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Voluntary Corrective Action Completion Report for

Potential Release Site
36-003(b)
Septic System

Field Unit 2

Environmental
Restoration
Project

September 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-3346



CERTIFICATION

I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Document Title: Final VCA Completion Report for TA-36, PRS 36-003(b)

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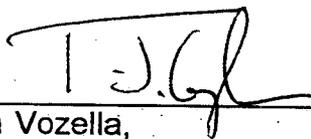
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**VOLUNTARY CORRECTIVE ACTION COMPLETION REPORT
FOR POTENTIAL RELEASE SITE 36-003(b) - SEPTIC SYSTEM**

1.0 INTRODUCTION

Potential release site (PRS) 36-003(b) is a septic system that handled sanitary waste from a bathroom and sink in Building TA-36-55 at I-J Firing Site (Figure 1-1). The septic system consisted of a holding tank and an outfall. RFI sampling at the site indicated no contamination above screening action levels (SALs) in the outfall area, but identified several contaminants of concern (COCs) in the liquid and sludge in the holding tank (Environmental Restoration Project 1995, 1335). These COCs include depleted uranium, and several metals such as arsenic, chromium, and lead. The high explosive (HE) compound RDX was also identified in the tank. The contents of the tank may have posed a human health concern. More information on the contaminant concentrations is available in the voluntary corrective action (VCA) plan (Environmental Restoration Project 1996, 1348).

This site is listed in Table A of the Hazardous and Solid Waste Amendments (HSWA) Module of the Laboratory's RCRA operating permit. As reported in the VCA plan, the appropriate remedy for this site was removal of the tank contents, pressure rinsing of the tank, and backfilling of the tank to prevent additional discharge. The facilities at the I-J Firing Site are being decommissioned and this septic system is no longer required. The appropriateness of a VCA at this site was confirmed in the VCA checklist (presented in the VCA plan) (Environmental Restoration Project 1996, 1348). Because the remedy was obvious, straightforward, and relatively inexpensive, a VCA for this site was recommended. This report will support a request for no further action (NFA) for this PRS.

2.0 SITE CHARACTERIZATION PRIOR TO REMOVAL

The analytical data from site characterization are presented in the VCA plan (Environmental Restoration Project 1996, 1348). No COCs were identified in the outfall area. Table 2-1 summarizes the COCs present in the liquid and sludge in the tank.

TABLE 2-1

COCs IN SEPTIC TANK

Analyte	Greater than SAL in:	
	Liquid	Sludge
Arsenic	X	X
Barium	X	X
Beryllium		X
Cadmium		X
Chromium		X
Cobalt		X
Copper	X	X
Lead	X	X
Manganese		X
Mercury		X
Nickel		X
Silver		X
Vanadium	X	X
Zinc	X	X
Uranium (total)	X	X
RDX	X	

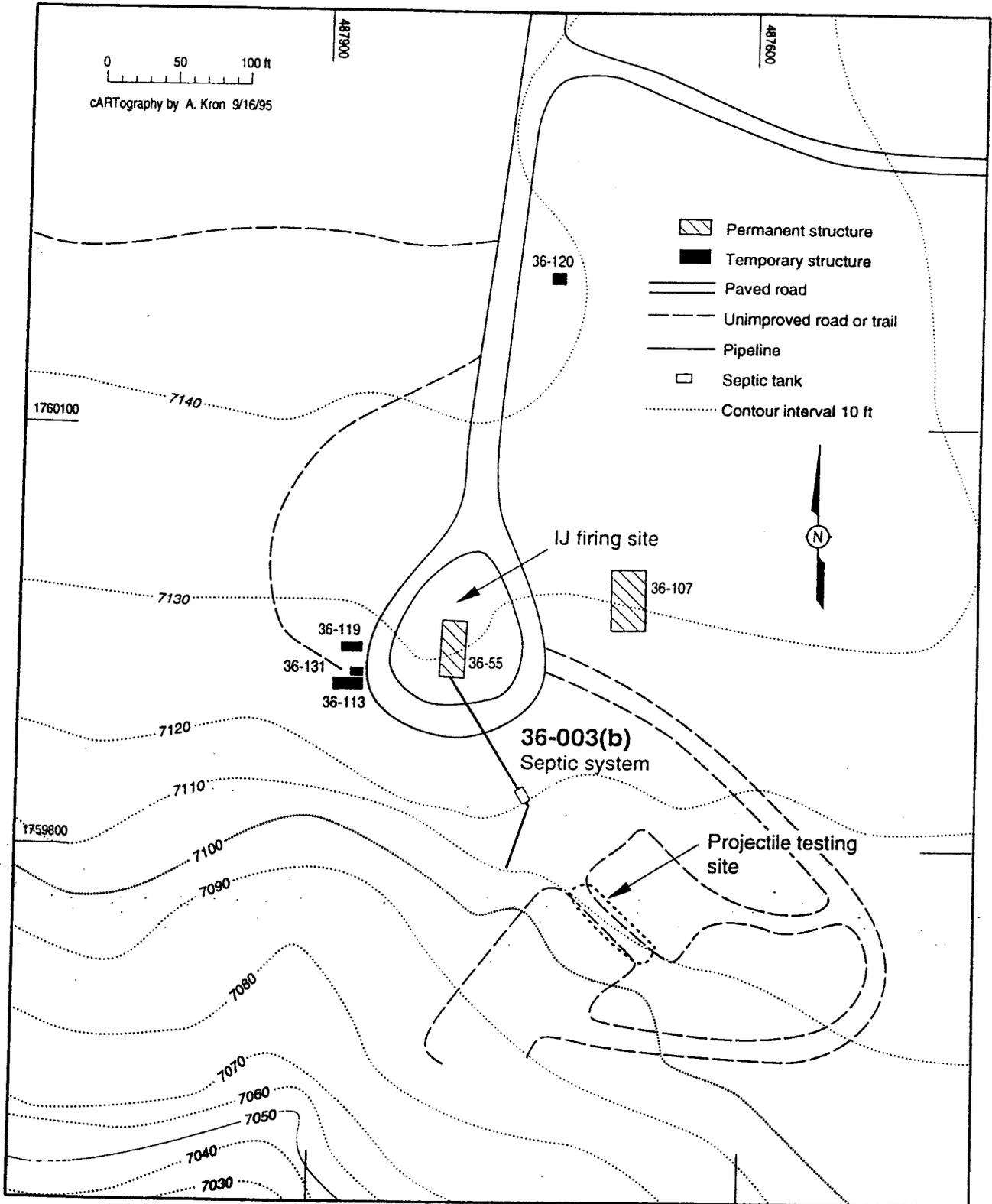


Figure 1-1. Location of PRS 36-003 (b) at I-J Firing Site.

3.0 REMEDIAL ACTIVITIES AND RESULTS OF CONFIRMATORY SAMPLING

3.1 Risk Calculations and/or Cleanup Level Derivation

No risk calculations or cleanup levels were derived for this site, because all contaminants would be removed as part of the VCA. All COCs in the liquid or sludge, as identified in Section 2, were present at concentrations above SALs for water or soils. While the comparison to SALs for water or soil is not entirely relevant, the comparison does provide some indication that contaminants in the tank may have posed a human health concern. The RFI report concluded that the contents of the tank pose a threat to human health if not properly managed (Environmental Restoration Project 1995, 1335).

3.2 Remedial Implementation

This VCA was done in accordance with the approved VCA plan. The VCA began on September 16, 1996 and was concluded on September 24, 1996. The contents of the septic tank were pumped into drums, with the liquid and sludge were segregated. The septic liquid was pumped from the tank until approximately 20-25 gallons of liquid remained. This procedure ensured that sludge was not inadvertently pumped with the liquid. Approximately 290 gallons of septic liquid were removed from the tank and contained in segregated 55-gallon drums. The septic liquid remaining in the tank and the sludge created a sludge-slurry. This sludge-slurry was pumped into segregated 55-gallon drums, but it was not combined with the septic liquid. Approximately 30 gallons of sludge-slurry were obtained. A sample of the sludge from the sludge-slurry drum was collected for waste characterization. Data collected during the RFI will be used to characterize the liquid wastes.

In accordance with the VCA plan, the tank was then pressure washed once to remove any remaining sludge. Approximately 15 gallons of tank decontamination rinse water were generated and contained in a separate 55-gallon drum. Following the pressure wash, the tank was visually inspected. The tank was found to be effectively decontaminated and of sound integrity.

An additional 10 gallons of rinse water were generated during the decontamination of equipment and personnel. This rinse water was segregated in a 55-gallon drum.

After decontamination, the septic tank was backfilled with an expanding cement. No site restoration was required. The site facility manager has been notified that this action was completed and that the septic system is out-of-service.

3.3 Confirmatory Sampling

No confirmatory sampling was conducted. As described in Section 2, RFI data indicated that no COCs were present in the environment.

After decontamination, the tank was visually determined to be relatively free of contamination and was backfilled with expanding cement to stabilize any remaining contamination. No releases to the environment occurred during the VCA.

4.0 WASTE MANAGEMENT

4.1 Waste Types, Volumes, and Disposition

Table 4.1-1 presents the anticipated and actual volumes of waste, by waste category, removed from the tank. The actual volume of these various wastes was less than anticipated. The initial volume was conservatively estimated based on visual inspection of the tank contents and based on the need for additional liquids if potential difficulties arose during sludge removal and tank decontamination. The sludge was composed of silt, sand, and gravel, with minimal clay and organic debris. This composition

TABLE 4.1-1

ANTICIPATED AND ACTUAL WASTE VOLUMES

Waste Description	Waste Classification	Anticipated volume	Actual Volume	Disposition
Sludge and first decontamination rinse	Low-level radioactive	< 220 gallons	65 gallons	TA-54, Area G
Liquid from tank and low particulate decontamination water	Low-level radioactive	< 600 gallons	300 gallons	TA-50 RLWTF or TA-54, Area G
Decontaminated PPE and equipment	New Mexico special	< one 55-gallon drum	< one 55-gallon drum	Los Alamos County Landfill

was found to flow readily when using a high-vacuum pump. Therefore, the volume of water necessary to decontaminate the tank was significantly less than the initial estimate.

4.1.1 Sludge and Decontamination Water with High-Particulate Concentrations

The RFI data, as presented in Section 4.2, will be used to characterize the sludge and any decontamination water containing high concentrations of sludge as low-level radioactive waste. These data indicate that the liquid waste contains uranium at concentrations substantially greater than the water supplying the facility. The RFI data also indicated that the concentration of lead in the sludge was sufficiently high that the sludge could fail the toxic characteristic leaching procedure (TCLP) test for lead and could be classified as a D008 hazardous waste. All other metals were at sufficiently low concentrations that they are not expected to result in toxic characteristic. After removal from the tank, a sample was collected from the sludge and analyzed for TCLP metals. If the TCLP analysis indicates that the sludge does not present toxic characteristics, the sludge and decontamination water will be solidified using an acrylic anionic polymer and disposed of as low-level radioactive waste at TA-54, Area G. If the TCLP results indicate that the waste presents hazardous characteristics for lead only, this waste will be solidified using Portland cement—an approved procedure for achieving the concentration based treatment standard of 5.0 mg/L (EPA 1995, 1336). As described in the VCA plan, a waste analysis plan will be submitted to the New Mexico Environment Department if treatment is required. If the waste is treated, a post-treatment sample will be collected and analyzed to demonstrate that the waste does not present the hazardous characteristic for lead. The waste will then be classified as nonhazardous, low-level radioactive and disposed of at TA-54, Area G.

4.1.2 Liquid from Septic Tank and Low-Particulate Decontamination Water

This waste will be characterized as nonhazardous, low-level waste on the basis of the RFI data. A waste profile form will be submitted recommending that the waste be treated at the TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF). The presence of low concentrations of RDX in the liquid may prevent treatment at TA-50. If so, the liquid will be solidified using an acrylic anionic polymer and disposed of as low-level radioactive waste at TA-54, Area G.

4.2 Waste Characterization Data

Table 4.2-1 presents the measured concentrations of HE and uranium measured in the sludge and liquid. These data indicate that the liquid waste contains uranium at concentrations above background. The liquid and sludge waste are, therefore, characterized as low-level radioactive. RFI data indicate that the liquid is not hazardous waste. As described in Section 4.1.1, TCLP analyses of the sludge will be used to characterize and properly dispose of the sludge-slurry.

TABLE 4.2-1

CONCENTRATIONS OF HIGH EXPLOSIVES AND URANIUM
IN LIQUID AND SLUDGE FROM PRS 36-003(b)

Analyte	Location Number	Sample ID Number	Depth (in.)	Matrix	Sample Value	Background UTL	Units
Organics							
RDX	36-3099	AAB1879	N/A	Tank Liquid	128	N/A	µg/L
Radionuclides							
Uranium (total)	36-3100	AAB1880	N/A	Tank Liquid	130	1.2*	µg/L
	36-3100	AAB1881	N/A	Tank Liquid	130	1.2*	µg/L
	36-3101	AAB1882	N/A	Tank Sludge	143	N/A	µg/L
	36-3101	AAB1884	N/A	Tank Sludge	533	N/A	µg/L

N/A Not available.

* Maximum value observed in regional groundwater, the water source for this septic system (Environmental Restoration Project 1995, 1255).

5.0 REFERENCES

Environmental Restoration Project, January 1995. "RFI Report for Potential Release Sites 18-001(a), 18-001(b), 18001(c), 18-007, 27-001, 27-003 (Located in Former Operable Unit 1093), Field Unit 2," Los Alamos National Laboratory Report LA-UR-95-295, Los Alamos, New Mexico. (Environmental Restoration Project 1995, 1255)

Environmental Restoration Project, September 1995. "RFI Report for Potential Release Sites 36-003(a), 36-003(b), 36-005, C-36-003 (located in former Operable Unit 1130), Field Unit 2," Los Alamos National Laboratory Report LA-UR-95-3375, Los Alamos, New Mexico. (Environmental Restoration Project 1995, 1335)

Environmental Restoration Project, September 1996. "Voluntary Corrective Action Plan for Potential Release Site 36-003(b), Septic System, Field Unit 2," Los Alamos National Laboratory Report LA-UR-96-3090, Los Alamos, New Mexico. (Environmental Restoration Project 1996, 1348)

EPA (US Environmental Protection Agency), July 1995. "Contaminants and Remedial Options at Selected Metal-Contaminated Sites." Office of Research and Development, Washington, D.C. EPA/540/R-95/512. (EPA 1995, 1336)

APPENDIX A

QA/QC INFORMATION

There were no QA/QC problems with the uranium data that are used to designate the waste as radioactive. QA/QC information for the TCLP analysis to determine hazardous characteristics will be assessed upon receipt of the data. A complete discussion of QA/QC problems associated with data collected during the RFI is presented in the RFI report (Environmental Restoration Project 1995, 1335).

APPENDIX B

RFI CHARACTERIZATION DATA

RFI characterization data are presented in the VCA plan and will be provided upon request.

APPENDIX C

ESTIMATED AND ACTUAL COSTS

The estimated costs of this VCA are compared with the actual costs in Table C-1. Differences between estimated and actual costs are discussed in the following sections.

TABLE C-1

ESTIMATED VERSUS ACTUAL COST FOR VCA AT PRS 36-003(b)

Activity	Estimated Cost	Actual Cost
Plan Development	\$13,000	\$13,000
Mobilization	11,000	6,860
Cleanup	8,500	7,500
Verification Sampling	0	0
Waste Management	16,000	16,800
Waste Disposal	4,500	4,500
Demobilization	3,000	2,800
Reporting	9,700	6,020
Total	\$ 65,700	\$57,480

C.1 Plan Development

The actual cost for plan development was known at the time the plan was issued.

C.2 Mobilization

Cost for mobilization were less than anticipated. The vacuum pump, which was recently purchased by the ER Project, was used. This greatly reduced the time necessary to coordinate, acquire, and stage a pump from another source.

C.3 Cleanup

Cleanup costs were very similar to those anticipated.

C.4 Verification Sampling

No verification sampling was conducted.

C.5 Waste Management

Waste management costs were very similar to those anticipated.

C.6 Waste Disposal

These costs remain estimated because the final disposition and any necessary treatment of the waste will not be known until the analytical results are received.

C.7 Demobilization

Demobilization costs reflect staging drums in the less than 90 day storage area, radiological screening of all equipment, and transporting equipment to appropriate storage areas. These costs were very similar to those anticipated.

C.8 Reporting

Reporting costs include writing the final report, as well as the compilation of documents for the Records Processing Facility (RPF). Because the VCA proceeded without any problems, less reporting time was required.

C.9 Total Cost

Because the VCA proceeded without any problems and we were able to use the ER Project vacuum pump, the cost to complete the VCA was significantly less than estimated.

APPENDIX D
CONFIRMATORY SAMPLING RESULTS

No confirmatory sampling was conducted.

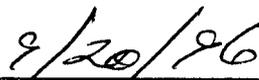
APPENDIX E

CERTIFICATION OF COMPLETION

I certify that all the work pertaining to the voluntary corrective action PRS 36-003(b) has been completed in accordance with the Department of Energy approved VCA plan entitled VCA Plan for Potential Release Site 36-003(b), Septic System. Based on my person involvement or inquiry of the person or persons who managed this cleanup, a review of all data gathered and a visit to the site, to the best of my knowledge and belief, all criteria of the plan have been met or exceeded. I believe that the completion of this VCA is protective of both human health and the environment. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.



Field Unit 2, Field Project Leader
Environmental Restoration Project
Los Alamos National Laboratory



Date Signed

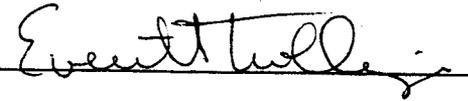
**VOLUNTARY CORRECTIVE ACTION (VCA) COMPLETION REPORT
APPROVAL/DISAPPROVAL FORM**

PRS(s) 36-003(b)

The undersigned have reviewed the VCA Completion Report and believe that the intent and goals of the VCA plan have been met.

FPL  (3B)

Date 9/20/96

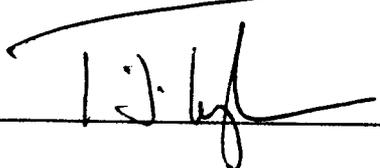
FPC 

Date 9/26/96

.....

I, Theodore J. Taylor, DOE-LAAO, **APPROVE** , **DISAPPROVE** the accompanying Voluntary Correction Action Report for PRS(s) _____, TA-_____.

The following reasons reflect the decision for disapproval:

Signed: 

Date: 9/26/96