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Semiannual Progress Report for Corrective Measures Evaluation/Corrective Measures Implementation for Consolidated Unit 16-021(c)-99

Prepared by the Environmental Programs Directorate

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April 2013

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EXECUTIVE SUMMARY

The subsurface corrective measures evaluation (CME) and surface corrective measures implementation (CMI) for Consolidated Unit 16-021(c)-99 (the 260 Outfall) proceeded at a reduced pace during the first half of fiscal year 2013 compared with previous years, primarily because of shifting priorities and the reallocation of resources to the shipment of transuranic waste stored at Technical Area 54 (TA-54) to the Waste Isolation Pilot Plant. The primary activities relevant for the surface CMI included ongoing scheduled hydrologic sampling. For the subsurface CME, the principal relevant activities were the submittal of several work plans to drill and reconfigure wells in the TA-16 groundwater monitoring network. Each well will require four quarters of sampling. These and other drilling-related activities recommended by the New Mexico Environment Department represent the next phase of the groundwater CME effort.

CONTENTS

1.0 INTRODUCTION

This report documents the April 2013 semiannual progress report for the corrective measures evaluation (CME)/corrective measures implementation (CMI) for Consolidated Unit 16-021(c)-99. The report summarizes Los Alamos National Laboratory (LANL) activities completed from October to March of fiscal year (FY) 2013 on the CME/CMI for Consolidated Unit 16-021(c)-99, the 260 Outfall, located in Technical Area 16 (TA-16). Activities outlined in the corrective measures study (CMS) plan (LANL 1998, 062413; LANL 1999, 064873), approved by the New Mexico Environment Department (NMED) Hazardous Waste Bureau on September 8, 1999 (NMED 1999, 093666), and other related regulatory activities are described herein.

2.0 DESCRIPTION OF ACTIVITIES AND CONTACTS, OCTOBER 2012 TO MARCH 2013

There were no regulatory activities or contacts to summarize during this reporting period.

3.0 SURFACE CMI

3.1 Best Management Practices

Storm water best management practices (BMPs) are implemented at the 260 Outfall to control erosion and sediment and manage run-on and runoff. Controls are inspected after intense rain events that exceed 0.25 in. of rainfall in 30 min and at least annually and are kept in effective operating condition at all times. No precipitation events occurring between October 2012 and March 2013 that exceeded the 0.25 in. in 30 min intensity threshold at rain gage RG257, the nearest on-site station to TA-16.

3.2 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 water sampling program, conducted per LANL's Interim Facility-Wide Groundwater Monitoring Plan, includes semiannual sampling at Martin, SWSC, and Burning Ground Springs.

The semiannual groundwater monitoring campaign for the Cañon de Valle watershed was conducted from March 11 to March 28, 2013. A total of 26 of the 27 planned locations were sampled during this campaign. One location was dry and could not be sampled, and several locations had limited water, requiring analysis of a reduced suite based on the watershed-specific prioritized list.

A small flow of less than 20 cubic feet per second and less than 3 h in total duration was observed in Cañon de Valle on October 12, 2012; no other flow events were recorded for the period from October 2012 to March 2013.

3.3 Surface CMI—Activities

There were no surface CMI activities to report during this time period. The Cañon de Valle pilot permeable reactive barrier (PRB) remains nonoperational because of post–Las Conchas fire flooding, which destroyed the capture wall for the PRB. Continued risks of flooding preclude reinstalling the PRB at this time. The current location of the PRB is not feasible for barrier reinstallation because of the deep scouring of the alluvial sediment in that area.

4.0 SUBSURFACE CME

4.1 CME for Deep Groundwater

On June 20, 2012, NMED provided an approval with modifications for the "Technical Area 16 Well Network Evaluation and Recommendations" report (NMED 2012, 520747). In its approval, NMED requested LANL submit work plans for (1) converting wells CdV-R-15-3, CdV-16-4ip, and CdV-R-37-2 into single-screen wells; (2) plugging and abandoning well R-25; (3) installing new intermediate-depth wells near R-63 and north of Cañon de Valle; and (4) installing regional groundwater wells near R-18 and in the S-Site Canyon watershed. The due dates for six of these work plans were extended into FY2013 because of funding constraints. NMED approved this extension request in a letter dated July 30, 2012 (NMED 2012, 521009). The due date for the laboratory tracer test report was also extended into FY2013 (LANL 2012, 223325; NMED 2012, 521082).

The following documents were submitted during the first half of FY2013:

Title	Date Submitted	Date NMED Approved
Drilling Work Plan for Regional Well R-47	Nov 08, 2012	Nov 29, 2012
Work Plan to Reconfigure Well CdV-16-4ip	Nov 15, 2012	Dec 21, 2012
Work Plan to Reconfigure Well CdV-R-15-3	Nov 27, 2012	Dec 21, 2012
Work Plan to Reconfigure Well CdV-R-37-2	Nov 27, 2012	Jan 11, 2013
Report on the Results of Laboratory Tests of Tracer Compounds at Consolidated Unit 16-021(c)-99	Nov 29, 2012	Dec 31, 2012
Drilling Work Plan for Regional Well R-58	Dec 11, 2012	Dec 31, 2012
Work Plan to Plug and Abandon Well R-25	Dec 13, 2012	Jan 11, 2013
Drilling Work Plan for Well R-63i	Feb 14, 2013	March 8, 2013
Interim Measures Work Plan for Source Removal Testing at Well CdV-16-4ip	Mar 22, 2013	To be determined
Drilling Work Plan for Well CdV-9-1i	Mar 28, 2013	To be determined

5.0 PUBLIC AND STAKEHOLDER INVOLVEMENT

No public meetings or meetings with stakeholders were held between October 2012 and March of 2013.

6.0 PROBLEMS ENCOUNTERED/ACTIONS TO RECTIFY PROBLEMS

The hydrologic system in Cañon de Valle was strongly perturbed by the August 2011 flooding as a result of severe damage to the watershed caused by the Las Conchas wildfire. Two long-term alluvial wells were destroyed in this flooding, and the PRB capture wall was severely damaged. Baseline contaminant levels within the canyon system need to continue to be reevaluated. The TA-16 storm filters in Martin, SWSC, and Burning Ground Springs have not been turned on because of issues with the National Pollutant Discharge Elimination System permit. A meeting with NMED to address a path forward for the alluvial system will be scheduled.

7.0 KEY PERSONNEL ISSUES

No issues regarding key personnel occurred between October 2012 and March of FY2013.

8.0 PROJECTED WORK FOR MARCH 2013 TO SEPTEMBER 2013

8.1 Surface CMI

8.1.1 BMPs

- Continue to inspect existing BMPs following significant precipitation events.

8.1.2 Hydrogeologic Investigations

- Remove the TA-16 trailers from their current location to Sigma Mesa.
- Check for the presence and levels of water in the Cañon de Valle alluvial system.
- Evaluate geomorphic changes in Cañon de Valle resulting from post-fire storm events in FY2013.
- Continue precipitation monitoring.

8.1.3 Surface CMI

- Meet with NMED personnel to determine a path forward for the PRB and storm filters.

8.2 Subsurface CME

- Analyze data from the latest watershed aggregate sampling.
- Complete reconfiguration of wells CdV-16-4ip and CdV-R-15-3.

8.3 Public and Stakeholder Involvement

- Continue discussions with NMED personnel regarding the optimal path forward for both surface CMI and groundwater CME.

9.0 RECOMMENDATIONS

Key recommendations for the TA-16-260 Outfall subsurface CME and surface CMI for future FYs include the following.

- Activities relevant to the groundwater CME over the near-surface CMI should be given priority in light of recent observations in deep groundwater associated with the TA-16-260 CME. These observations include increasing RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine) concentrations in well R-18 and high (>200 µg/L) RDX concentrations in the upper screen of well CdV-16-4ip.
- The crucial next steps for the groundwater CME should focus on improving the deep groundwater monitoring network; thus, geophysical surveys, well rehabilitation, and drilling new wells are key near-term activities.

These drilling activities are important precursors to both the groundwater CME report and any interim actions deemed necessary to minimize the migration of high explosives into regional groundwater.

- LANL believes decisions regarding the need for the PRBs and replacement of destroyed alluvial wells should occur. Experience following the Cerro Grande and other fires in the region suggests large floods are likely for up to 3 yr following severe burning in a watershed's headwaters. Nearby alluvial wells with similar concentrations and trends can provide continued alluvial groundwater monitoring for the TA-16 260 monitoring group.
- Actions at the springs should be considered within the context of the subsurface CME. In the interim, use of the storm filters could remove a large percentage of the RDX currently in the alluvial waters within Cañon de Valle.

10.0 REFERENCES

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

LANL (Los Alamos National Laboratory), September 1998. "CMS Plan for Potential Release Site 16-021(c)," Los Alamos National Laboratory document LA-UR-98-3918, Los Alamos, New Mexico. (LANL 1998, 062413)

LANL (Los Alamos National Laboratory), September 1999. "Addendum to CMS Plan for Potential Release Site 16-021(c)," Los Alamos National Laboratory document LA-UR-98-3918, Los Alamos, New Mexico. (LANL 1999, 064873)

LANL (Los Alamos National Laboratory), July 31, 2012. "Request for Extension for the Tracer Test at Consolidated Unit 16-021(c)-99, Technical Area 16," Los Alamos National Laboratory letter (EP2012-0167) to J. Kieling (NMED-HWB) from M.J. Graham (LANL) and P. Maggiore (DOE-LASO), Los Alamos, New Mexico. (LANL 2012, 223325)

NMED (New Mexico Environment Department), September 8, 1999. "Approval, 16-021(c) RFI Report and CMS Plan," New Mexico Environment Department letter to T. Taylor (DOE-LAAO) and J. Browne (LANL Director) from J.E. Kieling (NMED-HRMB), Santa Fe, New Mexico. (NMED 1999, 093666)

NMED (New Mexico Environment Department), June 20, 2012. "Approval with Modifications, Technical Area 16 Well Network Evaluation and Recommendations," New Mexico Environment Department letter to P. Maggiore (DOE-LASO) and M.J. Graham (LANL) from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2012, 520747)

NMED (New Mexico Environment Department), July 30, 2012. "Extension Request for Submittal of Documents Required by the Approval with Modifications for the Technical Area 16 Well Network Evaluation and Recommendations," New Mexico Environment Department letter to P. Maggiore (DOE-LASO) and M.J. Graham (LANL) from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2012, 521009)

NMED (New Mexico Environment Department), August 9, 2012. "Extension Request for the Tracer Test at Consolidated Unit 16-021(c)-99, Technical Area 16," New Mexico Environment Department letter to P. Maggiore (DOE-LASO) and M.J. Graham (LANL) from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2012, 521082)