



State of New Mexico
ENVIRONMENT DEPARTMENT
DOE OVERSIGHT BUREAU
P.O. Box 1663, MS/J-993
Los Alamos, New Mexico 87545



GARY JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

MEMORANDUM

TO: Steve Yanicak, Site POC, DOE Oversight Bureau, NMED
File, DOE Oversight Bureau, NMED

FROM: Michael R. Dale, DOE OB, NMED *MRD*

DATE: May 21, 1998

SUBJECT: Re-submittal of review comments concerning LANL's 1996 Environmental Surveillance Report

The following illustrates my review comments of the referenced document in the requested format that was employed via memorandum from William Stone dated May 13, 1998.

CHAPTER 5 – Surface Water, Groundwater, and Sediment

General Comments

1. The format of this report is much more user friendly than that of the last ES Report (1994) that DOE OB reviewed.
2. It appears that the uncertainties associated with the radionuclide data have decreased, and results appear more reliable.
3. The overall content is very general, and this type of reporting is very basic and elementary. Hence, LANL/DOE may want to investigate the possibility of contracting this work to an outside consultant. A consultant could probably supply an equal-quality product at less cost. This would free-up highly technical/educated LANL staff so that they could conduct/perform more challenging technical projects, studies or tasks.
4. DOE OB recommends that LANL evaluate the usability/applicability of trace-metal analyses, given the fact that the majority of the trace-metal detections for the regional aquifer test wells during 1996 were attributed to the corrosion of well casings and pump columns, rather than in-situ ground-water chemistry, as required by state and federal regulations. If corrosion is the source, are the well casings and pump columns so dilapidated that they are contaminating the regional aquifer? Additional work on the source of metals is warranted.
5. LANL should perform yearly surveillance monitoring at on-site perennial surface waters located in upper Pajarito Canyon near Material Disposal Area (MDA) M, upper Canon de Valle near MDA P and the perennial springs (Burning Ground, SWSC, Starmer's, Bulldog, Charlie's and Homestead Springs) which supply baseflow to these reaches. Additional springs which should also be monitored include Martin, Anderson, DP and TA-18 Springs.

LANL General (Groundwater, Surface water)

LANL/Env. Surv. Misc

Specific Comments

6. Page 115, paragraph 5, line 4

The sediment traps do collect some sediment from Mortandad Canyon as well as Tensite Canyon; however, it appears that a large portion of the sediments being transported are deposited west and upstream of the traps along the canyon-bottom floodplain. On August 17, 1997, a precipitation event resulted in surface-water flow that extended past a man-made diversion channel (Mortandad Canyon active channel) located approximately 300 ft west and upstream of the first trap. Apparently, flow spread across the floodplain area east of the diversion channel, and as a result, a large ($\approx 1600 \text{ ft}^2$) splay-like deposit was formed. Hence, potentially contaminated sediments are being deposited over an extremely large area, making future Remediation efforts, if any, more difficult and costly. Flow control in this area should be re-examined.

7. Page 115, paragraph 6, line 1

An extensive re-evaluation of all historical data and information was performed by the Environmental Restoration Group during 1997, and their re-interpretations show that saturation east of about MCO-7 appears to be present within the Cerro Toledo interval, not the alluvium as previously thought. In addition, water-level data collected by DOE OB for Mortandad Canyon during 1996 show an increase in the water-table gradient near the assumed alluvium/Cerro Toledo contact. Hence, the Cerro Toledo interval may be acting as a drain in the vicinity of MCO-7. Furthermore, ground-water flow direction in the Cerro Toledo may not parallel that of the alluvium, due to geologic control by paleotopography at the top of the underlying Otowi Member of the Bandelier Tuff.

8. Page 116, paragraph 2, line 1

After careful review of the well logs, we suggest that the ground water at CDBO-6 and CDBO-7 lies within the Bandelier Tuff, not the alluvium. In addition, it is possible, if not probable, that the direction of ground-water flow in this saturated zone may not parallel that of the canyon alluvium.

9. Page 119, paragraph 10, line 1

Attempting to determine or interpret trends from data collected at GS-1 may not be worthwhile or valid due to the fact that the source(s) of water sampled at GS-1 varies widely. Surface water collected at GS-1 may come from a variety of sources, such as outfalls located above the TA-50 outfall (e.g., TA-48), the TA-50 outfall itself, local runoff from precipitation events, or some combination of the above. Hence, concentrations of radionuclides and water-quality constituents, such as nitrate as nitrogen, probably vary with the source(s). Contaminant concentrations at GS-1 have indeed varied throughout the 5 yrs (based on ES Reports from 1992 through 1996): tritium (2900 to 80300 pCi/L), ^{90}Sr (1.1 to 33.7 pCi/L), ^{137}Cs (5.7 to 49.6 pCi/L), ^{238}Pu (0.465 to 4.694 pCi/L), and nitrate as nitrogen (3 to 14.97 mg/L).

10. Page 124, paragraph 10, line 5

Observations by the DOE OB show that the pipe break occurred between October 23 and November 15, 1996. It should be noted that water flows into the down-dropped section of the pipe at approximately 20 gpm; the discharge or overflow currently flowing near the holding tanks at the TA-16 entrance may be from this source. DOE OB recommends that 1) all above-ground piping, structures, etc. related to the Water Canyon Gallery be removed as soon as possible, and 2) the area be reclaimed back to its original setting.

11. Page 135, paragraph 5, line 1

The specific type(s) of radioisotopes which were released should be identified.

cc:

J. Parker, NMED, Chief, DOE Oversight Bureau

c:\NES96RPT.COM(5/21/98)