

TA-16



Los Alamos National Laboratory/University of California
Risk Reduction & Environmental Stewardship (RRES)
Remediation Services (RS), MS M992
Los Alamos, New Mexico 87545
(505) 667-0808/FAX (505) 665-4747



National Nuclear Security Administration
Los Alamos Site Operations, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
(505) 667-7203/FAX (505) 665-4504

Date: November 20, 2003
Refer to: ER2003-0728

Mr. John Young, Corrective Action Project Leader
Permits Management Program
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505-6303



SUBJECT: OCTOBER 2003 CORRECTIVE MEASURES STUDY (CMS) PROGRESS REPORT FOR POTENTIAL RELEASE SITE (PRS) 16-021(C), THE 260 OUTFALL

Dear Mr. Young:

Enclosed are two copies of the October 2003 CMS Progress Report for PRS 16-021(c), the 260 Outfall. This report is being submitted as part of the reporting conditions outlined in Section R, scope of work for Resource Conservation and Recovery Act CMS at the Laboratory, Task IV, Reports, Part A, Progress Module VIII of the Laboratory's Hazardous Waste Facility Permit.

If you have any questions, please call Dave McInroy at (505) 667-0819 or Lance Woodworth at (505) 665-5820.

Sincerely,

David McInroy, Deputy Project Director
Remediation Services
Los Alamos National Laboratory

Sincerely,

David Gregory, Project Manager
Department of Energy
Los Alamos Site Operations

DM/DG/NR/dwt



An Equal Opportunity Employer/Operated by the University of California

Printed on Recycled Paper



6455

Enclosure: October 2003 CMS Progress Report (ER2003-0727)

Cy:(w/enc)

A. Dorries, RRES-ECR, MS M992
T. Grieggs, RRES-SWRC, MS K490
D. Hickmott, EES-6, MS M992
N. Quintana, RRES-ECR, MS M992
N. Riebe, RRES-ECR, MS M992
C. Rodriguez, RRES-ECR, MS M992
L. Sohlt, RRES-ECO, MS M887
D. Stavert, RRES-EP, MS J591
D. Gregory, LASO, MS A316
L. Woodworth, LASO, MS A316
J. Schoepfner, NMED-GWQB
J. Kieling, NMED-HWB
S. Yanicak, NMED-OB
M. Leavitt, NMED-SWQB
L. King, EPA Region 6
RRES-RS File, MS M992
IM-5, MS A150
RPF MS M707

Cy:(w/o enclosure)

D. McInroy, RRES-RS, MS M992
B. Ramsey, RRES-DO, MS J591
J. Johnson, ADO, MS A104
S. Martin, NMED-HWB
C. Voorhees, NMED-OB

Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
October 2003

This report summarizes Los Alamos National Laboratory (LANL) activities completed during October of fiscal year (FY) 2003 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918], approved by NMED-HWB on 9/8/99), and other related activities are described herein.

Description of Activities and Contacts

High Performing Team (HPT) Activities – The 260 HPT met on October 29, 2003.

Agenda items included an update of ongoing 260 activities, a discussion of the public involvement/statement of basis (SOB) process for the TA-16-260 CMS, a discussion of issues for the CMS Report, and a site visit of locations for the intermediate depth boreholes.

LANL representatives provided updates on the CMS sampling investigations, including a discussion of intermediate-well drilling activities and an update on the status of the Canon de Valle hydrologic system. Additional details on these projects are provided below in this monthly progress report and in the September 2003 progress report.

NMED, LANL, and DOE participants discussed how the public involvement, permit modification and statement of basis (SOB) processes would be done for the TA-16-260 CMS since it is unclear how they will be implemented under the Order. NMED representatives suggested that a Permit modification would not be needed. The draft CMS Report and the SOB would have a public comment period, however the duration of this public comment period was not finalized.

LANL provided information on the latest update to the CMS Report, particularly draft chapters 1 to 3 and 5. LANL indicated that any suggestions would need to be received by the second week of November. LANL suggested the proposed remedy would likely be several permeable reactive barriers in Canon de Valle, and Stormwater management units in the springs. NMED suggested that it might make sense to phase such a remedy, initially installing two barriers, and then installing a third if this proved necessary. NMED noted that the CMS Report should include a project schedule, which would include activity durations but not calendar dates. It was requested that the reference set accompany the CMS Report in order to facilitate review of that document.

LANL presented draft geophysical results that are relevant to the proposed third intermediate depth borehole. There are no anomalies in the proposed location of this borehole. The locations of the three intermediate depth boreholes were visited. It was agreed that finalization of the location of the third intermediate borehole, would wait until the results of borehole two were obtained.

The next HPT meeting was tentatively scheduled for December 4, 2003. Topics will include a 260 update, NMED questions related to the Phase III RFI Report, and updated information on drilling.

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. No BMP repairs were required in October.

CMS Hydrogeologic Investigations– CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS Plan.

The ongoing Phase II RFI sampling program includes collecting samples at Martin and Burning Ground spring for stable isotopes. This sampling is now focused on capturing high-flow events. Martin spring was producing a small amount of water, however, not enough for sampling; SWSC spring remains dry.

The alluvial and deep wells were checked for presence and level of water. All five alluvial wells in Canon de Valle contained water, as did three of the alluvial wells in Martin Spring Canyon. All of the intermediate depth boreholes were dry.

Canon de Valle was wet from Burning Ground spring to MDA-P, Canon de Valle downgradient from the Fish Ladder Canyon was wet, and Water Canyon remains wet.

Preliminary results from the Zonge geophysical investigations were received. There was an anomaly in the eastern part of the geophysical line (near the location of R-25) and another anomaly near the west end of the line, north of TA-11.

Samples from 1 precipitation event were collected and archived for analysis during this reporting period.

Drilling commenced at the first intermediate depth borehole location, which is in Canon de Valle west of MDA-P. The coring, which went to a depth of 200 ft., at this site was completed. A clay lined vertical fracture was intersected near the middle of this core. There was evidence of water in this borehole at a depth of ~ 65 ft, however there was not enough water to sample.

Ecological Risk Pilot–

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

CMS Bench and Pilot Studies– Write-up of bench and pilot studies is complete. Many of these were completed under the auspices of the Innovative Technology Remediation

Demonstration (ITRD) program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Studies included:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). The LANL portion of this study has been completed.
3. At Pantex, a study of in situ anaerobic bioremediation of HE using gas-phase carbon additions.
4. A study of ex situ anaerobic bioremediation of HE-contaminated soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment. The LANL portion of this study has been completed.
5. A study of HE composting. Amendments appropriate to northern New Mexico were tested on both clean and contaminated soils. The LANL portion of this study has been completed.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and study write-ups are complete.
7. Phytoremediation studies in Cañon de Valle. Native plants were evaluated for their ability to remove HE from surface waters. Results suggest that low levels of phytoremediation are occurring in the Burning Ground spring area.
8. Oxidation, reduction, and in-situ bioremediation studies of groundwater contamination at Pantex.

Interim Measure (IM) –

No activities. The IM Report was approved by NMED in a letter dated January 13, 2003.

RFI and CMS Report –

Work continued on sections of the CMS Report. The Phase III RFI Report was completed and submitted to NMED in September. The peer review of the CMS Report was completed and most of the comments were resolved.

Public and Stakeholder Involvement– No public involvement activities.

Percentage of CMS Completed

LANL estimates 99 % of the CMS has been completed to date. Note this percentage does not reflect the deep and intermediate boreholes that will be drilled per the CMS plan addendum.

Problems Encountered/Actions to Rectify Problems

None identified.

Key Personnel Issues

None.

Projected Work for November 2003

RFI Report and CMS Plan

- None.

BMPs

- Continued inspection of existing BMPs following significant precipitation events.

CMS Hydrogeologic Investigations

- Site maintenance at the TA-16 trailers.
- Maintenance of autosamplers
- Checking for levels and presence of water in alluvial and deep wells.
- Precipitation monitoring
- Zonge geophysics investigations write-up
- Drilling of intermediate depth boreholes
- Data analysis.
- Writing of and incorporation of peer review comments in the CMS Report.

Ecological Risk Pilot

- None

CMS Bench and Pilot Studies

- None

Public and Stakeholder Involvement

None anticipated.

Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
October 2003

This report summarizes Los Alamos National Laboratory (LANL) activities completed during October of fiscal year (FY) 2003 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918], approved by NMED-HWB on 9/8/99), and other related activities are described herein.

Description of Activities and Contacts

High Performing Team (HPT) Activities – The 260 HPT met on October 29, 2003.

Agenda items included an update of ongoing 260 activities, a discussion of the public involvement/statement of basis (SOB) process for the TA-16-260 CMS, a discussion of issues for the CMS Report, and a site visit of locations for the intermediate depth boreholes.

LANL representatives provided updates on the CMS sampling investigations, including a discussion of intermediate-well drilling activities and an update on the status of the Canon de Valle hydrologic system. Additional details on these projects are provided below in this monthly progress report and in the September 2003 progress report.

NMED, LANL, and DOE participants discussed how the public involvement, permit modification and statement of basis (SOB) processes would be done for the TA-16-260 CMS since it is unclear how they will be implemented under the Order. NMED representatives suggested that a Permit modification would not be needed. The draft CMS Report and the SOB would have a public comment period, however the duration of this public comment period was not finalized.

LANL provided information on the latest update to the CMS Report, particularly draft chapters 1 to 3 and 5. LANL indicated that any suggestions would need to be received by the second week of November. LANL suggested the proposed remedy would likely be several permeable reactive barriers in Canon de Valle, and Stormwater management units in the springs. NMED suggested that it might make sense to phase such a remedy, initially installing two barriers, and then installing a third if this proved necessary. NMED noted that the CMS Report should include a project schedule, which would include activity durations but not calendar dates. It was requested that the reference set accompany the CMS Report in order to facilitate review of that document.

LANL presented draft geophysical results that are relevant to the proposed third intermediate depth borehole. There are no anomalies in the proposed location of this borehole. The locations of the three intermediate depth boreholes were visited. It was agreed that finalization of the location of the third intermediate borehole, would wait until the results of borehole two were obtained.

The next HPT meeting was tentatively scheduled for December 4, 2003. Topics will include a 260 update, NMED questions related to the Phase III RFI Report, and updated information on drilling.

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. No BMP repairs were required in October.

CMS Hydrogeologic Investigations– CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS Plan.

The ongoing Phase II RFI sampling program includes collecting samples at Martin and Burning Ground spring for stable isotopes. This sampling is now focused on capturing high-flow events. Martin spring was producing a small amount of water, however, not enough for sampling; SWSC spring remains dry.

The alluvial and deep wells were checked for presence and level of water. All five alluvial wells in Canon de Valle contained water, as did three of the alluvial wells in Martin Spring Canyon. All of the intermediate depth boreholes were dry.

Canon de Valle was wet from Burning Ground spring to MDA-P, Canon de Valle downgradient from the Fish Ladder Canyon was wet, and Water Canyon remains wet.

Preliminary results from the Zonge geophysical investigations were received. There was an anomaly in the eastern part of the geophysical line (near the location of R-25) and another anomaly near the west end of the line, north of TA-11.

Samples from 1 precipitation event were collected and archived for analysis during this reporting period.

Drilling commenced at the first intermediate depth borehole location, which is in Canon de Valle west of MDA-P. The coring, which went to a depth of 200 ft., at this site was completed. A clay lined vertical fracture was intersected near the middle of this core. There was evidence of water in this borehole at a depth of ~ 65 ft, however there was not enough water to sample.

Ecological Risk Pilot–

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

CMS Bench and Pilot Studies– Write-up of bench and pilot studies is complete. Many of these were completed under the auspices of the Innovative Technology Remediation

Demonstration (ITRD) program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Studies included:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). The LANL portion of this study has been completed.
3. At Pantex, a study of in situ anaerobic bioremediation of HE using gas-phase carbon additions.
4. A study of ex situ anaerobic bioremediation of HE-contaminated soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment. The LANL portion of this study has been completed.
5. A study of HE composting. Amendments appropriate to northern New Mexico were tested on both clean and contaminated soils. The LANL portion of this study has been completed.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and study write-ups are complete.
7. Phytoremediation studies in Cañon de Valle. Native plants were evaluated for their ability to remove HE from surface waters. Results suggest that low levels of phytoremediation are occurring in the Burning Ground spring area.
8. Oxidation, reduction, and in-situ bioremediation studies of groundwater contamination at Pantex.

Interim Measure (IM) –

No activities. The IM Report was approved by NMED in a letter dated January 13, 2003.

RFI and CMS Report –

Work continued on sections of the CMS Report. The Phase III RFI Report was completed and submitted to NMED in September. The peer review of the CMS Report was completed and most of the comments were resolved.

Public and Stakeholder Involvement– No public involvement activities.

Percentage of CMS Completed

LANL estimates 99 % of the CMS has been completed to date. Note this percentage does not reflect the deep and intermediate boreholes that will be drilled per the CMS plan addendum.

Problems Encountered/Actions to Rectify Problems

None identified.

Key Personnel Issues

None.

Projected Work for November 2003

RFI Report and CMS Plan

- None.

BMPs

- Continued inspection of existing BMPs following significant precipitation events.

CMS Hydrogeologic Investigations

- Site maintenance at the TA-16 trailers.
- Maintenance of autosamplers
- Checking for levels and presence of water in alluvial and deep wells.
- Precipitation monitoring
- Zonge geophysics investigations write-up
- Drilling of intermediate depth boreholes
- Data analysis.
- Writing of and incorporation of peer review comments in the CMS Report.

Ecological Risk Pilot

- None

CMS Bench and Pilot Studies

- None

Public and Stakeholder Involvement

None anticipated.