

**Monthly (July 2007) Progress Report
Corrective Measures Study (CMS)/Corrective Measures Implementation (CMI)
for Consolidated Unit 16-021(c)-99**

This report summarizes Los Alamos National Laboratory (LANL) activities completed during July of fiscal year (FY) 2007 on the CMS/CMI for Consolidated Unit 16-021(c)-99, the TA-16-260 Outfall. Activities described in the CMS plan ([LA-UR-98-3918], approved by New Mexico Environment Department [NMED] Hazardous Waste Bureau on 9/8/99), and other related activities are described herein.

Description of Activities and Contacts

NMED Interactions

LANL and Department of Energy (DOE) representatives did not meet with NMED representatives during July 2007. The next meeting will be in August and the topic will be the CME Report.

RCRA Facility Investigation (RFI) Phase II Report and CMS Plan

No activities this month.

Best Management Practices (BMPs)

BMPs are inspected quarterly and following significant precipitation events. There were several small precipitation events in July (one greater than 0.5 in); however, these did not require repair of BMPs 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 stable isotope sampling at Martin and Burning Ground Springs. These sampling activities are now being accomplished under the auspices of the interim facility-wide groundwater monitoring plan. The groundwater monitoring sampling of all TA-16 localities was accomplished in May.

The hydrologic system in Cañon de Valle remains wet following the higher-than-average intensity monsoonal rains, significant November through January snows, and unusual May rainfall. Martin Spring is flowing at ~ 2 L/min., Burning Ground Spring is flowing at a rate of ~0.3 L/ sec. After several years of being dry, SWSC Spring is flowing at a rate of ~0.1 L/sec.

The 90s Line Pond is dry; fieldwork was initiated in July. 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 wet. Surface water in Cañon de Valle remains present from Burning Ground spring to MDA-P.

Ecological Risk Pilot

The ecological risk pilot study is complete; results are presented in the Phase III RFI Report.

CMS Bench and Pilot Studies

Writeup of bench and pilot studies, many of which were conducted under the auspices of the Innovative Technology Remediation Demonstration (ITRD) program, has been completed. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Ongoing studies include

1. A study of the passive barrier technology of Stormwater Management, Inc., potentially useful for removing HE and barium from waters (LANL). Monitoring of barrier effectiveness recommenced after several quarters of drought conditions during which Martin spring was dry.
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 is being reviewed and results will be incorporated in the upcoming CME report.

Interim Measure (IM)

The IM report was approved by NMED in a letter dated January 13, 2003. No new activities occurred during this reporting period.

RFI/IR and CMS/CME Reports

The surface system CMS Report was completed and submitted to NMED on November 26, 2003; the RFI Report was completed and submitted in September of 2003. A response to the NOD on the RFI Report was submitted on January 28, 2004 and an addendum to that NOD 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. An 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.

The investigation report (IR) for TA-16 groundwater was completed and submitted to NMED on August 31, 2006. An approval with direction of this IR dated November 29, 2006, was received by email the same day. This approval requires an additional report assessing the quality of the

wells in and around TA-16. Additional information, including borehole videos and X-ray diffraction data, requested in this approval 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.

A draft outline of the groundwater CME report was completed and approved by NMED. A peer review for that report occurred in July. Modeling to support that report is ongoing.

Corrective Measures Implementation (CMI) Plan

Batch and column studies to support the permeable reactive barrier (PRB) design are continuing; initial studies suggest there are several media, including gypsum, a zeolite and “fishbone” that are appropriate for removal of barium from groundwater. Zero valent iron (ZVI) columns appear to generate H₂, which is a problem for the column studies due to permeability reduction.

The CMI Plan was submitted to NMED on May 10, 2007. An NOD on that document was received on June 29, 2007; the response to that NOD was submitted on July 30, 2007.

Public and Stakeholder Involvement

A tour for members of the Center for Disease Control (CDC) was conducted in July 2007.

Percentage of CMS Completed

LANL estimates 100% of the surface CMS has been completed (please note this percentage does not reflect the deep groundwater CMS, which is still in progress).

Problems Encountered/Actions to Rectify Problems

Column studies to support the CMI plan PRB designs have encountered unexpected technical problems. Additional studies to resolve these issues are being designed. These studies will continue beyond the submittal date of the CMI plan.

Key Personnel Issues

None

Projected Work for August 2007

Investigation Reports and CMS/CME Reports

- Discussions regarding the groundwater investigation and CME reports with NMED personnel
- Continuation of groundwater modeling
- Finalization of the CME report

BMPs

Continued 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

Ecological Risk Pilot

None

CMS Bench and Pilot Studies

None

CMI

Continuation of batch and column studies for designs of barrier materials for use in the PRB

Public and Stakeholder Involvement

None