Monthly Progress Report
Corrective Measures Study (CMS)/Corrective Measures Implementation (CMI) for
Consolidated Unit 16-021(c)-99
August 2010

This report summarizes Los Alamos National Laboratory (LANL) activities completed during August of fiscal year 2010 on the CMS/CMI for Consolidated Unit 16-021(c)-99, the Technical Area 16 (TA-16) 260 Outfall. Activities outlined in the CMS plan ([LA-UR-98-3918] approved by the New Mexico Environment Department [NMED] Hazardous Waste Bureau on 9/8/99) and other related activities are described herein.

Description of Activities and Contacts – LANL and Department of Energy (DOE) personnel met with NMED personnel on August 27, 2010 to discuss the pilot permeable reactive barrier (PRB), recently installed in Cañon de Valle. The initial sampling data for the PRB, received in late July 2010, coupled with a field examination of the PRB, which occurred on August 3, 2010, indicate flow in the PRB is bypassing the media through a breach in the gasket. Thus, the PRB is not effectively removing high explosives (HE) and barium at this time. LANL and DOE representatives suggested several actions to improve the PRB performance: (1) reversing the zero-valent iron (ZVI) and zeolite media; (2) reseating the gaskets and roof of the vessel; and (3) initiating weekly analysis of field and other screening parameters following (1) and (2). NMED concurred with these suggestions in an e-mail dated August 31, 2010.

Best Management Practices (BMPs) – BMPs are inspected quarterly and following significant precipitation events. Numerous small precipitation events occurred in August; three exceeded 0.5 in. BMPs were maintained in both the 260 Outfall and PRB installation area in support of the CMI.

CMS Hydrogeologic Investigations – Hydrogeologic investigations include periodic water sampling as outlined in the Phase II Resource Conservation and Recovery Act facility investigation (RFI) work plan as well as continuing investigations delineated in the CMS plan. The ongoing spring sampling program, currently focused on capturing high-flow events, includes biannual sampling at Martin, SWSC, and Burning Ground Springs. These activities are now conducted under the auspices of LANL's interim facility-wide groundwater monitoring plan.

Flow in the TA-16 canyons decreased in August. Martin Spring is flowing at a rate of >0.1 L/s, Burning Ground Spring is flowing at a rate of <0.3 L/s, and SWSC Spring is flowing at a rate of <0.02 L/s.

The 90s Line Pond rewetted following rainstorms in late July. Surface water is present in Cañon de Valle from upstream of the outfall channel to beyond the former location of Material Disposal Area P.

RFI and CMS/CME for Surface System – These activities have been completed.

RFI/Investigation Report and CMS/Corrective Measures Evaluation (CME) for Deep Groundwater – Well R-25c, completed in September 2008, is not producing water. Well R-25b

was drilled and completed in October 2008. The well completion report for R-25c was submitted in September 2008, and the well completion report for R-25b was submitted in October 2008.

Well CdV-16-3(i) (renamed R-48) was deepened to 1705 ft in September 2009. Well construction was completed in late September (NMED complete on September 25, 2009).

Well R-47i at TA-14 was completed in November 2009 to a depth of 895 ft (NMED complete on November 15, 2009).

Well CdV-16-4ip was drilled to a depth of 1150 ft in August. Well construction was completed (NMED complete on August 23, 2010).

CMI – Permitting for CMI activities is proceeding slowly. It was determined that the storm-filter systems in the springs required National Pollutant Discharge Elimination System (NPDES) permits because of elevated levels of aluminum. The basic problem is that naturally occurring levels of aluminum in the spring water exceed current water standards. No significant progress was made in August.

TerranearPMC continued water-level monitoring and sampling activities in July. Manual water-level measurements were collected from the alluvial monitoring wells; several, more distal from the stream channel, remain dry.

Data from the first round of sampling at the PRB, received in July, suggest water flow within the PRB treatment vessel is largely bypassing the ZVI and zeolite media. Only the sampling port within the ZVI shows degradation of HE and removal of barium. The barium may be removed by precipitation of barium-rich phases in this high pH environment. Terranear PMC personnel removed the lid from the treatment vessel and confirmed the water bypass. They also noted biofouling within the chamber. TerranearPMC personnel will propose methods to improve performance of the PRB, including the possible reengineering of the gaskets between the treatment cells and changing the order of treatment media (i.e., zeolite and ZVI will be swapped so the water is first treated by zeolite then ZVI). A strategy to improve performance of the PRB was developed and discussed with NMED (see above).

Waste from the soil removal in the Consolidated Unit 16-021(c)-99 area continued to be processed for off-site shipping.

The “Long-Term Monitoring and Maintenance Plan for the Corrective Measures Implementation at Consolidated Unit 16-021(c)-99” was completed and submitted to NMED on April 23, 2010.

The “Addendum to the Summary Report for the Corrective Measures Implementation at Consolidated Unit 16-021(c)-99” was completed and submitted to NMED. This document included a revised risk assessment for the 260 Outfall source region and additional CMI data collected in spring 2010.

Public and Stakeholder Involvement –None

Percentage of CMS Completed

LANL estimates 100% of the surface CMS has been completed.

Problems Encountered/Actions to Rectify Problems

R-25c is not producing water, and the current level remains below the screen; R-25b is still showing high turbidity based on sampling field parameters. LANL will continue to monitor the well screens.

The status of aluminum under potential NPDES permits for the storm-filter systems is problematic, as noted above in the CMI section.

The PRB gaskets will be reengineered and the order of the treatment media will be switched to ensure that flow through the PRB chambers is as designed. Other mitigation measures for the PRB chambers will also be considered.

Key Personnel Issues – None

Projected Work for September 2010

BMPs

- Continue inspection of existing BMPs following significant precipitation events
- Inspect new BMPs to support CMI

CMS Hydrogeologic Investigations

- Maintain site at the TA-16 trailers
- Check for presence and levels of water in Cañon de Valle alluvial system
- Continue precipitation monitoring

Groundwater CME/CMI

- Well development will be completed. Planning for the R-25(b) and CdV-16-4ip pump tests will continue.

CMI

- Continue NPDES permitting discussions with the U.S. Environmental Protection Agency
- Continue monitoring water levels and field parameters in PRB wells

- Reinstallation of gaskets at PRB treatment vessel.
- Change order of media in the PRB treatment vessel.
- Evaluation of PRB data from the second sampling round.
- Continue waste management activities at CMI remedy sites

Public and Stakeholder Involvement – Continued interaction with NMED personnel concerning the PRB.