rec'd 10/6/95

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ENVIRONMENTAL RESTORATION

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Date: October 2, 1995
Refer to: EM/ER:95-472

Ms. Barbara Driscoll
NM Federal Facilities Section
Multimedia Planning and Permitting Section
EPA, Region 6, 6PD-N
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SUBJECT: MODIFICATION TO THE RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION (RFI) WORK PLAN FOR OPERABLE UNIT (OU) 1147, LOS ALAMOS NATIONAL LABORATORY NM0890010515

Dear Barbara:

In this letter, we present the modifications to the latest drilling plan for Material Disposal Area (MDA) C in the Work Plan for OU 1147. This was discussed with you in the meeting between you, Tracy Glatzmaier, and Brian Flynn on July 7, 1995.

Our general approach in this drilling plan is to roughly bound possible releases from the trenches and shafts in MDA C, so as to allow the selection of appropriate unsaturated zone monitoring locations. If this drilling program is not able to properly bound releases, it would be used to direct further drilling in a second phase.

Stage 1. Angled and vertical holes will be air cored. Geophysical measurements made recently for field placement of the holes have shown that Pits No. 1-5 extend farther to the east than indicated on drawings, and a utility corridor exists immediately to the east of the pits. Pit 1 extends farther to the south and the boundary is slightly angled so that the available space between the pit and fence (and adjacent utility corridor outside the fence) tapers from approximately 9 feet on the west end to a negligible distance on the east end. In addition, Pit No. 6 extends further to the north than shown on the drawings, allowing less clearance than previously expected from the acid drain lines between Technical Area (TA) -55 and TA-50. Because of these

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findings, the placement and angles of some of the holes have changed from the drawing we sent you previously. The enclosed drawing shows our current proposal, which, we believe, addresses the same issues as the earlier proposal.

The purpose of stage 1 is to bound contamination. Where possible, holes will be angled toward the adjacent pit, so that data on moisture below the pit can be obtained. This information can be used to evaluate the possibility of water collecting in the pits from rainfall or snowmelt and serving as a driving force beneath the pit. Data on moisture would also bear on transport potential and offer information on possible remediation or stabilization mechanisms.

Pit No. 6 extends to the fence on the north side and possibly beyond the fence towards the east end of the pit. We, therefore, cannot drill any holes on the north side of the pit. In addition, acid waste lines extend along the north side of Pit 6 from TA-55 to the treatment facility. Additional coreholes including shallow-angle holes, may be placed during a later stage of investigation if the findings from the first stage indicate that they are necessary. In keeping with the philosophy of bounding the contamination, as well as not being able to drill due to lack of space, we propose to omit the vertical coreholes on the north side of the Chemical Pit proposed by the Environmental Protection Agency.

The angled holes will give information about the presence of contaminants at a range of depths below the trenches and to give information about the depths of the trenches themselves. We know from geophysical surveys that the horizontal dimensions of the trenches and locations of shafts available from historical drawings are not totally accurate; there is no reason to believe that the vertical dimensions on the drawings are more accurate. Further, in 1986, a cover of crushed tuff and soil was applied to MDA C. This cover is known to have had a variable thickness across the area, and we do not have records of the thickness at any given point. The inaccuracy in our knowledge of the depths of the trenches and shafts may be as much as 30 feet. For safety reasons, we must ensure that drilling will not intercept disposal trenches and shafts.

The range of depths probed by the angled holes will provide information on distributions of contaminants with depth and moisture conditions below the trenches. We propose to continue these holes to a depth below where field screening indicates contamination or the depth to which the rig is capable of drilling, whichever is reached first.

what field screening

Drilling began on July 17, 1995. Vertical hole 50-9100 has been completed to 210-foot depth, and 45°-angled hole; 50-9102 has been completed to 110 feet total length. Angled hole 50-9106 has been completed at 45° to a total length of 120 feet. Vertical hole 50-9104 has been completed to 90 feet deep. This hole was not angled due to restricted access. Hole 50-9103 has been drilled to 120 feet at an angle of 45°, but has been moved northwest of the previously indicated position (to angle under the end of Pit 3) because of geophysical findings. The 210-foot depth of 50-9100 will

provide information about the geologic strata below TA-50, which will help in evaluating both MDA C and possible releases from the solid waste management units associated with Building 1.

Holes 50-9107, 50-9105, 50-9108, 50-9109, and 50-9110 have also been completed to depths of completed by September 22.

Another change we have made to improve containment of dust and cuttings, is the use of a specially modified air drill rig in place of an auger rig for the near-vertical and 45 holes. This is an improvement to the plan presented on July 7.

Samples are being taken from cores every 20 feet and at the bottom of each hole for analysis in the mobile chemical analysis van to Level III standards. Analyses are being done for volatile organic compounds, semi-volatile organic compounds, polychlorinated biphenyls, metals, total uranium, total plutonium, tritium, and strontium-90. Samples are also being sent to a contract analytical laboratory for samples at the deepest level at which contaminants are detected in the chemical van and the next level at which no contaminants are detected. These samples also serve as quality assurance/quality control samples. Air permeability and pore gas measurements are being made in all holes.

Stage 2. The number and location of the shallow-angle air core holes (CAH-1 and -2), at 2.5° from horizontal, will be determined on the basis of information obtained in the first stage of drilling. It must be recognized that at such a shallow angle, there is a risk of poor core recovery.

The depths of these holes would also be determined on the basis of information from Stage 1. Although Stage 1 will provide information about the depths of trenches and migrating contaminants, some uncertainty will remain about the depths of the trenches, which will have to be part of this decision. We plan to drill these holes in the summer of 1996.

Finally, we note that health and safety concerns have been a significant part of the development of this drilling plan. It is of the utmost importance that drilling not penetrate the trenches and shafts in MDA C. Our strategy of bounding the contaminants so as to set reasonable locations for future unsaturated zone monitoring, rather than detecting releases near individual trenches and shafts, is consistent with these health and safety concerns. As more information is obtained, it may become possible to drill safely in areas closer to the trenches and shafts.

We apologize for the delay in transmitting this letter to you and we request your approval of these changes.

If you have any questions, please feel free to contact Cheryl Rofer at (505) 667-2988 or Mike Gilgosch at (505) 667-5794.

Sincerely,

Jorg Jansen, Program Manager
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Los Alamos Area Office

JJ/TT/rfr

Enclosure: Material Disposal Area C Drilling Locations

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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 gather and evaluate 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: Modification to the Resource Conservation and Recovery Act Facility Investigation Work Plan for Operable Unit 1147, Los Alamos National Laboratory NM0890010515

Name: _____ Date: 9-27-95

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Environmental Restoration Project
Los Alamos National Laboratory

or

Tom Baca, Program Director
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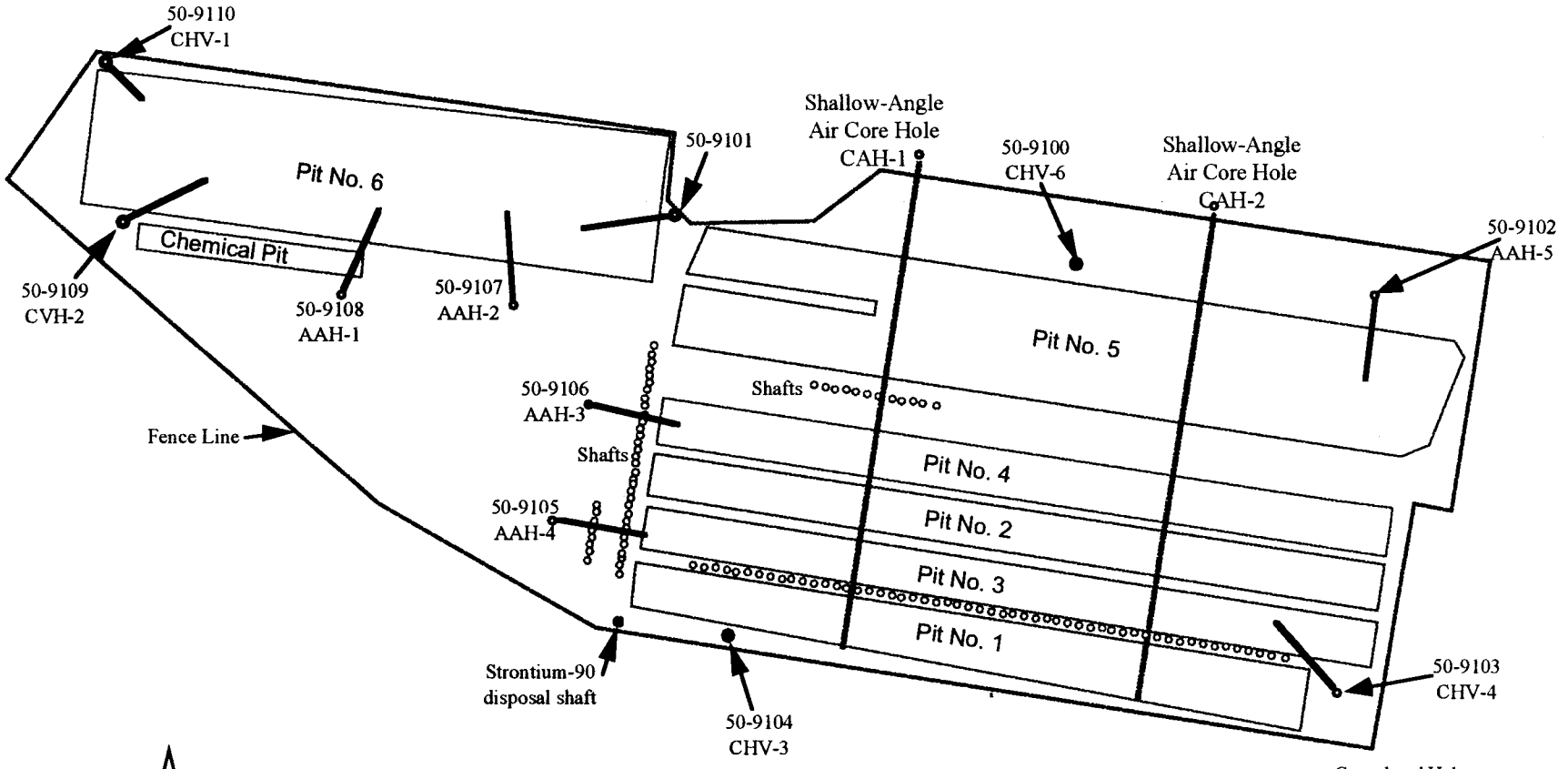

PROPOSED DRILLING PLAN FOR MDA C
Field Unit 5, Technical Area 50

Completed Holes

Location	Total Drilled Distance	Angle (from Vertical)
50-9100	210'	0°
50-9101	119'	45°
50-9102	110'	45°
50-9103	120'	45°
50-9104	90'	0°
50-9105	120'	45°
50-9106	120'	45°
50-9107	118'	45°
50-9108	120'	45°
50-9109	120'	45°
50-9110	91'	30°

Ed 8/23/95