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

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Date: August 19, 1999
Refer to: E/ER:99-218

Mr. John Kieling
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: JULY 1999 CMS PROGRESS REPORT FOR 16-021(c)

Dear Mr. Kieling:

Enclosed is the July 1999 Corrective Measures Study (CMS) Progress Report for Potential Release Site 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 a Resource Conservation and Recovery Act CMS at the Laboratory, Task IX, Reports, Part A, Progress* of Module VIII of the Laboratory's Hazardous Waste Facility Permit.

If you have any questions, please call Dave McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,

Julie A. Canepa, Program Manager
LANL/ER

Sincerely,

Theodore J. Taylor, Program Manager
DOE/LAAO

JC/TT/NR/ev

Enclosure: July 1999 CMS Progress Report for PRS 16-021(c)

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Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
July 1999

This report summarizes Los Alamos National Laboratory (LANL) activities that were completed during July of FY 1999 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities explicitly described in the CMS plan ([LA-UR-98-3918)] submitted to the New Mexico Environment Department [NMED] on 9/30/98) and other related activities are described here.

Description of Activities and Contacts

RCRA Facility Investigation (RFI) Report and CMS Plan– Replacement pages for the April 1999 RSI response were formally submitted to NMED on July 2, 1999.

Best Management Practices (BMPs)–BMPs were inspected twice during July following significant rainfall events. Repairs were made to the diversion pipe. All of these BMPs are designed to further minimize run-on and runoff from the contaminated outfall area.

CMS Hydrogeologic Investigations–CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as initiation, at risk, of investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling included sampling Sanitary Waste System Consolidation (SWSC), Burning Ground, and Martin Springs every other day for bromide, other anions, and stable isotopes. The results of July sampling are pending. No additional bromide breakthrough has been observed during the past few months. Wells, both alluvial and deep, were checked weekly for water level and presence of water. All five alluvial wells contained water. The Martin Spring borehole contained water for less than one week. A laboratory sample was collected from this water. None of the other deep boreholes contained water during July.

Stable isotope investigations, as outlined in Section 6.3.2 of the CMS plan, were continued. Precipitation events were sampled for stable isotope analysis.

Transducers and automated data loggers were installed at the alluvial wells in Canon de Valle and the TA-16 springs. Pressure measurements from these loggers appear to be correct. Electrical conductivity measurements appear to be subject to drift. Troubleshooting of these data loggers was begun.

A stream profile of Canon de Valle was completed. Laboratory samples were collected at six locations from the stream profile to represent base flow conditions. A stream profile was also completed in Martin Spring Canyon. Laboratory samples were collected at two locations.

A high-resolution resistivity (HRR) geophysics survey was completed in Canon de Valle. Preliminary data from this survey suggest that low resistivity zones are present in both the stream channel and a location on the south side of the canyon. This zone may represent a high-permeability zone with high water content within the Bandelier Tuff.

Geomorphologic mapping in Canon de Valle and Martin Springs Canyon, as outlined in Section 6.3.5 of the CMS plan, was continued by the principal investigator, Steve Reneau of the Canyons Focus Area. Trenching and screening sampling of reaches in Canon de Valle were completed, except for the area directly adjacent to MDA P, which is inaccessible during MDA P cleanup activities.

LANL personnel met with NMED representatives on July 6, 1999. The agenda was to discuss the path forward on deep groundwater investigations. The following three key issues were discussed: 1) how to proceed with the 260 CMS in light of the discovery of HE in the regional aquifer, and given the need to characterize the risk from this pathway in a site-specific risk assessment; 2) the draft DQO memorandum for deep groundwater provided to HRMB informally; and 3) how to document the path forward on deep groundwater.

LANL and HRMB did not reach final agreement on how best to proceed with the CMS. HRMB indicated that finalizing a CMS report and a Statement of Basis without understanding the deep groundwater might not be productive. However, a preliminary risk assessment covering the surface and alluvial systems might be appropriate. Further discussion is to occur during August 1999. While HRMB did not indicate significant problems with the draft DQO memorandum, they indicated that they wanted LANL to drill a deep borehole at TA-15 prior to the FY 2000 spotted owl mating season. LANL representatives agreed to try to expedite this. LANL agreed to provide the deep groundwater DQO memo information to HRMB as an addendum to Chapter 6 of the CMS plan. This will be done prior to September 30, 1999.

Ecological Risk Pilot–The ecological team recalculated the ecological screening assessment, adjusting for the methodology agreed upon with NMED.

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 Department of Energy sites: LANL and Pantex. Four studies are 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. This study is being completed using water from Canon de Valle.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). This is being completed by the University of Nebraska/H&H Ecosystems using PRS 16-021(c) soil. This soil was taken from a moderately contaminated location within PRS 16-021(c) and does not constitute a RCRA-regulated hazardous waste (based on laboratory analysis).

3. A study of anaerobic *in-situ* bioremediation of HE using gas-phase carbon additions. This study is being completed by Idaho National Engineering and Environment Laboratory (INEEL), together with Texas Tech University, using Pantex soil and a Pantex field site.
4. A study of *ex-situ* anaerobic bioremediation of Pantex soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment.

Regarding the first study, following promising results from the Stormwater Management laboratory studies, a draft conceptual design for a pilot surface water treatment unit at Canon de Valle was provided to NMED informally. Implementation of this technology will be discussed with NMED at a meeting on August 11, 1999.

Regarding the second study, The University of Nebraska/H&H Ecosystems study of ZVI remediation in building TA-16-224 was initiated in July 1999.

Regarding the third study, gas-phase additions have been deployed at Pantex; however, levels of oxygen within the subsurface have remained higher than anticipated. This is probably due to the high clay content of the soil, which impedes infiltration of nitrogen into pore space.

Regarding the fourth study, no new results were received from the Pantex W.R. Grace process studies. LANL is anticipating the receipt of the Department of Defense report on the Joliet Army Ammunition depot bioremediation pilot, which included the W.R. Grace technology, soon.

Interim Measure– The contract for the Interim Measure (IM) was awarded to IT Corporation. Planning for the IM involving IT was initiated.

Public and Stakeholder Involvement–No stakeholder meetings or tours were held in July. LANL representatives discussed aspects of the TA-16-260 corrective measures process with a representative of the Los Alamos Study Group during a lengthy phone conversation.

Percentage of CMS Completed

LANL estimates that 25% of the CMS has been completed to date.

Problems Encountered/Actions to Rectify Problems

CMS Geohydrologic Investigations

Problem (1) ER Project Personnel are still having difficulty installing flow-integrated samplers. Programming the new ISCOs for flow-integrated sampling remains difficult. ESH-18 representatives have not been able to provide assistance.

Problem (2) The lack of a completed well at R-25 remains a significant concern to the TA-16-260 team.

Problem (3) HEPS personnel have been having trouble accessing data in the FIMAD staging tables due to a change in policy at FIMAD.
Action to Rectify Problem (1): Rather than relying on ESH-18 representatives, IT personnel will purchase and install flow meters and data loggers that can be programmed to collect the flow integrated samples

Action to Rectify Problem (2): The Canyons Team will pour concrete in well R-25 and redrill in during August 1999.

Action to Rectify Problem (3): HEPS personnel are working with FIMAD to develop a policy that allows access to the staging tables.

CMS Bench and Pilot Studies

Problem (1) An acetic acid spill occurred during setup for the ZVI test.

Action to Rectify Problem (1): The spill was cleaned up, and appropriate spill reporting was instituted.

Key Personnel Issues

IT Corporation was selected as the remediation contractor for the Interim Measure. There were no other changes to the key personnel for the CMS project during this reporting period. Key personnel are listed in Appendix D of the CMS plan (LA-UR-98-3918)). Although this did not occur during the July 1999 reporting period, Roy Michelotti, identified in Appendix D of the CMS plan as the Remedial Actions Focus Area leader, was replaced by Warren Neff in October 1998.

Projected Work for August 1999

RCRA Facility Investigation (RFI) Report and CMS Plan

- LANL will begin work on an addendum to Chapter 6 of the CMS plan. This addendum will outline deep drilling requirements for determining the nature and extent of contamination in the regional aquifer at TA-16.

Best Management Practices (BMPs)

- Inspection of existing BMPs following significant rain events will continue. Due to large amounts of precipitation, LANL will inspect these BMPs weekly.

CMS Hydrogeologic Investigations

- Continued bromide sampling of springs

- Weekly checking for water levels and presence of water in alluvial and deep wells
- Deployment of flow-integrated ISCO samplers
- Completion of a stream profile and high-flow condition sampling in Canon de Valle
- Continued precipitation monitoring and sampling for stable isotopes
- Troubleshooting of the transducers that are deployed in the alluvial wells and springs
- Data processing for the July 1999 geophysics study in Canon de Valle
- Continuation of Canyons-type "reach investigations" in Canon de Valle and Martin Spring Canyon, including laboratory sampling of trenches and floodplain deposits

Ecological Risk Pilot

- Specific problem formulation for the aquatic and terrestrial endpoints in Canon de Valle (done by ecological risk team)

CMS Bench and Pilot Studies

- Sampling of the ZVI treatment test for performance at ten-day intervals
- Presentation of conceptual design for surface water treatment system to NMED representatives on August 11, 1999

Interim Measure (IM)

- Decision peer review of IM implementation strategy
- Presentation of IM implementation strategy to NMED on August 11, 1999
- Completion of rough draft of the IM plan
- Presentation on IM to operating group

Public and Stakeholder Involvement

- No public meetings or tours are anticipated for August 1999