

RADIOLOGICAL SOIL SURVEY ADJACENT TO TA-35, TA-48, TA-50, AND TA-55

Authors: W. D. Purtymun, N. M. Becker, and M. N. Maes

Group: Environmental Surveillance, HSE-8

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Preoperational radionuclide soil concentrations were established around the Laboratory site TA-55 (Plutonium Processing Facilities) in 1977. Soil samples were collected and analyzed from nine locations around TA-55. A second survey was made in 1983. However, the original sampling locations had been disturbed by construction, so five new locations in undisturbed soil were established in the areas around TA-35, TA-48, TA-50, and TA-55 (Fig. 26). Each of these technical areas has processed or is now processing radioactive materials and can release trace amounts to the atmosphere through filters in the ventilation system. This results in deposition of radionuclides on the soil.

The ^{137}Cs concentrations in soil from the five new locations are at or below the maximum levels (1.4 pCi/g) found in regional soils. The ^{238}Pu and $^{239,240}\text{Pu}$ soil concentrations at Station 2 were greater than were those found in regional soils (Table XXVII, 1977 and 1978-1982 Summaries). Station 2 is located south of TA-50 (Fig. 26). The total uranium soil concentrations exceed regional background concentrations at all stations. However, these levels do not indicate

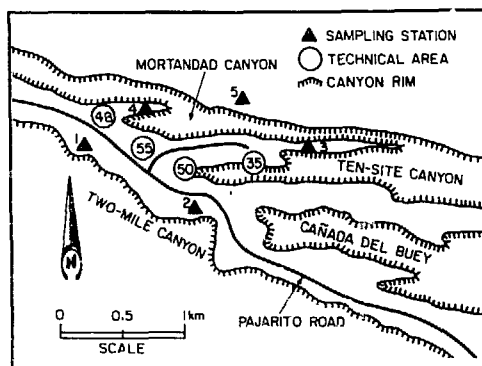


FIGURE 26.
Soil sampling locations
near TA-35, TA-48, TA-50,
and TA-55.

TABLE XXVII. Radiochemical Resurvey of Technical Areas 35, 48, 50, and 55 (July 6, 1983)

Description	^{137}Cs (pCi/g)	^{238}Pu (pCi/g)	$^{239,240}\text{Pu}$ (pCi/g)	Total U ($\mu\text{g/g}$)	Gross Gamma (counts/min/g)
Station 1	0.34 ± 0.15	-0.002 ± 0.004	0.019 ± 0.004	4.5 ± 1.0	6.6 ± 0.26
Station 2	0.54 ± 0.23	0.011 ± 0.005	0.420 ± 0.040	5.4 ± 1.0	6.4 ± 0.26
Station 3	0.97 ± 0.40	0.001 ± 0.004	0.049 ± 0.012	7.2 ± 1.4	7.4 ± 0.26
Station 4	1.4 ± 0.58	-0.002 ± 0.010	0.058 ± 0.026	8.4 ± 1.6	7.6 ± 0.28
Station 5	0.31 ± 0.14	0.002 ± 0.004	0.050 ± 0.020	4.7 ± 1.0	6.3 ± 0.26
Summary for 1983					
No. of Analyses	5	5	5	5	5
Minimum	0.31 ± 0.14	-0.002 ± 0.004	0.019 ± 0.004	4.5 ± 1.0	6.3 ± 0.26
Maximum	1.4 ± 0.58	0.011 ± 0.006	0.420 ± 0.040	8.0 ± 1.6	7.6 ± 0.26
$\bar{x} \pm 2s$	0.71 ± 0.93	0.002 ± 0.011	0.12 ± 0.34	6.1 ± 3.4	6.9 ± 1.2
Summary for 1977					
No. of Analyses	9	9	9	9	9
$\bar{x} \pm 2s$	0.31 ± 0.50	0.003 ± 0.004	0.030 ± 0.060	5.1 ± 3.4	6.6 ± 0.76
Regional Background					
Average Minimum for 1978-1982 ($\bar{x} \pm 2s$)	0.59 ± 0.83	0.001 ± 0.005	0.020 ± 0.061	2.6 ± 1.3	—

contamination but reflect natural uranium leached from soil derived from the tuff. These concentrations are similar to the data collected in 1977 (Table XXVII). Uranium concentrations in soils vary and depend on the rock type that has weathered to form the soil. A comparison of the averages and standard deviations of radiochemical analyses collected in 1977 and 1983 indicates only slight variations between the 2 yr.

The five new stations established in 1983 will provide long-term monitoring of the possible airborne deposition of contaminants in the areas around TA-35, TA-48, TA-50, and TA-55. Comparing 1977 with 1983 data indicates no significant increase in radioactivity of the soil adjacent to these technical areas.

CULTURAL RESOURCES SITES

Author: C. E. Olinger

Group: Environmental Surveillance, HSE-8

Funding Organization: Los Alamos National Laboratory

For national security reasons, the Laboratory is expanding into an area currently occupied by two cultural resource sites, the historic Romero homesteading complex (Laboratory of Anthropology Site No. 16806) and a prehistoric Indian lithic scatter (Site No. 22766). A major archeological salvage and research effort is planned for these sites. The Romero Cabin, of unusual historical significance, will be relocated. The cabin dates from the homesteading period on the Pajarito Plateau, early in the twentieth century.

A permanent site for the Romero Cabin should optimally provide easy access and ongoing historical interpretation to the public. The Laboratory is doubtful whether these considerations can be met by resiting the cabin on Laboratory land. Consequently, the Department of Energy has offered the cabin to the Los Alamos Historical Society. The Society is responsible for managing the Los Alamos County Historical Museum and is well qualified to provide both continuing upkeep and public interpretative services. It has accepted the cabin offer.

Field work for the project is expected to extend over several months. One or more Laboratory reports will publicize the information gained. Laboratory Consulting Archeologist David Snow is overseeing technical aspects of the mitigation under the overall direction of personnel in HSE-8, Environmental Surveillance. Snow has prepared a mitigation plan that assesses the significance of the sites and outlines the Laboratory's mitigation procedures. A historical preservationist will direct actual cabin removal, which will probably involve disassembling and reassembling the structure.