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Errata for

DOE/NE-SH01
ANL-OHS/HP-84-SH01

URANIUM MILL TAILINGS
REMEDIAL ACTION PROGRAM

RADIOLOGICAL SURVEY OF
SHIPROCK VICINITY PROPERTY SH01
SHIPROCK, NEW MEXICO

Page 6	Replace with attached Page 6
Page 10	Fifth line - delete "actinon (^{219}Rn) daughter or"
Page 11	First paragraph, last sentence should read: "Since the radium decay chain concentration in the soil sample at the SH01 site appeared to be about half the uranium concentration, the contamination apparently is primarily natural uranium in the form of unprocessed uranium ore.

July 5, 1984

radionuclides was developed to determine the appropriate yield. The methods used to determine the conversion factors are described in Appendix 2. All readings of disintegrations per minute per 100 cm^2 (dis/min-100 cm^2), as reported in Table 1, are equated to ^{226}Ra plus daughters, unless otherwise stated. It should also be noted that since calibrations are to infinitely thin, flat-plate standards, all readings as reported should be regarded as minimal values; no corrections were made for absorption by surface media.

When possible, the contaminant radionuclides were identified at the time of the survey by performing gamma-spectral analysis on the contaminated item or on a sample of material taken from the contaminated area. These analyses were performed with a NaI(Tℓ) crystal or hyperpure germanium (HPGe) detector coupled to the appropriate electronics and to a multichannel analyzer. This instrumentation (also described in Appendix 1), along with all other survey and sampling devices, was housed in a mobile laboratory--a specially designed, converted motor home.

Air Samples

Air samples were collected with a commercial vacuum cleaner modified at ANL for use as a particulate-air-sampling-device. A total volume of about 30 m^3 of air was sampled at a flow rate of 40 m^3/h (670 ℓ/m). A 10% portion, 5 cm in diameter, was removed from the filter medium after collection and counted for both alpha and beta-gamma activity in the proportional counter, using a Mylar spun top. Concentrations of radon (^{222}Rn) daughters, thoron (^{220}Rn) daughters, and any long-lived airborne radionuclides were determined based on the results of several counts of each sample at specified intervals.

Details of the equipment used are given in Appendix 1. The assumptions used and details of the air-sampling techniques and associated calculations are given in Appendix 3.

Soil Sample

One surface soil sample (18C-S-1) was collected from a localized area exhibiting elevated levels of radioactivity (i.e., "hot spot") as determined by direct instrument survey. Two surface soil samples (18BKGD-SB-1 and 2) were taken at additional locations in the Shiprock area to determine back-