL could proceed with exploratory excavation (~ 20 ft of trough length) without modification to the IM Plan. However, soil from this area will not be blended without explicit notification to the NMED-HWB. The robotic excavator had been unable to excavate to the depth of the surge bed in the pond area due to densely welded tuff. In addition, the volume of soil requiring excavation in the lower drainage was significantly more than had been anticipated in the IM Plan, and mechanical excavation, rather than hand excavation, will be implemented in that area.

LANL personnel updated the HPT on the status of the composting pilot. Temperatures are not increasing at the desired rate. This may be due either to diurnal temperature variations, which damp out bacterial activity, or to poisoning of bacteria by the high levels of HE and barium in the test soils. Both of these alternatives are being aggressively investigated.

The HPT members updated the HPT matrix.

The next meeting is scheduled for Tuesday September 5, 2000. Agenda items will include discussions of bench and pilot studies.

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

Best Management Practices (BMPs)– BMPs were inspected daily during on-going fieldwork. No repairs were required this month.

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 included Burning Ground Spring, Sanitary Waste Consolidation System (SWSC) and Martin springs every other day for bromide, other anions, and stable isotopes. Maintenance of the autosamplers continued during this period. A set of weekly flow-integrated spring samples was submitted for laboratory analysis. August samples are being analyzed. No new bromide breakthrough has been observed in samples to date. The flow in SWSC spring and in Canon de Valle remains at a very low level.

The wells, both alluvial and deep, were checked weekly for both presence and level of water. Four of the five alluvial wells contained water; the exception is still alluvial well 2655, which is located in the steam plant drainage. None of the intermediate-depth boreholes contained water. Water levels in all the Canon de Valle alluvial wells remained low, but fluctuated during the course of the month; total dissolved solids (TDS) remained high. The high TDS may be due to the effects of the Cerro Grande fire.

In August, 6 samples from precipitation events were collected.

An additional round of eight samples of springs and alluvial wells was completed. These samples were collected at the request of the Emergency Rehabilitation Team (ERT) surface water team.

Hydrologic tests were completed at CdV-R-15-3. Tests were completed in the three regional aquifer screens (screens 4, 5 and 6). Screen 5 produced abundant water, suggesting that it is not plugged by bentonite. There was insufficient water in any of the vadose zone screens for hydrologic testing. A draft of the interim well completion report was completed.

Ecological Risk Pilot–

No work on the ecological risk pilot occurred during August due to the damage in Canon de Valle cause by the Cerro Grande fire.

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. Six studies are now ongoing under the auspices of ITRD, all of which may benefit the PRS 16-021(c) CMS:

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). This study has been completed.
3. 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.
5. A study of HE composting. Amendments appropriate to northern New Mexico are being tested on both clean and contaminated soils.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle.

The HE-composting pilot study using clean and TA-16-260 soils was initiated. Temperatures of the compost mix failed to rise to greater than 120°F. Diurnal temperature variations, which are severe in Northern New Mexico, may be inhibiting biological activity.

A pilot study of the W.R. Grace process on these same soils was also begun. The W.R. Grace process decreased HE concentrations from greater than 3% HE to less than 1% HE.

Interim Measure (IM) –

The robotic excavator was used to excavate a trench adjacent to the TA-16-260 outfall trough, the site of a small lens of pure HE. HE spot tests in this exploratory trench suggest that there is little HE contamination beneath the trough.

Excavation of the lower drainage continued throughout the month. Following discussions with HWB personnel, LANL decided to use a mechanical excavator to complete soil removals in the lower drainage, rather than hand and soil vacuum excavation as originally proposed in the IM Plan. Using a mechanical excavator, lower drainage excavation proceeded rapidly. Excavation depths of greater than 6 ft were achieved.

Public and Stakeholder Involvement— No activities during this reporting period.

Percentage of CMS Completed

LANL estimates 60% 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 auspices of the HPT to cope with the effects of the Cerro Grande fire.

CMS Hydrogeologic Investigations

Problem (1): The lack of a completed well at R-25 remains a concern to the TA-16-260 team.

Action to Rectify Problem (1): The screens have been installed and the well has been purged. The well is now being readied for Westbay installation.

Problem (2): The autosamplers in the three springs have operated poorly since the Cerro Grande fire.

Action to Rectify Problem (2): The IT field team maintains the autosamplers as needed.

CMS Bench and Pilot Studies

Problem (1): The HE-bearing composting test is not generating thermophilic conditions as anticipated.

Action(s) to Rectify Problem (1): Modifications to the composting pilot will be undertaken. DOD experts on composting will be consulted.

IM

Problem (1): The lack of success of the HE-bearing composting test may complicate waste disposal for the IM.

Action(s) to Rectify Problem (1): LANL will continue to refine the composting tests. Additional waste disposal options will be investigated.

Key Personnel Issues

None.

Projected Work for September 2000

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
- Continued bromide sampling of springs
- Weekly 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
- Westbay installation at CdV-R-15-3
- Quarterly sampling
- Stream profile
- Geomorphologic mapping in Martin spring canyon

Ecological Risk Pilot

- The ecorisk team will develop a study plan for biota sampling in Canon de Valle.

CMS Bench and Pilot Studies

- Management of composting tests on HE-bearing materials.
- Evaluation and initiation of study designs for stabilization and phytoremediation.

IM

- Complete stockpiling of HE soils from lower drainage. Begin verification sampling.

Public and Stakeholder Involvement

No activities planned.