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Health and Safety Research Division

**Nuclear and Chemical Waste Programs
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**RESULTS OF THE RADIOLOGICAL SURVEY AT
EXIT 4, INTERSTATE 90, ALBANY, NEW YORK (AL212)**

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RESULTS OF THE RADIOLOGICAL SURVEY AT
EXIT 4, INTERSTATE 90, ALBANY, NEW YORK (AL212)

INTRODUCTION

Work with depleted uranium began in Colonie, New York, during 1958 at a plant owned by the National Lead Company.¹ Beginning in 1961, the Atomic Energy Commission (AEC), and other federal agencies engaged the National Lead Company (presently NL Industries, Inc.) in numerous contracts and subcontracts for the fabrication of enriched (3.6%) uranium fuel elements for the Hallam Reactor (Chicago Operations Office) and for the chemical processing of unirradiated, enriched uranium scrap (New York Operations Office).^{2,3} Since the termination of the AEC contracts, the work at the plant was devoted to the fabrication of shielding components, ballast weights, and projectiles from depleted uranium.¹ This plant has operated at a reduced level of activity after February 1980, and ownership of the plant and property was transferred to the Department of Energy (DOE) in February 1984.

A number of properties in the Albany/Colonie area have been identified as being potentially contaminated with uranium originating from the former National Lead Company's uranium forming plant in Colonie, New York.⁴ Radiological surveys were performed at nine properties by members of the Radiological Survey Activities (RSA) group at Oak Ridge National Laboratory (ORNL) during the period April 27-May 8, 1987. The property at Exit 4 between Yardboro Avenue and Interstate 90 in Albany, New York (AL212) was the subject of a radiological investigation initiated April 27, 1987.

The area of survey of the property of the State of New York was the north side of the right-of-way of Interstate 90 (I-90) at Exit 4 (the Slingerlands exit) from the fence along the south side of Yardboro Avenue to the berm of the west-bound lanes of I-90. The survey, starting at the I-90 bridge over Central Avenue continued west for approximately 570 m. The width of the area ranged from ~10 m to 195 m. To perform the survey, a network of sectors forming a grid was established, beginning with a series of basing points measured at ~23-m intervals at the fence along Yardboro Avenue. Sectors were set by projection of lines from the basing points, perpendicular to the fence, to the berm of I-90. Then parallel lines at 23-m intervals were set (lines 23L through 184L, Fig. 1). The grid blocks formed by this procedure vary in shape and area because of the unusual shape of the survey area. Refer to Table 2 for the designations used for grid locations shown on Fig. 1. Features of the areas surveyed are shown in Figs. 2 and 3.

SURVEY METHODS

The radiological survey methods employed in the survey of this property are described in Ref. 5.

The radiological survey of this property included: (1) gamma exposure rates at 1 m above the ground surface and at the ground surface at outdoor grid locations; (2) a gamma scan of the entire ground surface outdoors; and (3) samples of outdoor soil. A comprehensive description of the survey methods and instrumentation has been presented in another report.⁶

SURVEY RESULTS

Typical background radiation levels for the Albany area are presented in Table 1. The data is provided for purposes of comparison with the survey results presented in this section.

All measurements presented in this report are gross readings; background radiation levels have not been subtracted. Similarly, background concentrations have not been subtracted from radionuclide concentrations in soil samples.

Gamma Measurements

Results of grid point/grid block measurements are presented in Table 2. Surface gamma exposure rates measured at grid points over the entire outdoor property are shown on Fig. 4. Gamma exposure rates at 1 m above the ground surface ranged from 7 to 12 $\mu\text{R/h}$ (microroentgens* per hour) and averaged 9 $\mu\text{R/h}$. Gamma exposure rates at the ground surface at grid points ranged from 7 to 13 $\mu\text{R/h}$ and averaged 10 $\mu\text{R/h}$. The maximum gamma exposure rate measured on the property was 29 $\mu\text{R/h}$.

Numerous spots having elevated gamma exposure rates in the range of 20-29 $\mu\text{R/h}$ were observed. Sources of the gamma rates included the soil, uranium 238-contaminated plywood, rocks, and stone. The gamma radiation from the soil and the plywood are presumed to be associated with activities at the former NL Industries plant; the rocks and stone are not.

Specifically, granite curbing stone has been found at most properties on Yardboro Avenue. Also, the source of gamma measured at the

*The roentgen (R) is a unit which was defined for radiation protection purposes for people exposed to penetrating x-rays or gamma radiation. A microroentgen (μR) is one millionth of a roentgen. A milliroentgen (mR) is one thousandth of a roentgen or one thousand microroentgens.

surface of the asphalt-covered sidewalk was investigated at location 19+12, 0.5R. The surface was removed to a depth of ~6-8 mm with essentially no change in the gamma exposure rate. Then all the asphalt was removed, exposing a flat, red-brown stone surface. A piece was removed and analyzed. Radium-226 measured 8.4 pCi/g. There is little probability that these sources of radioactivity could be associated with or derived from prior activities at the Colonie site. Bricks, concrete, and naturally occurring stone such as granite typically exhibit higher gamma exposure rates when compared to surrounding soils.

Abandoned pieces of plywood in grid blocks 19+00, 115L and 20+00, 92L exhibited elevated gamma exposure rates of 20 and 23 μ R/h, respectively. Samples of the plywood were analyzed to determine the radionuclide content (see "Soil Sampling").

Soil Sampling

Seventy-nine soil samples were taken from depths of 0 to 5 cm at this property from 79 locations. Seventy-four of these samples, taken without strict regard to gamma exposure rates at the sampling points, are denoted as systematic samples (AL212S). Five soil samples, designated as biased samples (AL212B), were collected from areas having elevated gamma exposure rates. Two of the biased soil samples (AL212B2 and AL212B4) were taken from the same two locations where pieces of plywood showed elevated gamma exposure rates. The plywood was also sampled (samples AL212B3 and AL212B5) to determine the radionuclide content. The locations of the samples are shown in Fig. 5, and the results of analysis are presented in Table 3.

Concentrations of ^{238}U in the systematic soil samples ranged from <0.92 to 86 pCi/g (picocuries* per gram) and averaged 14 pCi/g. Concentrations of ^{238}U in the biased soil samples ranged from 1.5 to 230 pCi/g, averaging 58 pCi/g. The concentration of ^{238}U in both samples of plywood (AL212B3 and AL212B5) was 1,300 pCi/g. An area of approximately 790 m^2 , bounded by 18+00, 0L, 19+00 + 0L, 19+00, 46L, and 18+00, 23L, contained the following concentrations of uranium-238 in the soil samples: AL212S30, 25 pCi/g; AL212S71, 51 pCi/g; AL212S38, 30 pCi/g; AL212S39, 96 pCi/g; AL212S40, 34 pCi/g; and AL212S31, 20 pCi/g. The average concentration for the area is 40 pCi/g. An area of approximately 800 m^2 exceeds the DOE guideline for ^{238}U content in soil (Fig. 6).

Radium-226 was measured in each sample. The concentrations of ^{226}Ra in systematic samples ranged from 0.46 to 2.6 pCi/g and averaged 0.70 pCi/g. The concentrations of ^{226}Ra in all biased samples ranged from <0.54 to 8.4 pCi/g, averaging 1.7 pCi/g.

*The curie is a unit used to define the radioactivity in a substance and equals that quantity of any radioactive isotope undergoing 2.2×10^{12} disintegrations per minute. The picocurie is one million-millionth of a curie or that amount yielding 2.2 disintegrations per minute.

A summary of the outdoor measurement results is provided in Table 4.

SIGNIFICANCE OF FINDINGS

The background gamma radiation exposure rate for the State of New York averages $9.5 \mu\text{R/h}$ ^{8,9} and averages $9 \mu\text{R/h}$ for the Albany area (Table 1). The gamma exposure rates measured on this property at 1 m above the ground surface range from 7 to $12 \mu\text{R/h}$ and average $9 \mu\text{R/h}$ (the same as the background for the Albany area). The DOE guidelines¹⁰ state that gamma exposure rates inside occupied or habitable structures shall not exceed $20 \mu\text{R/h}$ above background. Gamma exposure rates outside of structures shall be such that these exposure rates, due to residual radioactivity, will not result in potential doses (assuming a conservative but plausible use scenario) in excess of 100 mrem/y for long term exposure. These guidelines are not exceeded at this property.

The DOE guideline for ^{238}U concentration in soil at the Colonie, New York site is: (a) the ^{238}U concentration shall not exceed the limits of 35 pCi/g averaged over an area of $10 \text{ m} \times 10 \text{ m}$ ($33 \text{ ft} \times 33 \text{ ft}$), and over 5 cm (2 in.) depth; and (b) the concentration shall not exceed the additional restriction of 100 pCi/g maximum at a spot (1 m^2) averaged over 5 cm (2 in.) depth.^{11,12} An area approximating 800 m^2 was found that averages 40 pCi/g of ^{238}U in the soil, an average concentration above the DOE guideline. Concentrations of ^{238}U were $1,300 \text{ pCi/g}$ in samples of plywood at two isolated areas on the property; the maximum concentration of ^{238}U in the soil was 230 pCi/g . Both exceed the surface soil limit of 100 pCi/g , averaged over a 1 m^2 area. The average concentration of ^{226}Ra found in the biased samples, 1.7 pCi/g , is slightly above the Albany area background range of 0.48 to 1.2 pCi/g .

In summary, while some radiological measurements at this property are in excess of background levels normally encountered in this area of New York, under current conditions there is no reasonable probability that individuals using the property will receive radiation exposure in excess of limits established for protection of the general public. However, some areas of soil contain concentrations of uranium-238 in excess of guidelines used by the Department of Energy to determine if remedial action is warranted.

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Fig. 1. Diagram showing grid sector and block locations outdoors on the property at Exit 4 between Yardboro Avenue and Interstate 90, Albany, New York (AL212)

Fig. 3. View of the property at Exit 4 between Yardboro Avenue and Interstate 90, Albany, New York (AL212) looking southeast from location 22+00, 23L.

Fig. 2. View of the property at Exit 4 between Yardboro Avenue and Interstate 90, Albany, New York (AL212) looking southeast from location 18+00, 23L.

Fig. 4. Surface gamma exposure rates measured at grid points outdoors on the property at Exit 4 between Yardboro Avenue and Interstate 90, Albany, New York (AL212)

Fig. 5. Locations of soil samples on the property at Exit 4 between Yardboro Avenue and Interstate 90, Albany, New York (AL212).

Fig. 6. Area estimated to contain uranium-238 concentrations exceeding guidelines in the soil on the property between Yardboro Avenue and Interstate 90, Albany, New York (AL212).

Table 1. Background radiation levels in the Albany area

Type of radiation measurement or sample	Radiation level or radionuclide concentration	
	Range	Average
Gamma exposure rate at 1 m above floor or ground surface ($\mu\text{R/h}$) ^a	8-10	9
Concentration of radionuclides in soil (pCi/g) ^b		
²³⁸ U	0.76-1.2	0.96
²²⁶ Ra	0.48-1.2	0.85

^aValues obtained from four locations in the Albany area.

^bSoil samples (NY1-NY6) obtained from six locations
around the Albany area.⁷

Table 2. Results of the gamma exposure rate measurements outdoors on the property at Exit 4, Interstate 90, Albany, New York (AL212)

Grid location ^a	Grid point measurements ^b (μ R/h)		Range of gamma exposure rate during scan of grid block ^d (μ R/h)
	Gamma exposure rate at 1 m	Gamma exposure rates at the surface ^c	
1+00, 0L	10	10	9-11
2+00, 0L	9	9	9-11
3+00, 0L	9	12	9-13
4+00, 0L	9	9	9-10
5+00, 0L	9	10	9-10
6+00, 0L	9	9	9-11
7+00, 0L	9	9	8-10
7+00, 23L	9	9	8-10
7+00, 69L	e	e	9-12
7+00, 92L	e	e	9-12
8+00, 0L	8	8	7-10
8+00, 23L	8	8	7-10
8+00, 46L	e	e	7-12
8+00, 69L	10	10	8-13
8+00, 92L	7	8	6-10
9+00, 0L	9	9	6-12
9+00, 23L	9	9	6-12
9+00, 46L	e	e	7-12
9+00, 69L	e	e	7-13
9+00, 92L	9	9	7-11
10+00, 0L	8	8	8-12
10+00, 23L	e	e	8-12
10+00, 46L	e	e	7-11
10+00, 69L	e	e	7-12
10+00, 92L	7	7	7-9
10+00, 115L	8	8	7-11
11+00, 0L	10	10	7-10
11+00, 23L	e	e	8-12
11+00, 46L	10	10	7-10
11+00, 69L	e	e	7-11
11+00, 92L	11	13	10-14
11+00, 115L	e	e	10-12
12+00, 0L	9	10	7-13
12+00, 23L	e	e	9-12
12+00, 46L	e	e	7-10
12+00, 69L	e	e	8-12
12+00, 92L	e	e	8-14
12+00, 115L	10	10	10-23
12+00, 138L	e	e	8-11
13+00, 0L	11	12	7-12
13+00, 23L	9	9	7-11

Table 2 (continued)

Grid location ^a	Grid point measurements ^b ($\mu\text{R/h}$)		Range of gamma exposure rate during scan of grid block ^d ($\mu\text{R/h}$)
	Gamma exposure rate at 1 m	Gamma exposure rates at the surface ^c	
13+00, 46L	e	e	8-11
13+00, 69L	10	11	8-11
13+00, 92L	10	11	10-12
13+00, 115L	12	10	9-12
13+00, 138L	11	12	8-12
14+00, 0L	10	12	7-12
14+00, 23L	10	10	8-11
14+00, 46L	9	9	8-11
14+00, 69L	7	10	9-12
14+00, 92L	10	10	9-13
14+00, 115L	9	10	9-13
14+00, 138L	11	12	10-13
14+00, 161L	e	e	9-13
15+00, 0L	10	10	9-12
15+00, 23L	9	9	7-12
15+00, 46L	8	8	8-12
15+00, 69L	8	9	8-12
15+00, 92L	8	9	7-11
15+00, 115L	10	9	6-11
15+00, 138L	7	9	7-10
15+00, 161L	12	12	8-12
16+00, 0L	10	10	8-12
16+00, 23L	9	9	7-11
16+00, 46L	8	9	7-10
16+00, 69L	12	13	10-13
16+00, 92L	11	12	10-12
16+00, 115L	10	10	7-12
16+00, 138L	10	12	7-13
16+00, 161L	11	11	10-13
17+00, 0L	10	10	8-12
17+00, 23L	12	12	9-14
17+00, 46L	9	10	7-11
17+00, 69L	9	9	8-10
17+00, 92L	8	9	7-10
17+00, 115L	7	7	7-10
17+00, 138L	8	9	9-12
17+00, 161L	9	11	8-11
18+00, 0L	12	12	7-12
18+00, 23L	9	10	7-12
18+00, 46L	9	10	7-12
18+00, 69L	10	9	7-10

Table 2 (continued)

Grid location ^a	Grid point measurements ^b ($\mu\text{R/h}$)		Range of gamma exposure rate during scan of grid block ^d ($\mu\text{R/h}$)
	Gamma exposure rate at 1 m	Gamma exposure rates at the surface ^c	
18+00, 92L	9	10	7-10
18+00, 115L	9	9	7-12
18+00, 138L	9	10	7-10
18+00, 161L	9	10	6-20
19+00, 0L	9	10	9-13
19+00, 23L	9	11	7-12
19+00, 46L	8	10	7-11
19+00, 69L	9	9	7-11
19+00, 92L	10	11	7-11
19+00, 115L	9	9	7-20
19+00, 138L	9	10	7-10
19+00, 161L	9	10	7-16
20+00, 01L	10	11	10-14
20+00, 23L	9	10	7-12
20+00, 46L	10	10	7-12
20+00, 69L	10	11	7-10
20+00, 92L	10	9	9-23
20+00, 115L	9	9	7-11
20+00, 138L	9	10	7-12
20+00, 161L	9	9	7-16
20+00, 184L	9	8	8-12
21+00, 0L	9	9	7-11
21+00, 23L	8	8	7-12
21+00, 46L	9	10	8-11
21+00, 69L	10	10	7-11
21+00, 92L	9	9	8-12
21+00, 115L	9	9	7-11
21+00, 138L	e	e	6-11
21+00, 161L	9	9	7-14
21+00, 184L	9	9	9-12
22+00, 0L	9	10	7-12
22+00, 23L	9	9	7-11
22+00, 46L	10	11	8-12
22+00, 69L	e	e	-
22+00, 92L	e	e	-
22+00, 115L	e	e	-
22+00, 138L	e	e	6-11
22+00, 161L	9	8	8-14
22+00, 184L	9	9	9-12
23+00, 0L	9	10	-
23+00, 23L	9	11	-

Table 2 (continued)

Grid location ^a	Grid point measurements ^b ($\mu\text{R/h}$)		Range of gamma exposure rate during scan of grid block ^d ($\mu\text{R/h}$)
	Gamma exposure rate at 1 m	Gamma exposure rates at the surface ^c	
23+00, 46L	e	e	-
23+00, 69L	e	e	-
23+00, 92L	e	e	-
23+00, 115L	e	e	-
23+00, 138L	e	e	-
23+00, 161L	8	9	-
23+00, 184L	9	9	-
10+00, OR	e	e	9-13
11+00, OR	e	e	10-12
12+00, OR	e	e	10-13
13+00, OR	e	e	10-14
14+00, OR	e	e	10-13
15+00, OR	e	e	10-13
16+00, OR	e	e	9-14
17+00, OR	e	e	10-14
18+00, OR	e	e	7-12
19+00, OR	e	e	7-29
20+00, OR	e	e	12-20
21+00, OR	e	e	9-23
22+00, OR	e	e	9-16
23+00, OR	e	e	-

^aGrid location shown on Fig. 1.

^bGrid point measurements are discrete measurements at each grid point.

^cThese values are shown on Fig. 4.

^dGrid block measurements are obtained by a gamma scan of the entire block.

^eInaccessible.

Table 3. Results of soil sample analysis on the property at Exit 4, Interstate 90, Albany, New York (AL212)

Sample	Location ^a	Depth (cm)	Radionuclide concentration (pCi/g)		
			²²⁶ Ra ^b	²³⁸ Uc	
Systematic samples ^d					
AL212S1	1+00, 10L	0-5	0.71	3.8	
AL212S2	2+00, 15L	0-5	2.6	36	
AL212S3	3+00, 10L	0-5	0.52	1.3	
AL212S4	4+00, 10L	0-5	0.75	13	
AL212S5	5+00, 1L	0-5	0.65	9.6	
AL212S6	6+00, 15L	0-5	0.75	10	
AL212S7	7+00, 9.4L	0-5	0.77	8.5	
AL212S8	8+00, 7L	0-5	0.46	12	
AL212S9	9+00, 4L	0-5	0.68	12	
AL212S10	9+00, 92L	0-5	0.73	8.0	
AL212S11	10+00, 0L	0-5	0.71	16	
AL212S12	11+00, 0L	0-5	0.62	14	
AL212S13	11+00, 46L	0-5	0.73	17	
AL212S14	11+00, 92L	0-5	0.98	7.3	
AL212S15	12+00, 0L	0-5	0.58	18	
AL212S16	13+00, 0L	0-5	0.83	18	
AL212S17	13+00, 69L	0-5	0.70	10	
AL212S18	13+00, 115L	0-5	0.65	4.1	
AL212S19	14+00, 0L	0-5	0.73	20	
AL212S20	15+00, 0L	0-5	0.65	19	
AL212S21	15+00, 46L	0-5	0.61	14	
AL212S22	15+00, 92L	0-5	0.80	16	
AL212S23	15+00, 138L	0-5	0.65	6.5	
AL212S24	16+00, 0L	0-5	0.65	15	
AL212S25	17+00, 0L	0-5	0.54	23	
AL212S26	17+00, 46L	0-5	0.74	24	
AL212S27	17+00, 92L	0-5	0.65	20	
AL212S28	17+00, 138L	0-5	0.75	2.3	
AL212S29	17+00, 161L	0-5	0.91	8.4	
AL212S30	18+00, 0L	0-5	0.65	25	
AL212S31	18+00, 23L	0-5	0.58	20	
AL212S32	18+00, 46L	0-5	0.76	15	
AL212S33	18+00, 69L	0-5	0.73	7.0	
AL212S34	18+00, 92L	0-5	0.83	5.3	
AL212S35	18+00, 115L	0-5	0.89	4.7	
AL212S36	18+00, 138L	0-5	0.80	13	
AL212S37	18+00, 161L	0-5	0.69	4.6	

Table 3 (continued)

Sample	Location ^a	Depth (cm)	Radionuclide concentration (pCi/g)	
			²²⁶ Ra ^b	²³⁸ Uc
Systematic samples ^d				
AL212S38	19+00, 0L	0-5	0.59	30
AL212S39	19+00, 23L	0-5	0.72	86
AL212S40	19+00, 46L	0-5	0.73	34
AL212S41	19+00, 69L	0-5	0.66	5.6
AL212S42	19+00, 92L	0-5	0.71	8.2
AL212S43	19+00, 115L	0-5	0.62	7.0
AL212S44	19+00, 138L	0-5	0.71	8.6
AL212S45	19+00, 161L	0-5	0.75	27
AL212S46	20+00, 0L	0-5	0.64	24
AL212S47	20+00, 23L	0-5	0.64	21
AL212S48	20+00, 46L	0-5	0.63	16
AL212S49	20+00, 69L	0-5	0.63	33
AL212S50	20+00, 92L	0-5	0.60	7.0
AL212S51	20+00, 115L	0-5	0.72	15
AL212S52	20+00, 138L	0-5	0.48	12
AL212S53	20+00, 161L	0-5	0.64	7.6
AL212S54	20+00, 184L	0-5	0.59	5.1
AL212S55	21+00, 23L	0-5	0.49	1.1
AL212S56	21+00, 46L	0-5	0.60	13
AL212S57	21+00, 69L	0-5	0.60	9.0
AL212S58	21+00, 92L	0-5	0.70	6.0
AL212S59	21+00, 115L	0-5	0.80	11
AL212S60	21+00, 0L	0-5	0.70	21
AL212S61	21+00, 161L	0-5	0.80	5.0
AL212S62	21+00, 184L	0-5	0.70	4.0
AL212S63	22+00, 0L	0-5	0.70	12
AL212S64	22+00, 23L	0-5	0.70	10
AL212S65	22+00, 46L	0-5	0.70	9.0
AL212S66	- Lost in shipment			
AL212S67	23+00, 0L	0-5	0.60	10
AL212S68	23+00, 23L	0-5	0.70	8.0
AL212S69	23+00, 161L	0-5	0.70	5.0
AL212S70	23+00, 184L	0-5	0.60	5.0
AL212S71	18+19, 0R	0-5	0.50	51
AL212S72	21+08, 0R	0-5	0.50	25
AL212S73	22+04, 0R	0-5	0.50	28
AL212S74	22+00, 160L	0-5	0.60	4.0
AL212S75	22+00, 140L	0-5	0.62	<0.92

Table 3 (continued)

Sample	Location ^a	Depth (cm)	Radionuclide concentration (pCi/g)	
			²²⁶ Ra ^b	²³⁸ U ^c
Biased samples ^e				
AL212B1	4+05, 10L	0-5	0.74	1.5
AL212B2	19+07, 115L	0-5	0.71	230
AL212B3 ^f	19+07, 115L	-	<0.54	1300
AL212B4	20+00, 92L	0-5	0.71	47
AL212B5 ^f	20+00, 92L	-	0.53	1300
AL212B6	12+16, 105L	0-5	0.64	1.5
AL212B7	19+12, 0.5R	0-5	8.4	11

^aLocations of soil samples are shown on Fig. 5.

^bCounting error is $\pm 8\%$ (2σ).

^cError of measurement results is $\pm 15\%$ (2σ) at the 35 pCi/g level.

^dSystematic samples are taken at grid locations irrespective of gamma exposure.

^eBiased samples are taken from areas having elevated gamma exposure rates.

^fSample of contaminated plywood.

Table 4. Summary of outdoor measurements and sample results on the property at Exit 4 between Yardboro Avenue and Interstate 90, Albany, New York (AL212)

Measurement or sample type	Number of measurements/ samples	Range	Mean
Gamma exposure rate at 1 m ($\mu\text{R/h}$) ^a	104	7-12	9
Gamma exposure rate at surface ($\mu\text{R/h}$) ^a	104	7-13	10
Scan, gamma exposure rate near surface ($\mu\text{R/h}$) ^b	-	6-29	-
Concentration of ²³⁸ U in surface soil (pCi/g), systematic locations ^c	74	<0.92-86	14
Concentration of ²³⁸ U in surface soil (pCi/g), biased locations ^d	5	1.5-230	58
Concentration of ²³⁸ U in plywood (pCi/g), biased locations ^d	2	1,300	-
Area estimated to contain ²³⁸ U concentrations exceeding guidelines (m ²)	-	-	800
Concentration of ²²⁶ Ra in surface soil (pCi/g), systematic locations ^c	74	0.46-2.6	0.70
Concentration of ²²⁶ Ra in surface samples (pCi/g), biased locations ^d	7	<0.54-8.4	1.7

^aAt grid points, Table 2.

^bScan of entire property, Table 2.

^cSystematic soil samples, Table 3.

^dBiased soil and plywood samples, Table 3.

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