

**Monthly Progress Report**  
**Corrective Measures Study (CMS)/Corrective Measures Implementation (CMI) for**  
**Consolidated Unit 16-021(c)-99**  
**April 2009**

This report summarizes Los Alamos National Laboratory (LANL) activities completed during April of fiscal year (FY) 2009 on the CMS/CMI for Consolidated Unit 16-021(c)-99, the TA-16-260 Outfall. Activities outlined in the CMS plan ([LA-UR-98-3918], approved by New Mexico Environment Department [NMED] Hazardous Waste Bureau [HWB] on 9/8/99), and other related activities are described herein.

**Description of Activities and Contacts**—A draft of a “no longer contained in” request was provided to NMED representatives in late April.

**Best Management Practices (BMPs)**—BMPs are inspected quarterly and following significant precipitation events. There were several minor precipitation events in April: one exceeded 0.5 in.; however, it did not require BMP repair in the 260 Outfall area.

**CMS Hydrogeologic Investigations**—Hydrogeologic investigations include periodic water sampling as outlined in the Phase II RFI 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 the Interim Facility-wide Groundwater Monitoring Plan. Sampling of all Technical Area (TA-16) sites was completed in April 2009.

The hydrologic system in Cañon de Valle is wet. Martin Spring is flowing at  $> 0.02$  L/sec.; Burning Ground Spring is flowing at a rate of  $\sim 0.15$  L/s; SWSC Spring is flowing at  $\sim 0.05$  L/s.

The 90s Line Pond remained wet throughout April. Downgradient surface locations in Martin Spring Canyon and Cañon de Valle remain wet. The alluvial wells in lower Cañon de Valle and lower Martin Spring Canyon are also wet. Alluvial wells in Fishladder Canyon have wet up; well waters show high turbidity. Surface water is present in Cañon de Valle from Burning Ground spring to well beyond the location of Material Disposal Area P.

**Ecological Risk Pilot**—The ecological risk pilot study has been completed and the results are presented in the Phase III RFI report.

**CMS Bench and Pilot Studies**— Write-up of bench and pilot studies, many of which were conducted under the auspices of the Innovative Technology Remediation Demonstration (ITRD) program, have been completed. The ITRD HE program was focused on two U.S. Department of Energy (DOE) sites: LANL and Pantex. Ongoing studies, mainly consisting of monitoring in support of the previous studies, include:

1. A study of the passive barrier technology of Stormwater Management, Inc., potentially useful for removing HE and barium from waters (LANL).

2. A study of in situ anaerobic bioremediation of high explosives (HE) using gas-phase carbon additions (Pantex).
3. Oxidation, reduction, and in situ bioremediation studies of groundwater contamination (Pantex).

The CMS report from Pantex detailing these studies has been reviewed and results are incorporated in the CME report submitted to NMED on August 31, 2007.

***RFI and CMS/CME for Surface System***– The surface system CMS report was completed and submitted to NMED on November 26, 2003; the RFI report was completed and submitted in September 2003. A response to the notice of deficiency on the RFI report was submitted on January 28, 2004, and an addendum to that response was submitted on February 25, 2004. An approval with modifications for the RFI was received June 23, 2004, and a response to the approval was submitted to NMED on July 23, 2004. The RFI text modifications were completed during December 2004 and submitted to NMED. A notice of disapproval (NOD) on the CMS report was received May 16, 2005. A response to that NOD was submitted on June 15, 2005.

NMED issued the “Intent to Public Notice Remedy Selection for the Solid Waste Management Unit 16-021(c)” on May 15, 2006. Public comments on this notice were due to NMED by July 14, 2006. LANL provided comments on this public notice. The remedy was approved by NMED in a letter dated October 13, 2006.

***RFI/Investigation Report (IR) and CMS/Corrective Measures Evaluation (CME) for Deep Groundwater*** – The IR for TA-16 groundwater was completed and submitted to NMED on August 31, 2006; an approval with direction dated November 29, 2006, was received by e-mail the same day. This approval required an additional report assessing the quality of the wells in and around TA-16. Additional information requested in this approval, including borehole videos and x-ray diffraction data, was provided to NMED in a letter dated January 17, 2007.

The TA-16 well evaluation report was submitted to NMED on April 30, 2007, and an NOD was received on August 17, 2007. The response to that NOD and a revised report were provided to NMED on September 30, 2007. NMED approved the revised TA-16 well evaluation report on February 11, 2008. A response to this approval was submitted on March 15, 2008. Two drilling work plans [for CdV-R-15-1 and CdV-16-3(i)] were submitted as part of this approval response and were approved in an NMED letter dated March 28, 2008. An approval of the drilling work plan for the R-25b well, which was submitted in June 2007, was received in November 2007. A letter from NMED requiring completion of the CdV-16-3(i) as a regional well by July 30, 2008, was received in December. The drilling work plan for R-25c was submitted in February 2008 and approved in a letter dated March 11, 2008. Drilling of R-25c was completed in September 2008, and the well was constructed. The well is not producing water. R-25b was drilled and the well was constructed in October. 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.

The Groundwater CME report was submitted to NMED on August 31, 2007, and an NOD requiring submittal of a supplemental investigation work plan was received on April 22, 2008. The supplemental investigation work plan was completed and submitted on June 30, 2008. An

approval with modifications on the supplemental work plan was received on January 26, 2009. Additional development activities for R-25(b) occurred during April.

***Corrective Measures Implementation (CMI)*** – The CMI Plan was submitted to NMED on May 10, 2007. An NOD was received on June 29, 2007; the response was submitted on July 30, 2007. NMED approved the CMI plan in a letter dated August 17, 2007. Bench and pilot studies supporting the CMI continued. Permitting for CMI activities was continued in April. Discussions with LANL’s surface water regulatory group suggested that a National Pollutant Discharge Elimination System (NPDES) permit may be required. LANL representatives met with U.S. Environmental Protection Agency (EPA) representatives to discuss NPDES permitting. LANL’s surface water group also suggested breaking up 401/404 permitting in to three separate requests: one for Martin Spring, one for the permeable reactive barrier and SWSC Spring, and one for Burning Ground Spring (which required a wetland determination). A PR-ID was submitted. A draft “no longer contained in” request letter was drafted. Contracting documents were completed and submitted to the procurement organization.

***Public and Stakeholder Involvement***—There was no public or stakeholder involvement in April.

#### **Percentage of CMS Completed**

LANL estimates 100% of both the surface CMS and the groundwater CME have been completed. This estimate does not include additional work covered by the work plan submitted on June 30, 2008.

#### **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. LANL will continue to monitor the well screens.

***Key Personnel Issues***—None.

#### **Projected Work for May 2009**

##### ***BMPs***

- Continuing inspection of existing BMPs following significant precipitation events

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

- Site maintenance at the TA-16 trailers
- Checking for presence and levels of water in Cañon de Valle alluvial system
- Precipitation monitoring

##### ***Groundwater CME/CMI***

- Contracting for drilling of CdV-R-15-1 (R-47) and CdV-16-3(i) (R-48).

***CMS/CME Bench and Pilot Studies*** –No activities are projected for May.

***CMI***

- Contract award for CMI
- Continued lab scale tests to finalize media selection for permeable reactive barrier
- Submittal of “no longer contained in” determination to support installation of storm filters and permeable reactive barrier
- Submittal of three separate 401/404 permit requests for installation of storm filters and permeable reactive barrier
- Submittal of request for area of contamination for CMI
- Determination of whether NPDES permitting will be required by EPA
- Meetings with site personnel to expedite CMI implementation

***Public and Stakeholder Involvement***—A site tour for NMED personnel will be completed in late May.