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September 14, 1998

Joe Vozella, DOE AIP POC
U. S. Department of Energy
Los Alamos Area Office, MS A316
Los Alamos, New Mexico 87544

RE: Review of Los Alamos National Laboratories "Sampling Plan for DP Canyon" dated April 1998.

Dear Mr. Vozella:

The DOE Oversight Bureau (DOE OB) has reviewed the subject document. The attached comments are provided for the purpose of communicating the results of the review. They are not provided or intended for the purpose of representing the regulatory position of the New Mexico Environment Department.

The Sampling Plan for DP Canyon provides the framework for the characterization of the DP Canyon system including sediments, surface water and alluvial ground water. The plan lacks necessary details regarding specific contaminants found during previous investigations. Also, the plan would be improved if it included more complete information about early laboratory operations that may have resulted in releases to DP Canyon.

The attached comments address these subjects and include recommendations intended to better characterize the canyon system. The comments have been discussed with the appropriate LANL ER Canyons Focus Area Staff.

If there are any questions, please contact me at 505-672-0448 or Chris Hanlon-Meyer, the DOE Oversight Bureau Canyons Focus Group Manager at 505-827-1536.

Sincerely,

Steve Yanicak, LANL POC
Department of Energy Oversight Bureau

SY:CHM:chm

Attachment

cc w/o attachment:

J. Parker, NMED, Chief, DOE Oversight Bureau



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cc w/ attachment:

B. Garcia, NMED, Chief, HRMB
M. Leavitt, NMED, Chief, GWQB
G. Saums, NMED, Program Manager, SWQB
T. Taylor, DOE, Program Manager, LAAO, MS A316
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New Mexico Environment Department
DOE Oversight Bureau Review of
Sampling Plan for DP canyon,
Los Alamos National Laboratory, April 1998

General Comments:

1. The Sampling and Analysis Plan (SAP) should include a map or maps which show past, present and proposed features. The map(s) should show PRSs, monitor wells, structures, roads, and geology, as well as existing and proposed storm-water sampling locations. A similar map is provided in the RFI report 93-06-07.
2. The document compares sample concentrations to SALs as included in previous PRS reports. In order to better describe existing information, maximum concentrations should be compared to Administrative Authority approved background for inorganics and radionuclides, and to MDLs, PQLs, or EQLs for organics.
3. The document should include additional information regarding concentrations of contaminants from historical investigations. Statements made in sections 1.3.2 and 1.3.3 regarding contaminant concentrations should be backed up with one table presenting concentrations, current SALs and background values from the most current LANL submittal of Inorganic and Radionuclide Data for Soils, Canyons Sediments and Bandelier Tuff.

Specific Comments:

1. § 1.1, paragraph 1, Page 1, Site Description.

“As estimated in the early 1970’s, approximately 0.2 square miles of this drainage area is developed with roads, buildings, parking areas, and airport facilities (Purtymun 1974, 0193).”

The work plan relies on a 1970’s estimate of the impermeable surface within the drainage.

The work plan should discuss the entire area receiving storm water and any changes to impermeable surface area due to development or demolition within the drainage area since the 1970’s estimates.

2. § 1.1, paragraph 4, Page 3, Site Description.

“DP Spring flows from 0 to 20 L/min, depending on the season.”

The work plan states a range of spring flow but does not describe the measurement frequency and method of stream flow measurement.

The work plan should include more information on the method of spring flow measurement and a hydrograph illustrating the flow, measurement frequency and the time of year that measurements were made.

3. § 1.2, paragraph 2, Page 5, Problem Definition.

“Los Alamos Canyon will be addressed in a separate investigation being conducted by the Canyons Investigation Team.”

The work plan states that the DP Canyon SAP will be implemented separately from the LA/Pueblo Canyons investigation.

Because much of the laboratory's influence on Los Alamos Canyon watershed is via DP Canyon, the relationship of the two canyons should be considered when collecting samples and interpreting ground water and surface water data. DOE OB suggests that LANL characterize and monitor ground water and surface water in DP Canyon and Los Alamos Canyon above and below the DP Canyon confluence simultaneously, soon after a rainfall event. This will give important information regarding the contributions of contaminants and migration rates of contaminants from DP Canyon.

4. § 1.2, paragraph 6, Page 6, Problem Definition.

"This model shows the nature of releases, the fate and transport of these releases in environmental media, and the exposure pathways used in the human health risk assessment."

The conceptual model presented in Figure 1.2-1 includes only surface water, wind and plant uptake as potential transport mechanisms.

Given the nature of the possible contaminants released into DP Canyon, the conceptual model should address other transport pathways to include: migration of contaminants from the surface to the vadose zone, from the vadose zone into groundwater, and from groundwater back to surface water (DP Spring) and from surface water back to groundwater.

5. § 1.3, Table 1.3.1, Page 8, Summary of Historical Data for DP Canyon.

To better represent the historical data, the table should be modified to include: sample location, all COCs regardless if there is a SAL or not, concentration ranges, analytical detection limit, current SALs and background values from the most current LANL submittal of Inorganic and Radionuclide Data for Soils, Canyons Sediments and Bandelier Tuff.

6. § 1.3.2, paragraph 2, Page 12, Subsurface Investigations.

The document includes information regarding the depth to water during drilling but fails to include information on water-table fluctuations.

The document should include information regarding the water-level fluctuations in the LAUZ wells, wells down gradient (e.g. LAO-2) and fluctuation of flow from DP Spring .

7. § 1.3.4, paragraph 1, Page 21, Geomorphic Investigation.

The document describes an investigation and resulting map of the geology related to DP Canyon.

The information resulting from the geomorphic investigation should be included in a map as an appendix to the SAP.

8. § 2.2, paragraph 2, Page 23, DP Canyon Reach Descriptions.

"PRSs located along Reach DP-1 include PRS 21-029 (DP Tank Farm), PRSs 21-013(d, e), and PRS 21-024(f))see Fig. 1.3-1)."

The SAP does not include information regarding other PRSs that may contribute or may have contributed contaminants in the past (i.e. Townsite PRSs in TA-1 and TA-0).

The SAP should include information on historical operations, potential contaminants, and existing data for sites in TAs 1 and 0 that may contribute or may have contributed contaminants to DP Canyon.

9. § 2.4.2.2, paragraph 1, Page 32, Limited Suite Analysis.

“... will eliminate several COPCs, and that analysis for a limited suite of COPCs will be conducted during additional phases of the sediment investigation.

The document does not discuss interaction with the RPMP regarding limiting the suite of COPCs investigated in additional phases of the investigation.

The document should state that LANL will consult with the RPMP before eliminating COPCs.

10. § 2.5.1, paragraph 1, Page 33, Storm Water Sample Collection and Analysis.

“... and at a point immediately down-canyon from commercial areas on the north and south edges of the canyon.”

The document is vague regarding the positioning of the storm-water sampling station.

We suggest that the sampling station down gradient from commercial areas be located at the eastern end of Reach DP-2. Additionally, we suggest that LANL sample storm water at the old ES station DPS-4 on the eastern end of Reach DP-4. This will provide information on the contaminant migration into Los Alamos Canyon via storm-water runoff.

11. § 2.5.2, paragraph 1, Page 34, Alluvial Groundwater Sample Collection and Analysis.

“Water samples collected in alluvial wells LAUZ-1 and LAUZ-2 and at DP Spring...”

We suggest that LANL investigate the possibility of alluvial ground water or interflow in DP Canyon between the tank farm and LAUZ-1. This would supply much needed information regarding the potential for contaminant migration via alluvial ground water or inter flow in the upper part of DP Canyon.

12. § 2.5.2, paragraph 2, Page 34, Alluvial Groundwater Sample Collection and Analysis.

“Additionally, a tracer test using Alluvial Wells LAUZ-1 and LAUZ-2 is proposed to confirm the hypothesis of coupling between DP Canyon alluvial water and DP Spring and to determine travel time and water storage along this pathway.”

Additional information should be included regarding the tracer type, sampling interval and logistics. We suggest that LANL consult with NMED staff when developing the implementation plan for the tracer test. We suggest that the test include alluvial water below DP Spring and into Los Alamos Canyon. Inexpensive drive point monitor wells should be used in DP Canyon just above its confluence with Los Alamos Canyon. Samples should be collected in alluvial wells LAO-2, LAO-6, and LA 5.19 Spring. By expanding the tracer test LANL will gain important information regarding the fate of contaminants originating in DP Canyon.

13. § 2.5.2, paragraph 2, Page 34, Alluvial Groundwater Sample Collection and Analysis.

The document should include information on the type and location of Regional Aquifer Well R-8 and how it will be used during characterization of DP Canyon.

14. § 3.1.2.2, paragraph 1, Page 35, Fixed Point Radiation Measurements.

“Using alpha, beta, and gamma (shielded) detectors, 5-minute measurements will be collected at locations where gamma radiation is elevated as indicated by the results of the walkover survey, and where geomorphic units that may contain contaminants are exposed.”

To make use of previously collected data, additional fixed-point measurements should be obtained at locations where the TA-21 grid sampling results show elevated radionuclides. This will facilitate the correlation of existing data with fixed point measurement data during characterization decision making.

15. § 3.2.2, paragraph 1, Page 37, Sample Collection for Full-Suite Analysis.

“A minimum of one sediment sample will be collected from each reach for a full suite of analysis.”

Although the document states that at a minimum, one sample will be collected from each reach, Table 3.2 proposes one sample for reaches DP-1 and DP-3 and eight samples from DP-2 and DP-4.

As stated in the Task/Site Work Plan for Los Alamos Canyon and Pueblo Canyon Section 7.2.4.1.2 paragraph three, “A minimum of four samples will be collected in each reach at locations where the highest radioactivity is measured.” The DP Canyon SAP should follow the Work Plan for Los Alamos and Pueblo canyons when determining the number and location of samples.

16. § 3.2.5, paragraph 1, Page 38, Sediment Sampling Methods.

“Most samples collected in the initial sampling tasks will be grab or vertical composite samples.”

As stated in the NMED RPMP Standard Operating Procedures Manual March 1998 Position Paper, *Compositing of Soil Samples During Site Characterization*, “Without prior NMED HRMB approval, the appropriate method of sample collection for the purposes of site characterization is to obtain discrete samples by depth intervals.”

The document should be more specific as to the intervals of sampling. We suggest that LANL arrange a meeting with the RPMP regarding the nature of the composite sampling. We suggest that LANL collect a grab sample from discrete intervals less than one foot. Thick sedimentary units should be sampled in one foot increments.

Also, the document is unclear as to the total number of samples at each sample location. One sample is proposed for Reach DP-1. It is unclear if this is one sample location or one sample. Several samples may be required in each reach to adequately characterize each geomorphic unit type.

17. § 3.2.6, Table 3.2-3, Page 40, Analytical Suites and Methods.

The table should include a list of the specific analytical laboratory methods that will be used to evaluate the COPCs.

18. § 3.3, paragraph 1, Page 40, Water Sampling.

This section does not include a description of the analyses that will be performed on the water samples.

At a minimum, a table should be included similar to Table 3.2-3, listing the analyte suite and specific laboratory analytical methods for water analysis.

To identify the phase in which contaminants are migrating, we recommend that LANL sample both suspended (total) and dissolved fractions of surface water and ground water as suggested in the NMED RPMP SOP Position Paper *Filtered VS. Unfiltered Ground Water Samples*. In the case of storm-water runoff, we recommend that LANL separate the sediment load and analyze it separately.

19. Appendix A, Page A-1, Statistical Approach to Limited-Suite Sample Analysis for DP Canyon.

The approach for limited-suite sample analysis described in the document varies from the approach described in the Core Document for Canyons Investigations Section 5.6.3.4 Sample Collection for Limited Suite Analysis.

The Canyons Core Document approach should be followed. The number of samples collected for limited suite analysis should depend on the variability of sediments within a reach, the variability of the field instrument data and the factors stated in Section 5.6.3.4 of the Core Document.

If there are any questions about this review, please contact Steve Yanicak at 505-672-0448 or Chris Hanlon-Meyer, the DOE Oversight Bureau Canyons Focus Group Manager at 505-827-1536.

Document reviewed by: Chris Hanlon-Meyer and Michael Dale.