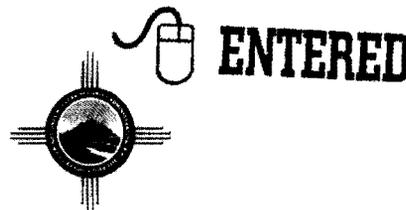




**Environmental Programs**  
P.O. Box 1663, MS M991  
Los Alamos, New Mexico 87545  
(505) 606-2337/FAX (505) 665-1812



**National Nuclear Security Administration**  
Los Alamos Site Office, MS A316  
Environmental Restoration Program  
Los Alamos, New Mexico 87544  
(505) 667-4255/FAX (505) 606-2132  
*Date:* June 22, 2009  
*Refer To:* EP2009-0288

James P. Bearzi, Bureau Chief  
Hazardous Waste Bureau  
New Mexico Environment Department  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, NM 87505-6303



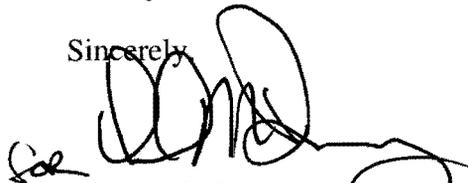
**Subject: Submittal of the May 2009 Monthly Progress Report Corrective Measures Study for Potential Release Site 16-021(c)-99**

Dear Mr. Bearzi:

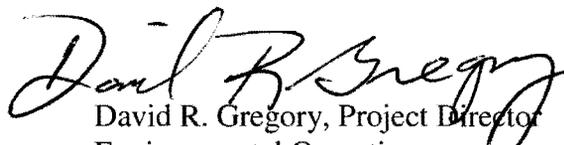
Enclosed are two hard copies with electronic files of the May 2009 Monthly Progress Report Corrective Measures Study for Potential Release Site 16-021(c)-99. The report is submitted according to the approved CMS plan for PRS 16-021(c)-99.

If you have questions, please call John McCann at (505) 665-1091 (jmccann@lanl.gov) or Woody Woodworth at (505) 665-5820 (lwoodworth@doeal.gov).

Sincerely,

  
Michael J. Graham, Associate Director  
Environmental Programs  
Los Alamos National Laboratory

Sincerely,

  
David R. Gregory, Project Director  
Environmental Operations  
Los Alamos Site Office



MG/DG/DM/JM/DH:sm

Enclosures: Two hard copies with electronic files – May 2009 Monthly Progress Report  
Corrective Measures Study for Potential Release Site 16-021(c)-99  
(LA-UR-09-3764)

Cy: (w/enc.)  
Neil Weber, San Ildefonso Pueblo  
John McCann, EP-CAP, MS M992  
Woody Woodworth, DOE-LASO, MS A316  
RPF, MS M707 (two CDs)  
Public Reading Room, MS M992

Cy: (Letter and CD only)  
Laurie King, EPA Region 6, Dallas, TX  
Steve Yanicak, NMED-OB, White Rock, NM  
Jeff Heikoop, EES-6, MS D462  
Kristine Smeltz, EP-WES, MS M992  
EP-CAP File, MS M992

Cy: (w/o enc.)  
Tom Skibitski, NMED-OB, Santa Fe, NM  
Keyana DeAguero, DOE-LASO (date-stamp copy emailed)  
Michael J. Graham, ADEP, MS M991  
Alison M. Dorries, EP-WES, MS M996  
Dave McInroy, EP-CAP, MS M992  
IRM-RMMSO, MS A150 (date-stamp copy emailed)

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

This report summarizes Los Alamos National Laboratory (LANL) activities completed during May of fiscal year (FY) 2009 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 [HWB] on 9/8/99), and other related activities are also described herein.

**Description of Activities and Contacts** – LANL and U.S. Department of Energy (DOE) representatives provided a site tour to HWB representatives on May 29, 2009. The tour included all the locations scheduled for implementation of remedies during the upcoming CMI. Regulatory issues discussed on the tour included (1) the “no longer contained in” letter that had been provided to NMED; (2) the area of contamination request that will be submitted in June; (3) the status of 401/404 permitting anticipated for the CMI; and (4) the recent decision by the U.S. Environmental Protection Agency (EPA) that the storm filter units to be installed in the spring would probably require a National Pollutant Discharge Elimination System (NPDES) permit. On the NPDES issue, LANL indicated one option would be to redesign the storm filters to discharge to a subsurface infiltration gallery rather than to an outfall. LANL requested help from NMED on all these issues and indicated a follow-up email would be provided.

**Best Management Practices (BMPs)** – BMPs are inspected quarterly and following significant precipitation events. There were several precipitation events in May, including one exceeding 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 Resource Conservation and Recovery Act facility investigation (RFI) report 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.

The hydrologic system in Cañon de Valle is wet, especially following the late May rains. Martin Spring is flowing at >0.02 L/s. Flow increased from the middle to the end of the month, and the new seep there went from dry to flowing during that time frame. As of the end of the month, Burning Ground Spring is flowing at a rate of ~0.25 L/s, and SWSC Spring is flowing at ~0.05 L/s.

The 90s Line Pond remained wet throughout May. 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 also become wet. Surface water is present in Cañon de Valle from Burning Ground Spring to beyond 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 high explosives (HE) program was focused on two DOE sites: LANL and Pantex. Ongoing studies, mainly consisting of monitoring in support of the previous studies, include the following:

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 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 the 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/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 email 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 by NMED in 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 2008. The drilling work plan for R-25c was submitted during February 2008 and approved in a letter dated March 11, 2008. Drilling of well R-25c was completed in September and the well was constructed at that time. The well is not producing water. R-25b was drilled and the well was constructed 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.

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-25b occurred in April 2009. Site preparation and mobilization to the drill site at CdV-16-3(i) (renamed R-48) occurred in May 2009.

**CMI Plan** – The plan was submitted to NMED on May 10, 2007. An NOD was received on June 29, 2007; LANL's 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 continued in May. LANL representative continued interactions with EPA representatives, who indicated that under the current design an NPDES permit will probably be required for the spring storm filter units. This could take up to 2 yr. LANL's surface water group also pursued 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 (requiring a wetland determination). Comments on the PR-ID are being received and are summarized as follows: (1) construction activities at the permeable reactive barrier are restricted during May 1 to July 15 because of the potential presence of threatened and endangered species; (2) several permits will be required (e.g., 401/404) to support the installation activities; and (3) several cultural sites are in the vicinity of Martin Spring that will have to be avoided. The "no longer contained in" letter was submitted. The request for an area of contamination letter was drafted. A site tour for the prospective CMI contractors was held on May 15, 2009.

**Public and Stakeholder Involvement** – As noted above, a site tour for NMED personnel was conducted on May 29, 2009.

### **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 June 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***

- Initiation of drilling at CdV-16-3(i) (aka R-48)

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

***CMI***

- Contract award for CMI
- Continued lab scale tests to finalize media selection for permeable reactive barrier
- Submittal of three individual 401/404 permit requests for installation of storm filters and permeable reactive barrier
- Submittal of request for area of contamination for CMI
- Follow up with NMED and EPA on NPDES permitting
- Kick-off meeting for fieldwork
- Contractor preparation for field deployment.
- Meetings with site personnel to expedite CMI

***Public and Stakeholder Involvement*** – None