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Measurements of Air Contaminants during
the Cerro Grande Fire at Los Alamos
National Laboratory



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Cover photo:

The smoke plume from the Cerro Grande fire. (LANL photo)

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CONTENTS

ABSTRACT	1
INTRODUCTION	1
THE CERRO GRANDE FIRE	2
AMBIENT AIR SAMPLING	7
RADIOCHEMICAL ANALYSES	12
GROSS ALPHA AND GROSS BETA ACTIVITY	16
URANIUM	22
PLUTONIUM AND AMERICIUM	29
OTHER RADIONUCLIDES AS MEASURED BY GAMMA SPECTROSCOPY	32
ACKNOWLEDGMENTS	34
REFERENCES	34
APPENDIX	A-1

List of Tables

Table 1. May 2000 Sample Designations and the Number of Samples.....	11
Table 2. Comparison of AIRNET ‘Normal’ and Fire-Related Analysis.....	13
Table 3. Air Concentration Appendix Tables by Analytes and Time Period	15
Table A-1. AIRNET Sampler Locations.....	A-3
Table A-2. Validated AIRNET Samples Collected in May 2000.....	A-4
Table A-3. Rejected AIRNET Samples Collected in May 2000	A-7
Table A-4. Samples With More Than 5% Downtime during the May 2000 Collection Period	A-7
Table A-5. Time Sampled by Sampling Period during May 2000	A-8
Table A-6. 2000 Quarter 2 Samples.....	A-9
Table A-7. Clumps of May 2000 Filters Analyzed by Gamma Spectroscopy.....	A-10
Table A-8. Short-term Gross Alpha Concentrations for May 2000 Samples	A-11
Table A-9. Short-term Gross Beta Concentrations for May 2000 Samples.....	A-13
Table A-10. Short-term Gross Alpha and Gross Beta Concentrations above their 3s Uncertainties.....	A-15
Table A-11. Biweekly Gross Alpha Concentrations for May 2000 Samples	A-17

Table A-12. Biweekly Gross Beta Concentrations for May 2000 Samples	A-19
Table A-13. Biweekly Gross Alpha and Gross Beta Concentrations above their 3s Uncertainties	A-21
Table A-14. Gamma Spectroscopy Measurements for May 2000 Clumps	A-23
Table A-15. Gamma Spectroscopy Measurements above their 3s Uncertainties	A-24
Table A-16. Biweekly and Short-term Americium-241 Concentrations for May 2000 Samples	A-25
Table A-17. Biweekly and Short-term Plutonium-238 Concentrations for May 2000 Samples	A-27
Table A-18. Biweekly and Short-term Plutonium-239 Concentrations for May 2000 Samples	A-29
Table A-19. Biweekly and Short-term Uranium-234 Concentrations for May 2000 Samples	A-31
Table A-20. Biweekly and Short-term Uranium-235 Concentrations for May 2000 Samples	A-33
Table A-21. Biweekly and Short-term Uranium-238 Concentrations for May 2000 Samples	A-35
Table A-22. Biweekly and Short-term Uranium, Plutonium, and Americium Concentrations above their 3s Uncertainties	A-37
Table A-23. Polonium-210 and Lead-210 Concentrations Measured in May 2000	A-39
Table A-24. Polonium-210 and Lead-210 above their 3s Uncertainties	A-40
Table A-25. Americium-241 Concentrations for 2000 Quarter 2	A-41
Table A-26. Plutonium-238 Concentrations for 2000 Quarter 2	A-42
Table A-27. Plutonium-239 Concentrations for 2000 Quarter 2	A-43
Table A-28. Uranium-234 Concentrations for 2000 Quarter 2	A-44
Table A-29. Uranium-235 Concentrations for 2000 Quarter 2	A-45
Table A-30. Uranium-238 Concentrations for 2000 Quarter 2	A-46
Table A-31. Quarterly Uranium, Plutonium, and Americium Concentrations above their 3s Uncertainties	A-47

List of Figures

Figure 1. Uranium-238 decay series.	3
Figure 2. Extent of the Cerro Grande fire	4
Figure 3. Location of five major wildfires in the LANL region.	5
Figure 4. Dispersal of radon gas during a forest fire.	6
Figure 5. Regional AIRNET sampling locations.	8
Figure 6. AIRNET sampling locations in Los Alamos County.	9
Figure 7. AIRNET sampling locations in Area G	10
Figure 8. The effects of sampled uranium, plutonium, and americium uncertainties.	14
Figure 9. Americium-241 concentrations before and after blank corrections	14
Figure 10. Radon-222 decay chain: shorter-lived radionuclides.	17
Figure 11. Radon-222 decay chain: longer-lived radionuclides.	17

Figure 12. Particulate matter concentrations (at TA-54-1001).	18
Figure 13. Gross alpha and gross beta measurements during the Cerro Grande and other fires.	18
Figure 14. Gross alpha and gross beta measurements (at greater resolution) during the Cerro Grande and other fires.....	19
Figure 15. Biweekly gross alpha measurements by location in 2000.....	20
Figure 16. Biweekly gross beta measurements by location in 2000.....	20
Figure 17. Biweekly gross alpha site-to-site variability in 2000.	21
Figure 18. Biweekly gross beta site-to-site variability in 2000.	21
Figure 19. Biweekly gross alpha air concentrations by group for 2000.....	23
Figure 20. Biweekly gross beta air concentrations by group for 2000.....	23
Figure 21. Biweekly gross alpha concentrations for AIRNET sites with the highest concentration in each geographic group.	24
Figure 22. Biweekly gross beta concentrations for AIRNET sites with the highest concentration in each geographic group.	24
Figure 23. Gross alpha measurements versus polonium-210 measurements during the Cerro Grande fire.	25
Figure 24. Gross beta measurements versus lead-210 measurements during the Cerro Grande fire.	25
Figure 25. Short-term uranium isotopic concentrations during the Cerro Grande fire.	27
Figure 26. Quarter 2 uranium isotopic concentrations.	27
Figure 27. AIRNET quarterly uranium concentrations (network-wide concentrations excluding site 77).....	28
Figure 28. AIRNET sites with excess isotopic uranium.	28
Figure 29. Site 77 uranium concentrations.....	29
Figure 30. Two-week americium and plutonium concentrations at the beginning of the Cerro Grande fire (000508 samples)	30
Figure 31. Short-term americium and plutonium concentrations during the Cerro Grande fire (~May 9–14, 2000).....	31
Figure 32. Second quarter 2000 americium and plutonium concentrations.....	31
Figure 33. AIRNET quarterly plutonium and americium concentrations.....	32
Figure 34. Radon-222 decay chain.	33
Figure 35. Beryllium-7 gamma spectroscopy measurements grouped by general location.....	33
Figure 36. Lead-210 gamma spectroscopy measurements grouped by general location.....	34

Measurements of Air Contaminants during the Cerro Grande Fire at Los Alamos National Laboratory

by

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Abstract

Ambient air sampling for radioactive air contaminants was continued throughout the Cerro Grande fire that burned part of Los Alamos National Laboratory. During the fire, samples were collected more frequently than normal because buildup of smoke particles on the filters was decreasing the air flow. Overall, actual sampling time was 96% of the total possible sampling time for the May 2000 samples. To evaluate potential human exposure to air contaminants, the samples were analyzed as soon as possible and for additional specific radionuclides. Analyses showed that the smoke from the fire included resuspended radon decay products that had been accumulating for many years on the vegetation and the forest floor that burned. Concentrations of plutonium, americium, and depleted uranium were also measurable, but at locations and concentrations comparable to non-fire periods. A continuous particulate matter sampler measured concentrations that exceeded the National Ambient Air Quality Standard for PM-10 (particles less than 10 micrometers in diameter). These high concentrations were caused by smoke from the fire when it was close to the sampler.

Introduction

Extensive air monitoring data were collected during the Cerro Grande fire in May 2000. These measurements are compared to pre- and post-fire data to evaluate effects of the fire on ambient air concentrations of natural and anthropogenic radionuclides. The data were collected using the radiological air sampling network, referred to as AIRNET, at Los Alamos National Laboratory (LANL). This network was designed to measure environmental levels of airborne radionuclides that may be released from LANL operations, which include plutonium, americium, uranium, and tritium. In addition, these measurements include natural radionuclides such as lead-210, beryllium-7, and natural uranium.

Regional airborne radioactivity is largely composed of fallout from past atmospheric nuclear weapons tests by several countries, natural radioactive constituents in particulate matter such as uranium and thorium, terrestrial radon diffusing out of the earth and its subsequent decay products, and radionuclides resulting from interactions with cosmic radiation. As currently configured, AIRNET is not sensitive enough to measure regional levels of americium, plutonium, or tritium. Natural uranium is usually detected in AIRNET samples because it is present in local soils, which are the largest source of particulate matter collected on the filters. Gamma spectroscopy analyses normally detect beryllium-7 produced by spallation of common atmospheric gases by cosmic radiation.

The primary source of natural radioactivity measured on the AIRNET filters is from the radon-222 decay chain (Figure 1). Radon-222 decay products are virtually always detected by gross alpha activity (polonium-210), gross beta activity (bismuth-210), and gamma spectroscopic analyses (lead-210).

Past and current activities at LANL impact ambient air concentrations of radionuclides in the ambient air onsite and around the perimeter of the Laboratory. Measurable concentrations of plutonium, americium, and tritium indicate a Laboratory impact. Plutonium and americium are occasionally measured onsite, primarily near decontamination and decommissioning operations and at the Laboratory's low-level radioactive waste disposal site (Area G). Low concentrations of americium and plutonium have also been detected in occasional samples offsite near the perimeter of the Laboratory. Depleted uranium is occasionally detected onsite and offsite around the perimeter of the Laboratory due to the resuspension of soils with depleted uranium from past Laboratory activities. Measurable concentrations of tritium, which are not included in this paper, are detected at most onsite locations and at nearby offsite locations. Concentrations for all of these LANL-related radionuclides at offsite locations have never exceeded more than several percent of the US Environmental Protection Agency (EPA) public dose limit.

The Cerro Grande Fire

On May 4, 2000, the National Park Service initiated a prescribed burn within Bandelier National Monument. The burn was in a meadow on the flanks of Cerro Grande Peak about 3.5 miles west of the northwest corner of the Laboratory. By the following day, the burn was out of control and declared a wildfire. The fire ultimately burned about 43,000 acres of public, private, and pueblo lands, which included about 7,500 acres of Laboratory land (Figure 2) before being fully contained by June 2000. One hundred twelve Laboratory structures and 235 residential structures in the town site were damaged or destroyed (LANL 2000). This fire was the fifth major wildfire in the LANL region in the last 50 years (Figure 3).

The Cerro Grande fire dramatically influenced concentrations of particulate matter and radioactivity in the ambient air. This fire, or any vegetation fire worldwide, releases radioactivity in and on the burned material to the atmosphere. Because the Cerro Grande fire was burning forests that had not burned for many years (Figure 3), we expected increases in alpha and beta concentrations from the resuspension of lead-210, bismuth-210, and polonium-210. These are constantly being deposited in forests and have been accumulating for many years (Figure 4). As radon gas decays in the atmosphere, it creates charged radioactive particles, many of which deposit on suspended particulate matter or other surfaces such as leaves and needles. Typical atmospheric concentrations of these radioactive particles are measurable by AIRNET, but relatively small when compared to the inventory present in the forests that were burned by the Cerro Grande fire. When these forests were burned, the heat and turbulence from the fire were very effective at resuspending these radioactive elements from the surfaces of vegetation, the forest floor, and the soil surface.

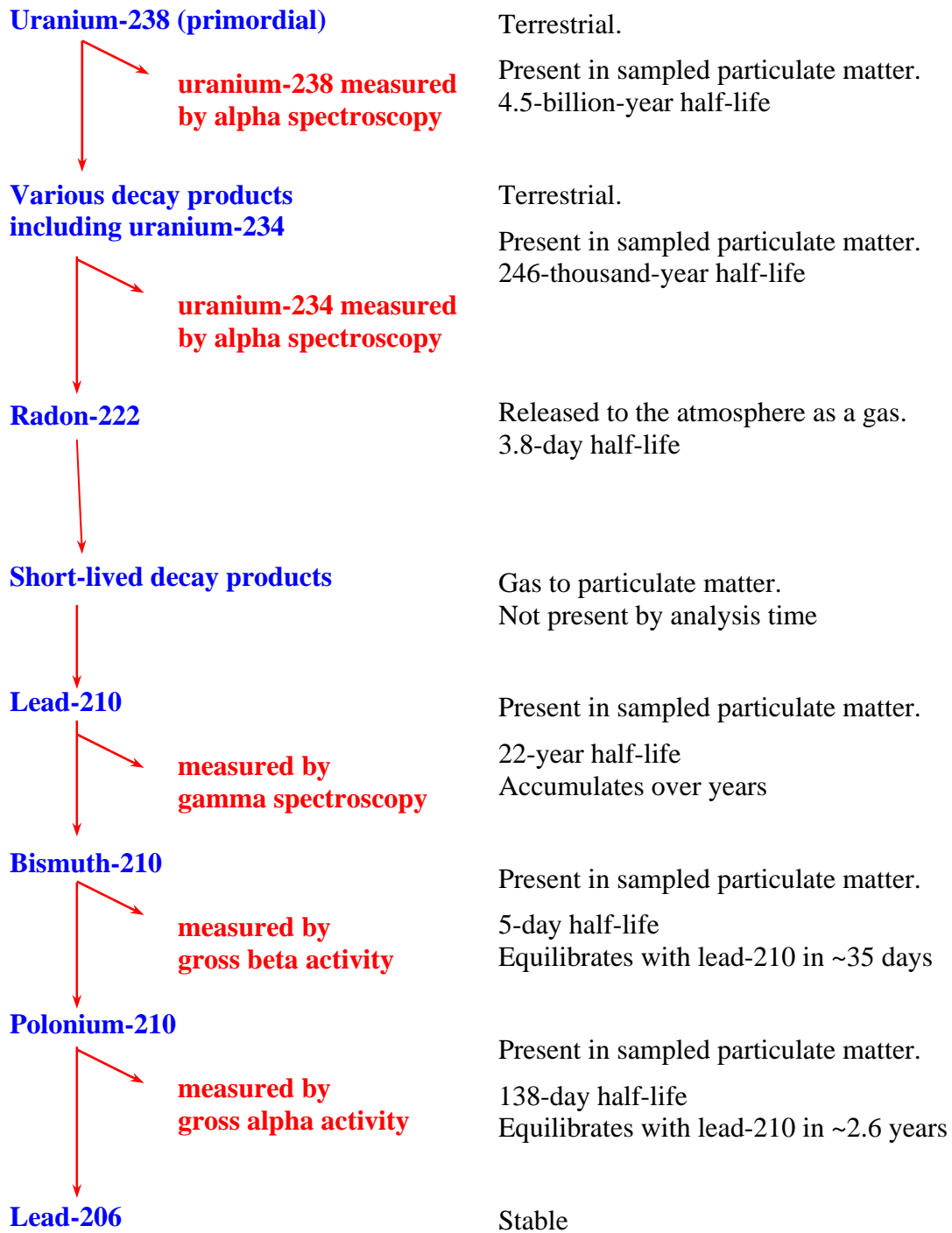


Figure 1. Uranium-238 decay series.

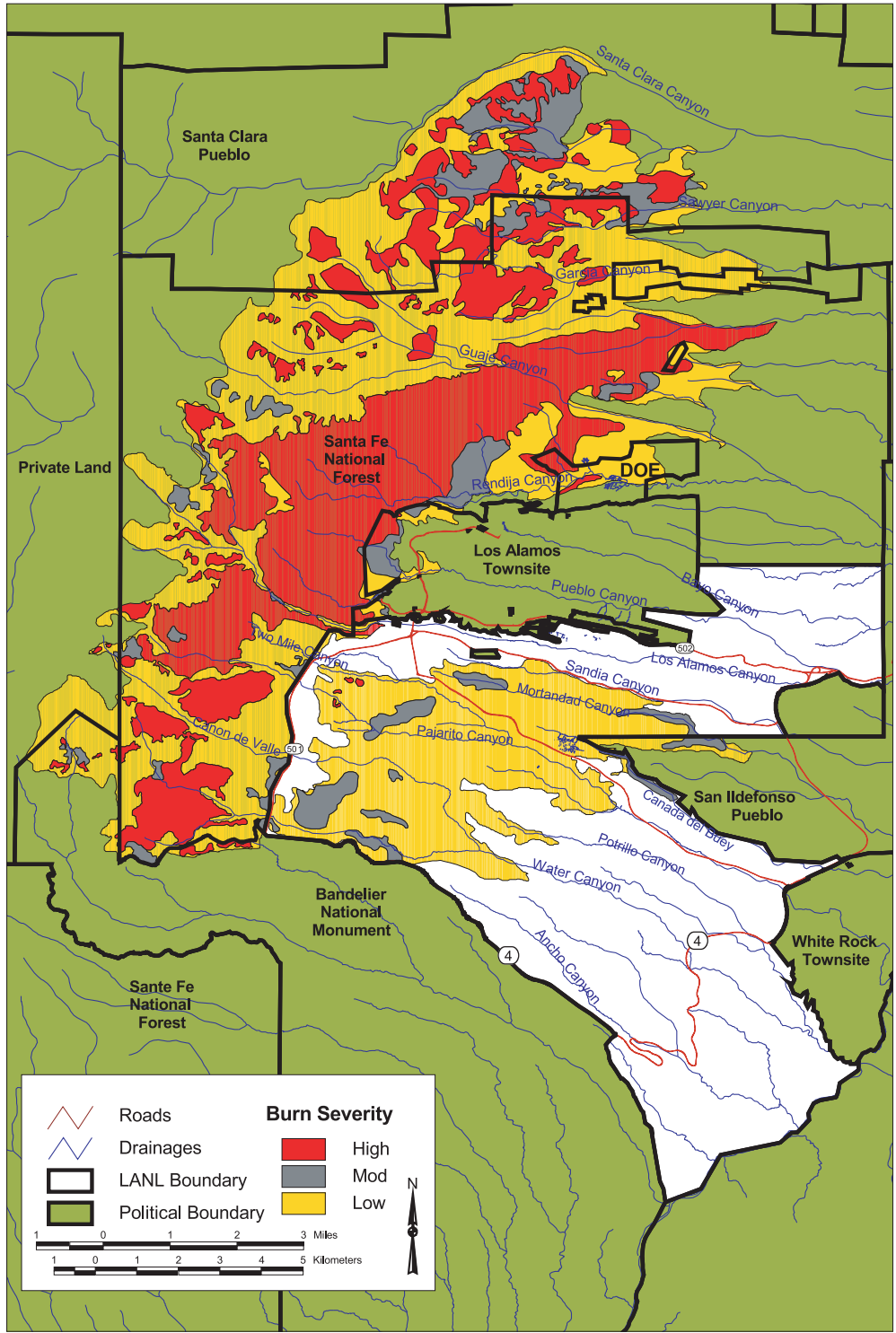
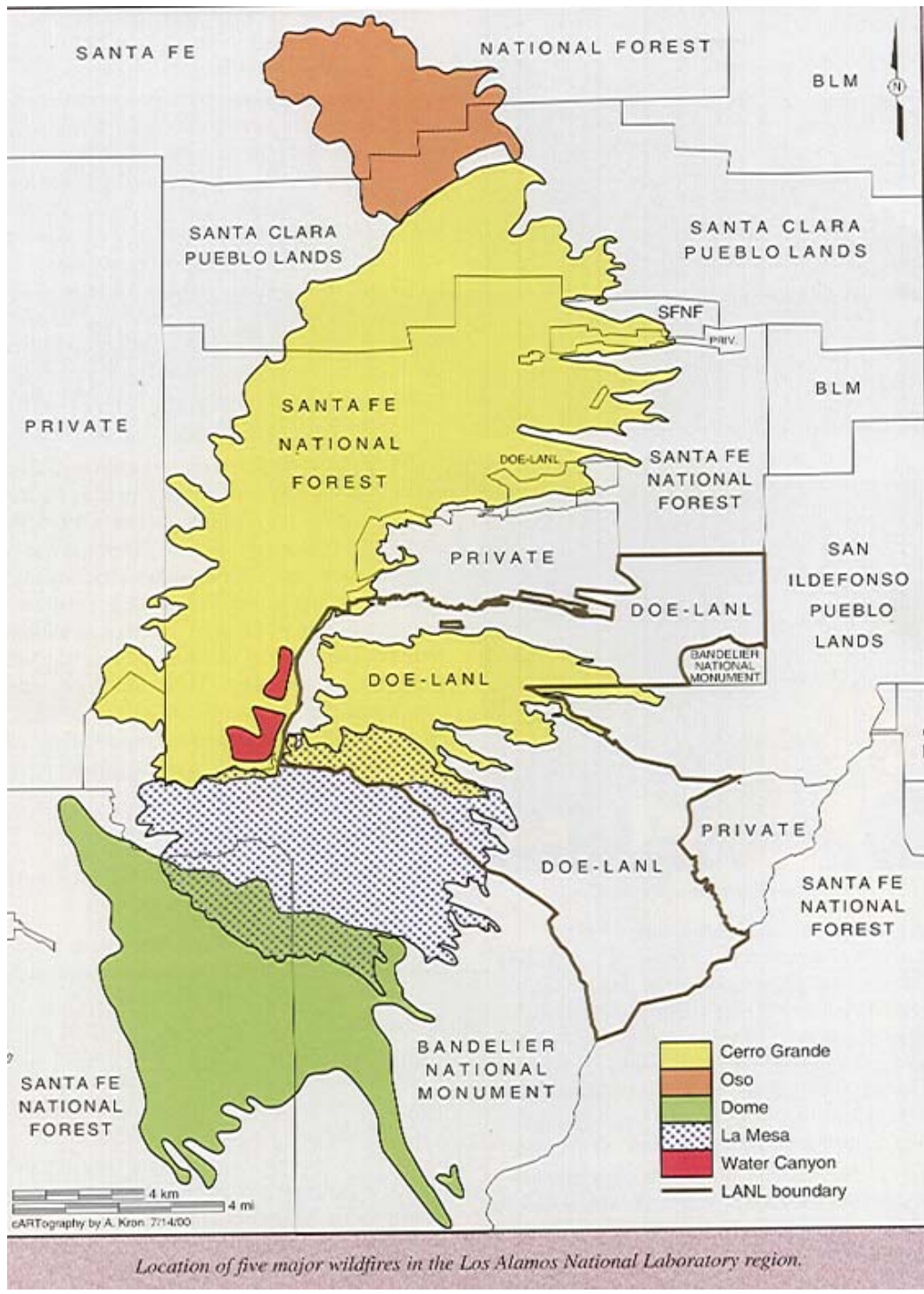
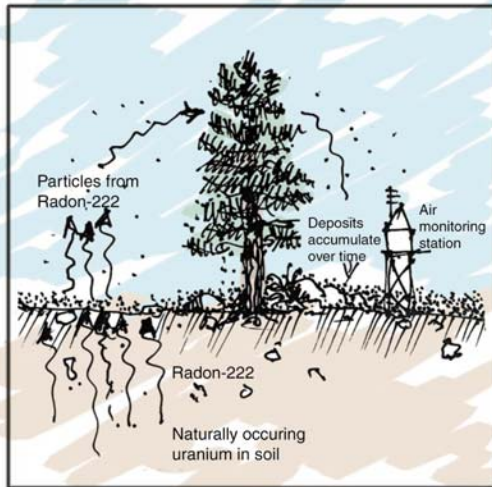


Figure 2. Extent of the Cerro Grande fire.

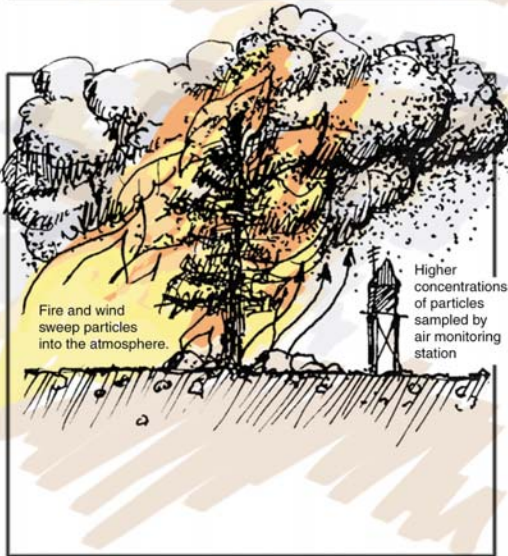


Location of five major wildfires in the Los Alamos National Laboratory region.

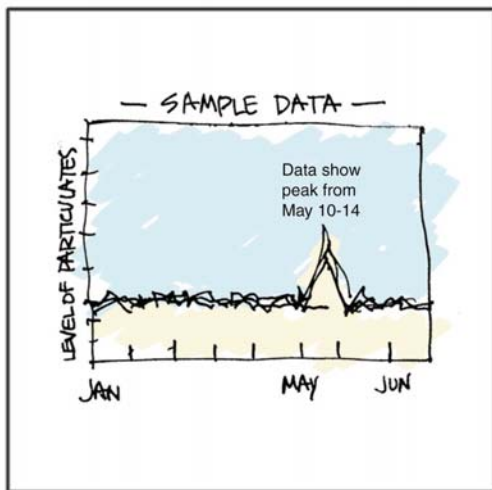
Figure 3. Location of five major wildfires in the LANL region. The Cerro Grande fire occurred in 2000, the Oso fire in 1998, the Dome fire in 1997, the La Mesa fire in 1977, and the Water Canyon fire in 1954.



BEFORE THE FIRE – Radon-222 is released to the atmosphere as a gas from the decay of natural terrestrial uranium. This radon decays to other radioactive elements, which are present as fine, highly charged particles. These particles are removed from the atmosphere by precipitation or deposited onto surfaces such as vegetation and the forest floor.



DURING THE FIRE – The turbulence and the heat from the burning vegetation during the Cerro Grande fire rapidly resuspend the accumulated radon decay products and other radioactive elements such as natural uranium in soils. These radionuclides are present in the smoke from the fire.



AFTER THE FIRE – When we analyzed the samples from our air monitoring stations, our analyses of the time period when the fire was burning showed higher concentrations that reflect the rapid release of these accumulated natural radionuclides.

Figure 4. Dispersal of radon gas during a forest fire.

Fires may also entrain additional particulate matter from the Earth's surface by physical turbulence associated with burning, or they may burn contaminated material and release the radionuclides therein. The temperature of the fire and the volatility of the elements or compounds will greatly influence ambient concentrations. The extremely dry conditions and high wind speeds, which were major factors in the spread of the Cerro Grande fire, may have also caused additional resuspension of natural and anthropogenic radionuclides. Depleted uranium, americium, plutonium, and other radionuclides, which are present at LANL, could be released to the atmosphere by these conditions.

Ambient Air Sampling

During the Cerro Grande fire, the Laboratory operated 49 AIRNET stations to sample the ambient air for radionuclides. Generally, each AIRNET sampler continuously collects particulate matter for approximately two weeks. Particulate matter is collected on 47-mm polypropylene filters at an airflow rate of about 0.11 m³ per minute, which is about 2200 m³ per sampling period. For AIRNET, sampling periods are normally designated based on the Monday of the sampling collection week. Therefore, samples collected the week beginning Monday, May 8, would be designated as sample period 000508 (yymmdd format). In the tables, the numbers to the right of the decimal point represent the location or site number. For example, 000508.10 is the biweekly sample collected the week of May 8 from site 10 (Eastgate). Additional short-term sampling periods were added during the fire because multiple samples from one location were collected within a biweekly sampling period.

Appendix Table A-1 lists stations that operated during the fire along with site number, site name, and location (latitude, longitude, and altitude). Four regional sampling stations are used to determine regional background and fallout levels of atmospheric radioactivity. These regional stations are located in Española, El Rancho, and two locations in Santa Fe. Pueblo monitoring stations are located at San Ildefonso and Jemez Pueblos. About 20 perimeter stations are located in the populated areas of Los Alamos County and within 4 km of the Laboratory boundary. Finally, because maximum concentrations from airborne releases of radionuclides are likely to occur onsite, more than 20 stations are within the Laboratory boundary. AIRNET sampling locations are shown regionally (Figure 5), in Los Alamos County (Figure 6), and at Area G (Figure 7).

The first samples that may have been impacted by fire emissions were biweekly particulate matter filters collected on May 9 or May 10. By this time, accumulation of smoke particles on some of the filters was becoming a problem because they were clogging the filters and reducing the sample airflow rate. Therefore, filters were replaced as often as possible in subsequent days (May 11 through May 14) to decrease the potential for air sampling rates dropping to zero. After May 14, filters were not exchanged until the week beginning Monday, May 22. Samples collected on May 11 through May 22 are considered short-term samples because they represent less than two weeks of sampling. However, biweekly air concentrations were calculated for the May 22 samples (000522) by combining analytical results from these multiple samples. The May 2000 sample designations and the number of samples collected are presented in Table 1.

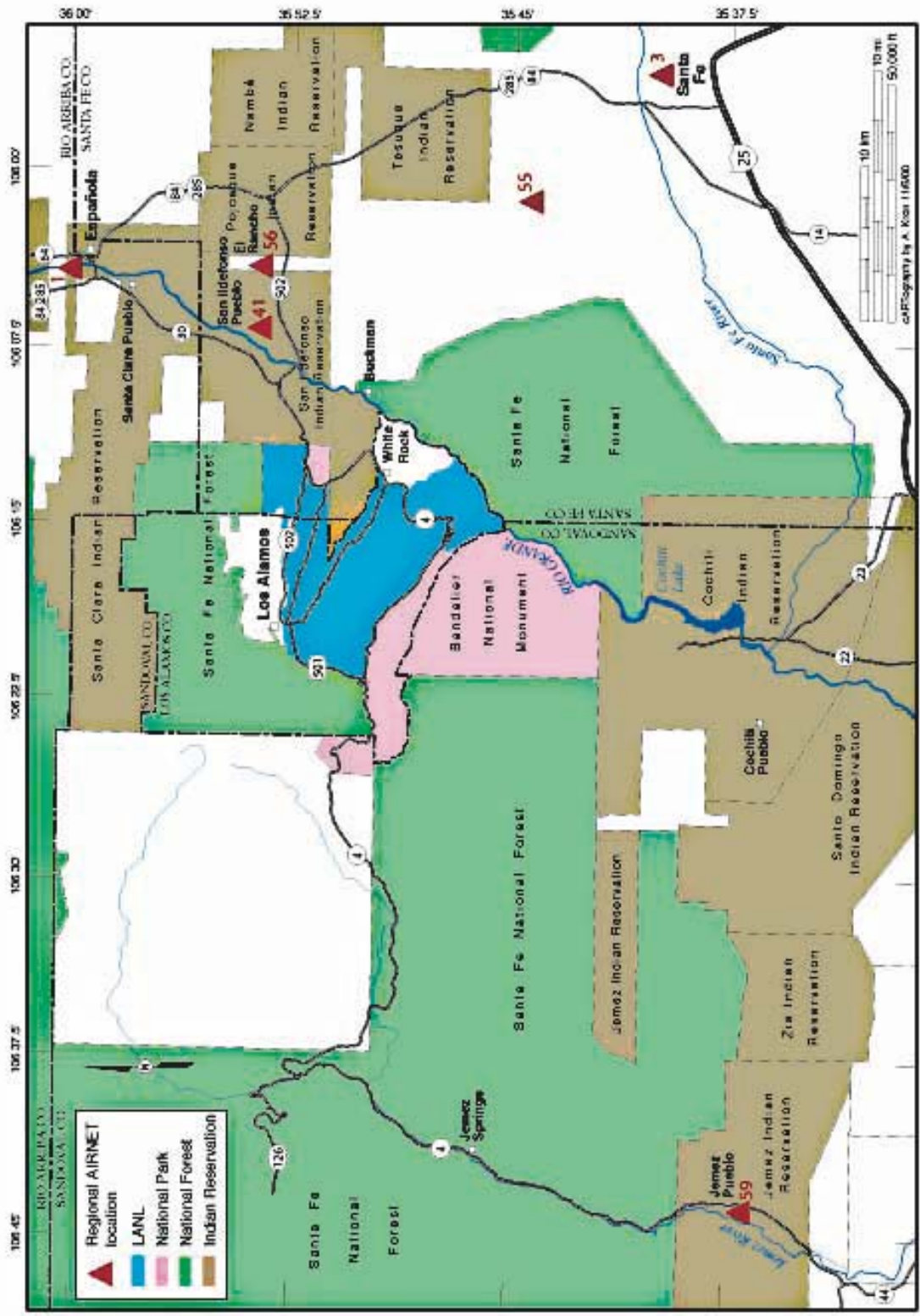


Figure 5. Regional AIRNET sampling locations.

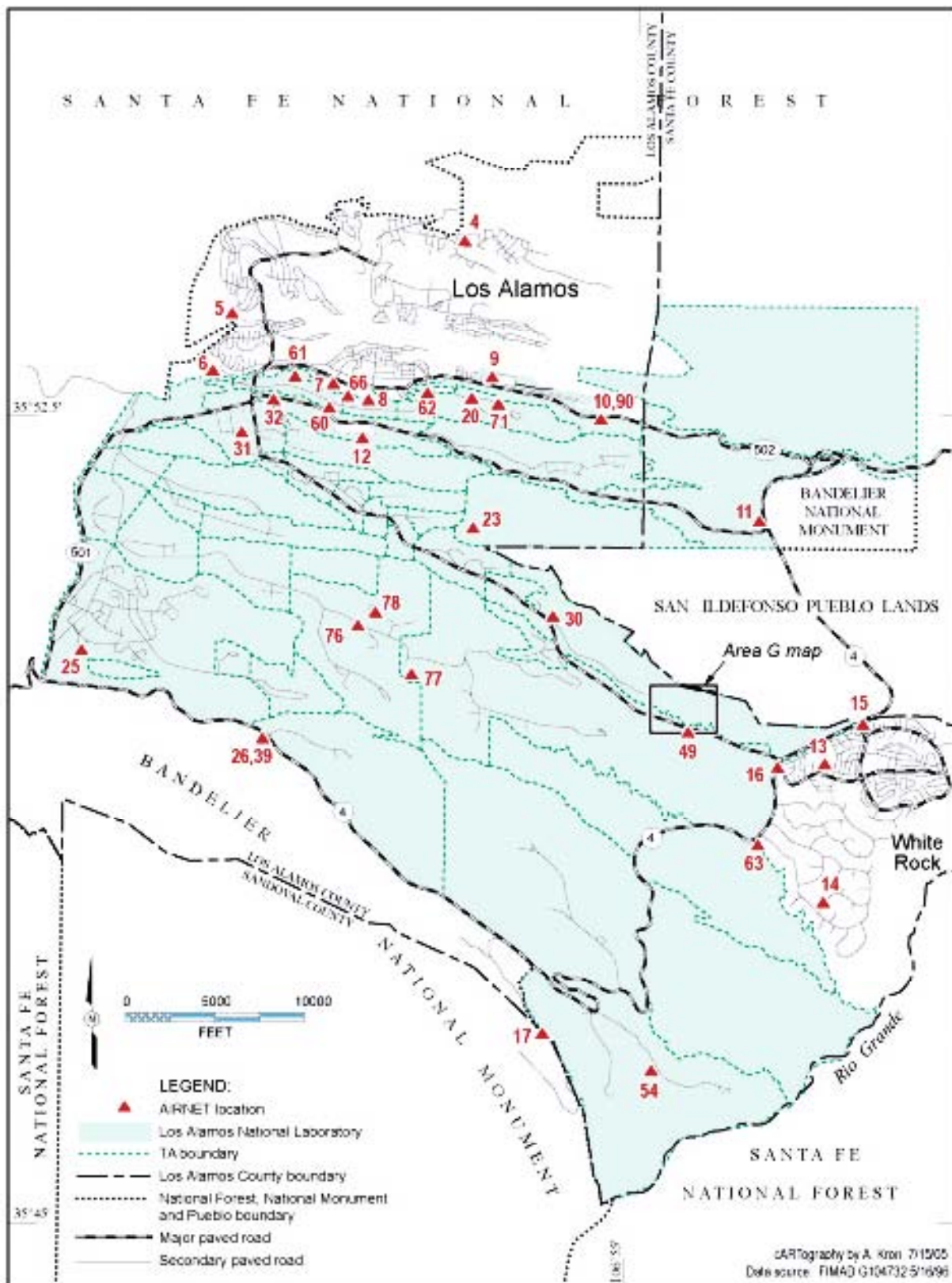


Figure 6. AIRNET sampling locations in Los Alamos County.

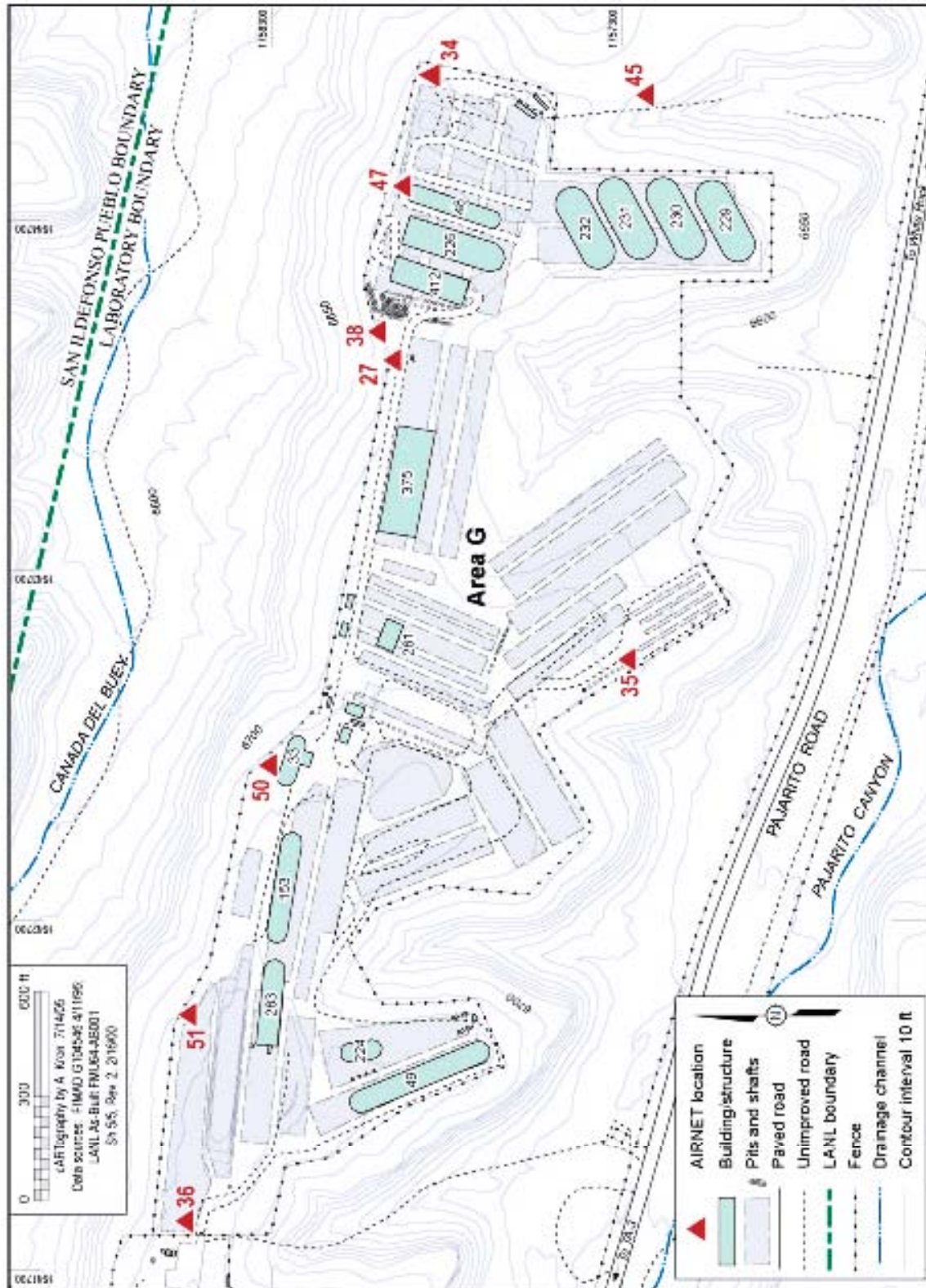


Figure 7. AIRNET sampling locations in Area G.

Table 1. May 2000 Sample Designations and the Number of Samples

Actual Sample Collection Date	Sample Period (yymmdd)	Nominal Sample Date	Time period	Number of samples
May 9–10	000508	5/8	biweekly	49
May 11	000511	5/11	short term	16
May 12	000512	5/12	short term	16
May 13	000513	5/13	short term	24
May 14	000514	5/14	short term	19
May 22–24	000522	5/22	short term	49

A total of 173 samples were collected in May 2000. Based on the technical validation and verification of the samples, 161 (93%) were accepted (Table A-2) and 12 (7%) were rejected (Table A-3). Each sample in these two tables represents one filter along with its sample period, sample number, and starting and ending dates and times. The sampled air volumes, which range from 98 to 2652 m³, are included for accepted samples. The rejected samples in Table A-3 show the reason for rejection. The air concentrations in this report do not include any data from rejected samples.

In addition to rejected samples, there were times during the fire when air was not being sampled at some locations. About 13% of the May samples (22 of 173) were collecting samples for less than 95% of the possible sampling time (Table A-4). In most cases, loss of electrical power caused the lost sampling time. Overall, the actual sampling time as a percent of the possible sampling time was 96% for the May sampling periods. The actual sampling time with validated and verified samples represents 93% of the possible sampling time during May 2000 (Table A-5).

To compare the normal biweekly measurements to data collected during the fire, analytical results from the short-term samples were combined to calculate biweekly concentrations for the 5/22 sampling period. The 5/22 samples shown in Table A-2 are field data for individual filters that were collected the week of May 22. Except for one sample location, these samples do not represent the May 22 two-week sampling period because intermediate samples were collected. Additionally, site 90, the Eastgate backup site, was not counted or analyzed for any radionuclides because, at the time, it was only operated to provide a backup sample to replace rejected samples for the Eastgate site (10). Airflow rates were generally lower for short-term samples because many of these samples had high levels of particulate matter from the smoke and resuspended dust. Therefore, the data compositing process weighted the concentrations and their uncertainties by the sampling time instead of by the sampled air volume. Every 5/22 biweekly air concentration includes all valid samples collected at each site since the 5/08 samples were collected. These composited air concentrations and the 5/08 air concentrations are referred to as biweekly samples or biweekly air concentrations. The air concentrations for individual filters collected during the 5/22 sample period are referred to as short-term samples or short-term air concentrations.

A list of the verified and validated quarterly composite samples for the second calendar quarter of 2000 is shown in Table A-6 along with their sampled air volumes. Similar to the biweekly numbering scheme, the sample period for the second quarter of 2000 is designated as 00Q2 while the two numbers to the right of the decimal designate the sampling site or location. The sampled air volumes listed in this table represent the summed air volumes for the filters that were included in the composite sent to the laboratory for isotopic analysis. Some half-filters were missing from these composites because both halves had been used for isotopic analyses of the biweekly and short-term samples collected during the fire. If a half-filter was not available for compositing, the analytical results were composited based on the sampling time to calculate the quarterly air concentrations and their uncertainties.

The final sample type was filters grouped together across geographically similar sites, designated as “clumps,” and analyzed for gamma-emitting radionuclides. Normally these are clumps of six to nine filters collected for the same biweekly sampling period. Because most of the samples collected during the fire were only part of the 5/22 biweekly period, short-term clumps were analyzed for gamma-emitting radionuclides. Many of these clumps were missing one or more filters due to the increased, but incomplete, sampling frequency. The air volumes for the 5/11 through 5/14 clumps are much smaller than normal because of the short sampling time (Table A-7). No filter was included in more than one clump. In addition, the gamma analytical results for clumps were not combined to calculate concentrations for the biweekly 5/22 sample period.

Radiochemical Analyses

Under normal sampling conditions, individual AIRNET filters are measured for gross alpha and gross beta activities by front face counting. These filters are also grouped together as clumps for gamma spectroscopy measurements. After these analyses are complete for a calendar quarter of samples, half of each filter from the six or seven sampling periods at each site is used to prepare a quarterly composite for each AIRNET station. These composites are dissolved, separated chemically, and then analyzed for isotopes of americium, plutonium, and uranium using alpha spectroscopy.

As noted previously, the normal sampling period for an AIRNET sample is two weeks. However, during the fire, samples were collected and analyzed more frequently. To evaluate potential human exposure to air contaminants, the May samples were analyzed as soon as possible and for additional specific radionuclides. Some samples were only collected for a day and then analyzed for both the two-week and quarterly composite suite of analyses. Table 2 compares the AIRNET analyses had the fire not occurred versus the analyses that did occur.

With the exception of the gamma spectroscopy measurements that are listed as “less than” values, all radiochemical analyses supplied by the contract laboratory also include the 2s (2 standard deviations or 2 sigma) analytical and blank correction uncertainties. Air concentrations greater than their 3s uncertainties are used to identify samples with detectable concentrations. Other multiples of uncertainties could be used, but 3s is consistent with the widely accepted practice of using 3s control limits for statistical quality control charts (Duncan 1986 and Gilbert 1987). This choice also eliminates most false positives or detections, which occur about 5% of the time at 2s, but less than 0.3% of the time at 3s.

Table 2. Comparison of AIRNET ‘Normal’ and Fire-Related Analysis

Analysis	Normal	Fire
Gross alpha/beta activity	➤ 5/8 and 5/22 biweekly filters	➤ 5/8 biweekly filters ➤ 5/11, 5/12, 5/13, 5/14, and 5/22 short-term filters
Gamma spectroscopy	➤ 5/8 and 5/22 biweekly clumps of filters	➤ 5/8 biweekly clumps of filters ➤ 5/11, 5/12, 5/13, 5/14, and 5/22 short-term clumps of filters
Isotopic Analyses	➤ Quarter 2 composites	➤ 5/8 biweekly filters ➤ 5/11, 5/12, 5/13, and 5/14 short-term analyses ➤ Quarter 2 composites

Comparing short-term measurements to long-term measurements can lead to erroneous conclusions because of natural variability in concentrations over time and uncertainties of sampling and analytical processes. Short-term concentrations have the potential to be significantly higher or lower than long-term concentrations. Uncertainties are strongly related to the analytical process and to the amount of material present on the filter. Consequently, dramatic reductions in sampling time, and therefore sampled air volumes, will greatly increase the uncertainty of the calculated air concentrations because the analytical results will be attributed to fewer cubic meters of air (Figure 8). Therefore, data comparisons for this paper are generally for similar sampling times and comparable uncertainties. Any comparisons between samples with disparate sampling times or air volumes will explicitly include a measure of uncertainty, normally 3s, in some manner.

All of the AIRNET concentrations and uncertainties are net concentrations and net uncertainties. The net air concentrations, or blank-corrected data, include corrections for the radioactivity from the filter material and from the analytical process. Net concentrations are usually lower than concentrations without blank corrections because small amounts of radioactivity are present in filter material, acids used to dissolve the filter, and tracers added to determine recovery efficiencies. This effect was most apparent for the americium-241 measurements where most air concentrations were comparable to their 3s uncertainties because the analytical plutonium tracer contains small amounts of americium-241 (Figure 9). Data do not include any adjustment or correction for background concentrations in the environment. Some air concentrations indicate negative concentrations of radionuclides in the ambient air, which is, of course, impossible. However, it is possible for a measured concentration to be negative because the measured concentration is a sum of the true value, the blank correction, and all random errors.

Table 3 summarizes air concentration tables presented in the Appendix by analyte and by time period. Time periods are ‘short term’ (less than two weeks), ‘biweekly,’ and ‘quarterly.’ Tables listed in the ‘All Concentrations’ column include all measured concentrations even if they are less than their uncertainties because they still represent the best estimate of the air concentration.

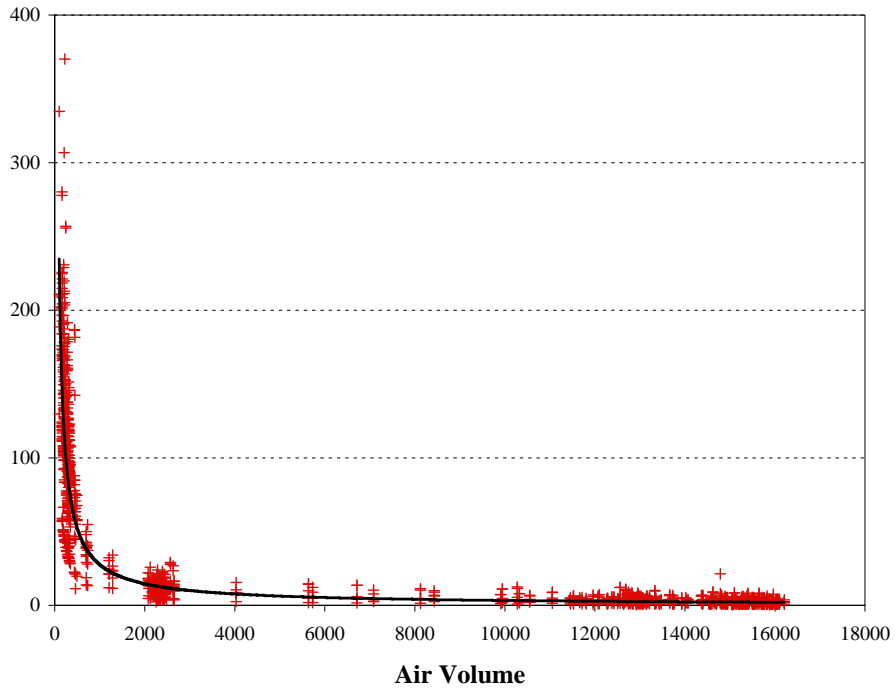


Figure 8. The effects of sampled uranium, plutonium, and americium uncertainties.

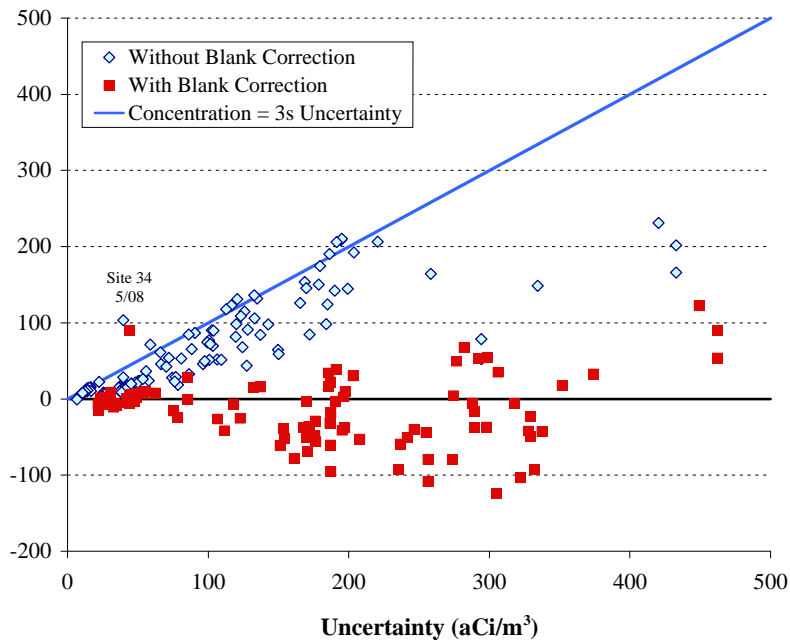


Figure 9. Americium-241 concentrations before and after blank corrections.

Table 3. Air Concentration Appendix Tables by Analytes and Time Period

Analyses	Time Period	Table for:		
		All Concentrations	Uncertainties	Detections (greater than 3s)
Gross alpha activity	short term	A-8	A-8	A-10
	biweekly	A-11	A-11	A-13
Gross beta activity	short term	A-9	A-9	A-10
	biweekly	A-12	A-12	A-13
Gamma spectroscopy measurements	biweekly and short term	---	A-14	A-15
Americium-241	biweekly and short term	A-16	A-16	A-22
	quarterly	A-25	A-25	A-31
Plutonium-238	biweekly and short term	A-17	A-17	A-22
	quarterly	A-26	A-26	A-31
Plutonium-239	biweekly and short term	A-18	A-18	A-22
	quarterly	A-27	A-27	A-31
Uranium-234	biweekly and short term	A-19	A-19	A-22
	quarterly	A-28	A-28	A-31
Uranium-235	biweekly and short term	A-20	A-20	A-22
	quarterly	A-29	A-29	A-31
Uranium-238	biweekly and short term	A-21	A-21	A-22
	quarterly	A-30	A-30	A-31
Excess isotopic uranium	biweekly and short term	---	---	A-22
	quarterly	---	---	A-31
Polonium-210 and lead-210	biweekly and short term	A-23	A-23	A-24

Gross Alpha and Gross Beta Activity

The gross alpha and gross beta activities measured on the AIRNET filters are dominated by radon-222 decay products, which are part of the uranium-238 decay series (see Figure 1). Radon itself is not collected by the filters because it is an inert noble gas that comes from the decay of radium present in the Earth's crust, but all of its decay products are solids and therefore collected as particulate matter on the filter. The radionuclides produced in the decay chain after radon-222 and before lead-210 have half-lives that are all less than 30 minutes. Without continual replenishment from radon-222 (Figure 10), these short-lived radionuclides decay to lead-210 within a few hours after collection and are not present when the samples are analyzed one to three weeks later. However, short-lived radionuclides from radon may be present on the samples if significant radon concentrations are present in the analytical laboratories. Lead-210 is the longest-lived radionuclide in the radon-222 decay chain with a half-life of 22 years. It and its decay products, bismuth-210 and polonium-210, exist for years after the radon-222 has decayed away (Figure 11). In addition to being measured on the AIRNET filters, these three radionuclides deposit and accumulate onto other surfaces such as the forest floor, vegetation, and surface soil.

Even though the radon decay products are particulate matter, the concentrations are not normally related to concentrations of particulate matter in the atmosphere because they are derived from a gas. High wind speeds, which usually cause higher particulate matter concentrations, may actually reduce the gross alpha and gross beta concentrations because there is greater atmospheric mixing which dilutes ground level concentrations of radon-222 and its subsequent decay products. By the time the radon-222 decays, it is well mixed and regional in nature. Therefore, concentrations within a given two-week sampling period and in the same general location tend to be quite consistent. For the AIRNET sampling network, temporal variations are higher than spatial variations. However, during the Cerro Grande fire the levels of radon decay products increased and were dependent on the smoke concentrations in addition to the decay of atmospheric radon. The highly variable nature of the smoke concentrations was observed on a continuous PM-10 (particles less than 10 micrometers in diameter) monitor that was operating during the fire. It was located near the entrance to Technical Area (TA) 54. Ambient concentrations of particulate matter at this site exceeded the National Ambient Air Quality Standard of $150 \mu\text{g}/\text{m}^3$ when smoke from the fire was impacting the sampler (Figure 12).

The first data received by LANL during the Cerro Grande fire were short-term screening counts for gross alpha, gross beta, and gamma spectroscopic measurements. These counts were used to get an early indication if any releases from LANL occurred. These screening counts were later replaced by longer counts that provided more accurate measurements. Figure 13 is a graph of the gross alpha and the gross beta activities from the short-term samples collected during May 2000, the May 1999 samples, the Vivash fire in the Sangre de Cristo Mountains east of Santa Fe, New Mexico (collected by the New Mexico Environment Department [NMED] in 2000), and African fires (Lambert et al. 1991 and Le Cloarec et al. 1995). The same data are shown in Figure 14, but at greater resolution for comparison of the lower concentrations.

The May 8 samples are comparable to those from the May 1999 samples (Figures 13 and 14). The alpha and beta measurements during the Cerro Grande fire did not dramatically increase until the May 11–14 samples. The alpha concentrations increased by roughly a factor of 10 to 20 and the beta concentrations by about a factor of two to four from before the fire. The net, or

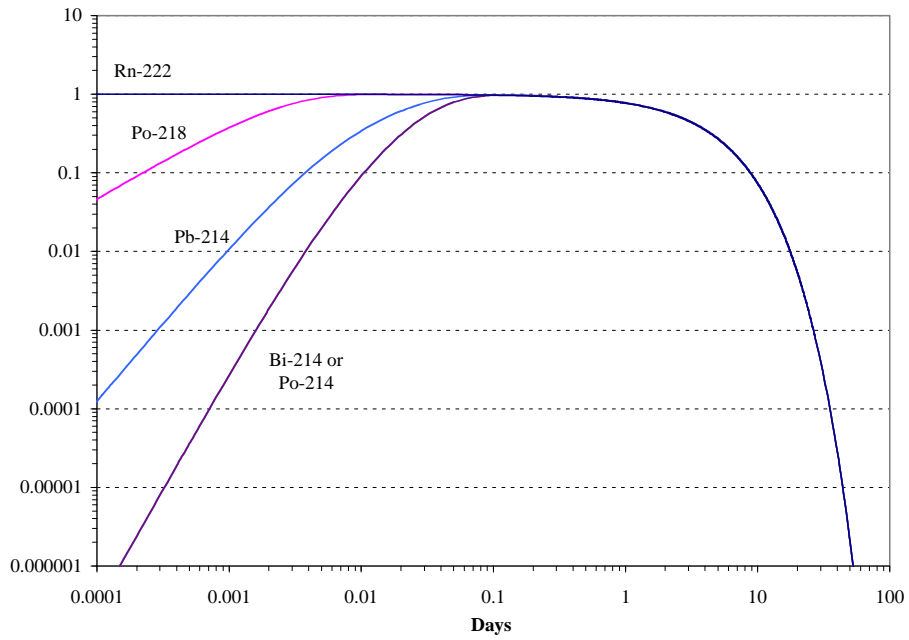


Figure 10. Radon-222 decay chain: shorter-lived radionuclides.

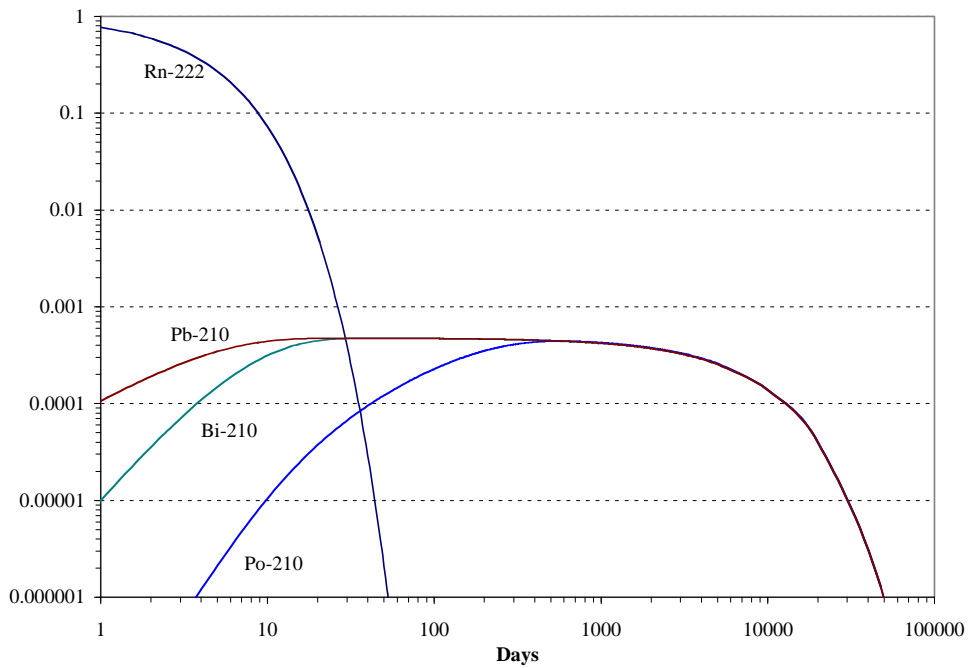


Figure 11. Radon-222 decay chain: longer-lived radionuclides.

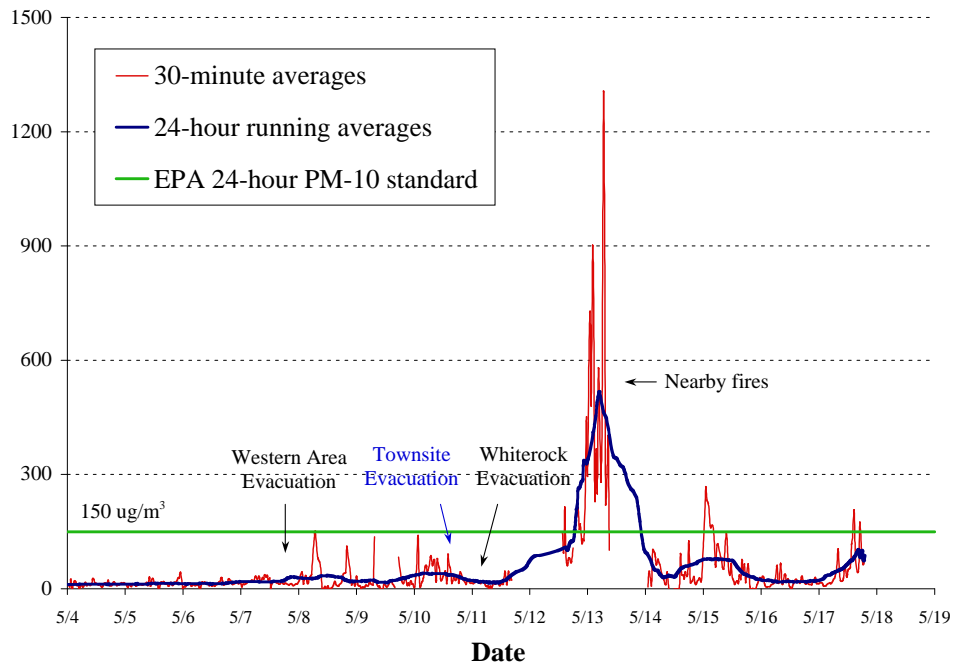


Figure 12. Particulate matter concentrations (at TA-54-1001).

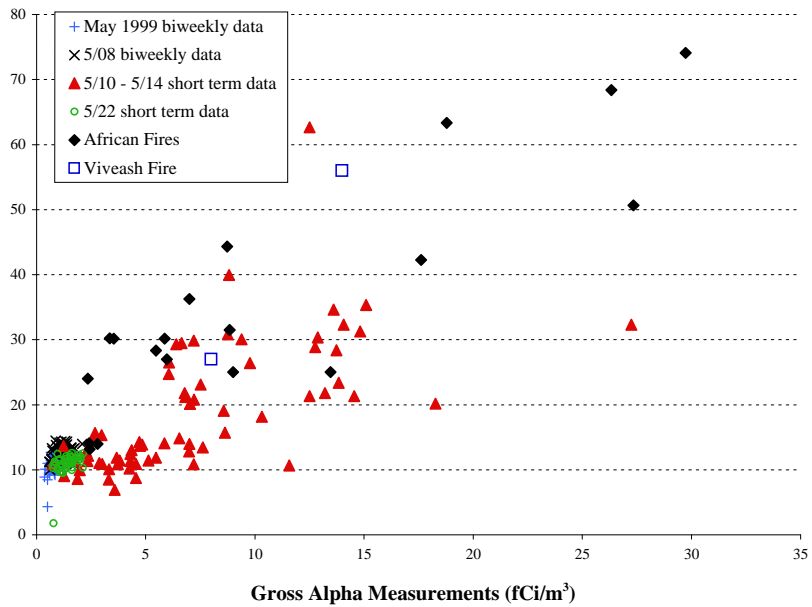


Figure 13. Gross alpha and gross beta measurements during the Cerro Grande and other fires.

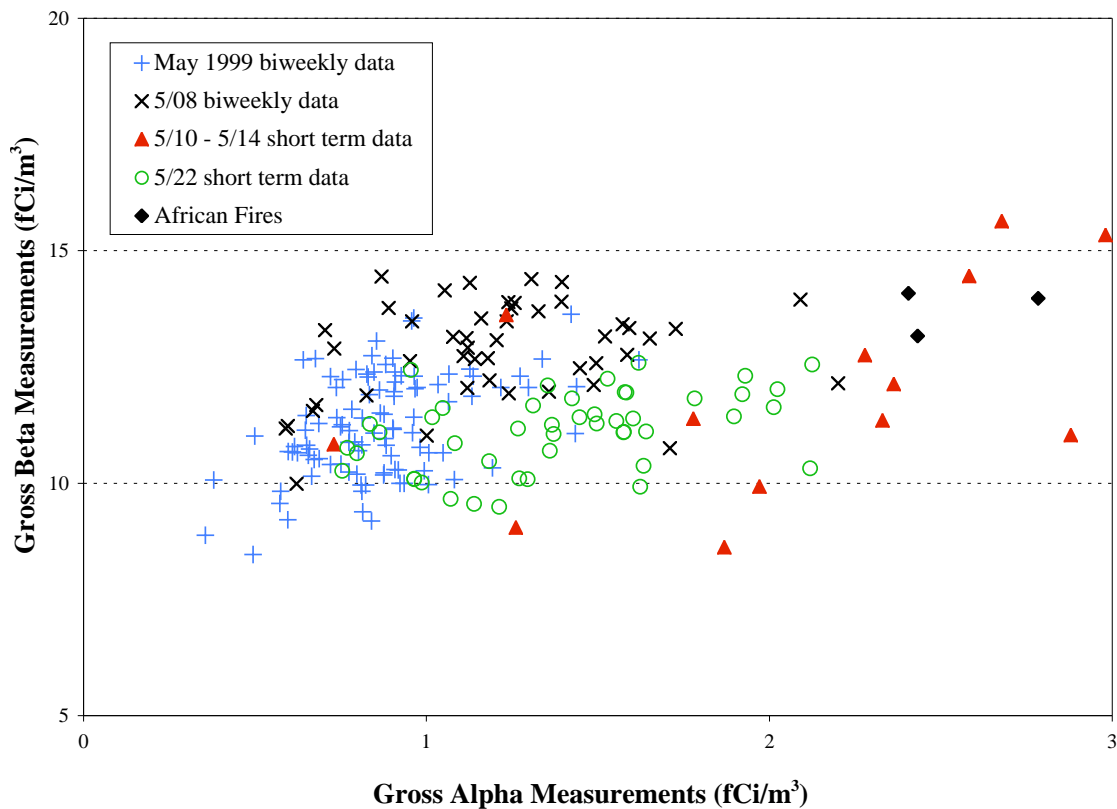


Figure 14. Gross alpha and gross beta measurements (at greater resolution) during the Cerro Grande and other fires.

incremental, increase above background was somewhat similar, about 4 to 6 fCi/m³, for both types of radioactivity. The gross alpha and gross beta concentrations for the short-term May 22 samples are generally comparable to pre-fire concentrations and indicate a return to typical concentrations. These short-term increases in concentrations are comparable to the NMED measurements from the Vivash fire and from the African fires. Additional data from prescribed burns in northern New Mexico (Reinhardt et al. 2004) were higher than any of the measurements from these fires with alpha and beta concentrations ranging from about 100 to 9000 fCi/m³. These prescribed burns were not near LANL.

Biweekly gross alpha and gross beta concentrations for all sites during 2000 are shown in Figures 15 and 16. Both types of radioactivity appeared to have comparable increases during the fire (the high sites were about 4 to 6 fCi/m³ higher than the low sites), but the typical or “normal” alpha activity is much lower, emphasizing this increase. These comparable increases are caused by resuspension of radon decay products that had been deposited for many years on the vegetation surfaces and in the forest floor litter (see Figure 4). Since the majority of these particles are many years old, concentrations of lead-210, bismuth-210, and polonium-210 are comparable because they approach radioactive equilibrium (see Figure 11). Site-to-site variability also peaked during the fire (Figures 17 and 18) because resuspended radon decay products did not equally impact all of the sampling locations.

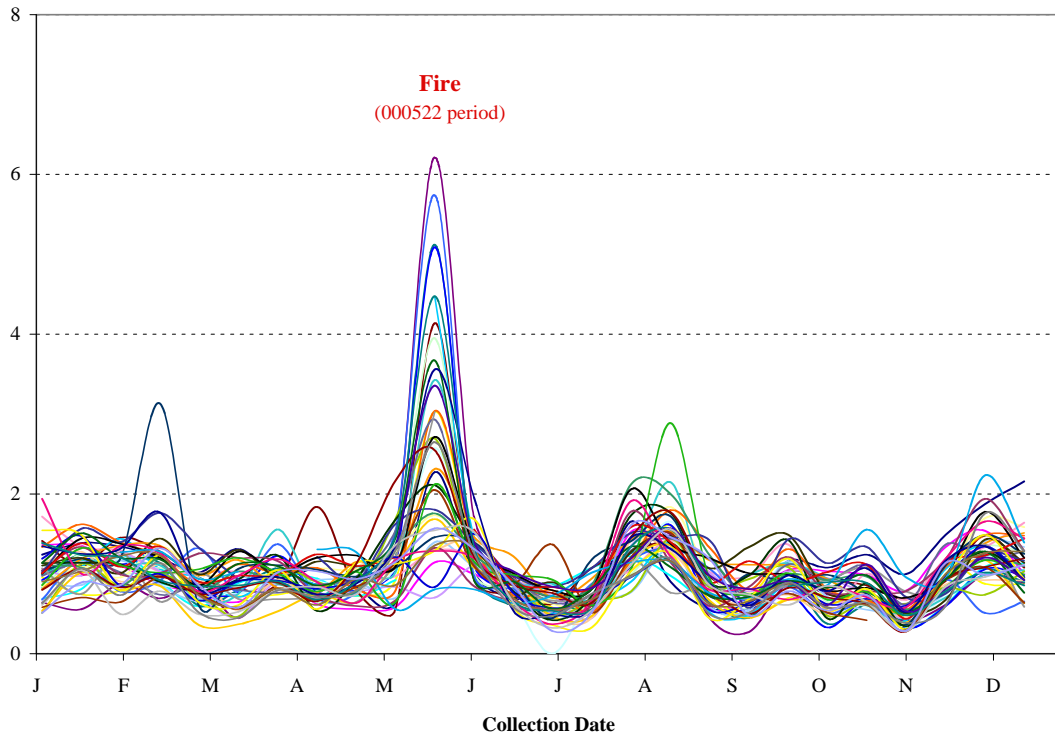


Figure 15. Biweekly gross alpha measurements by location in 2000.

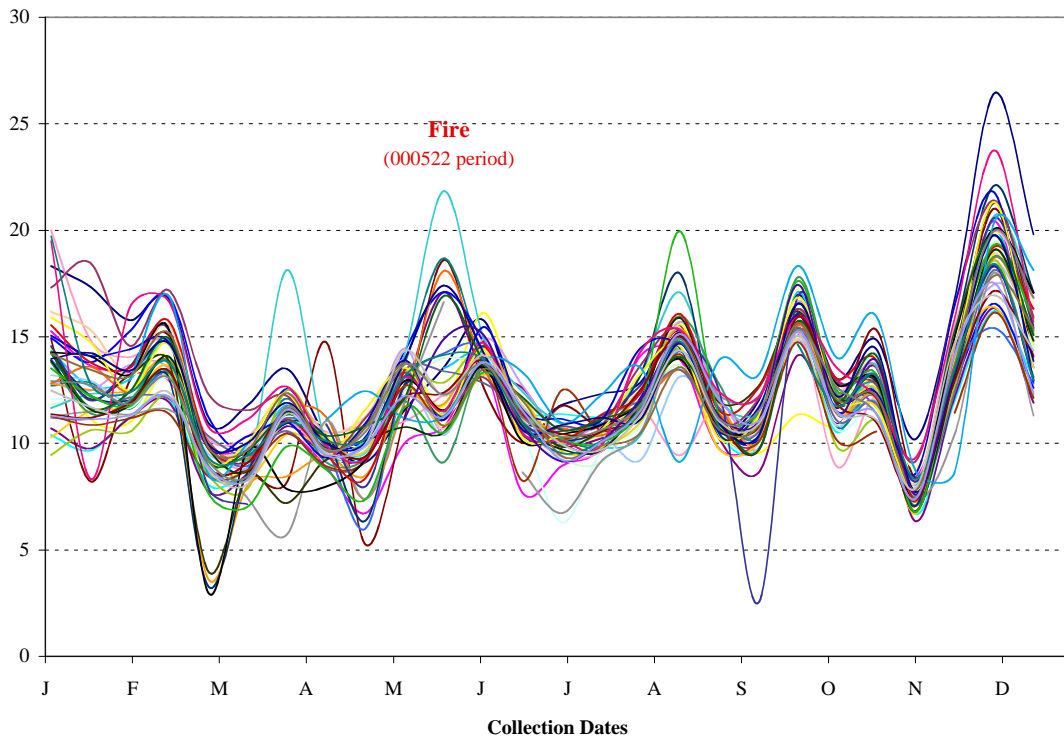


Figure 16. Biweekly gross beta measurements by location in 2000.

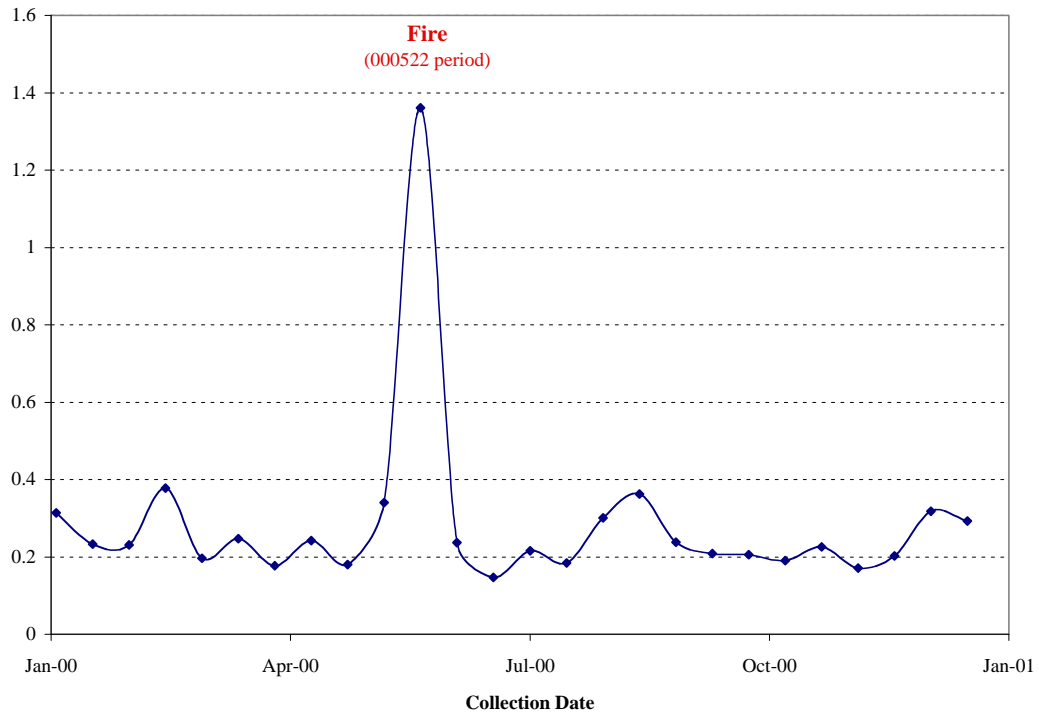


Figure 17. Biweekly gross alpha site-to-site variability in 2000.

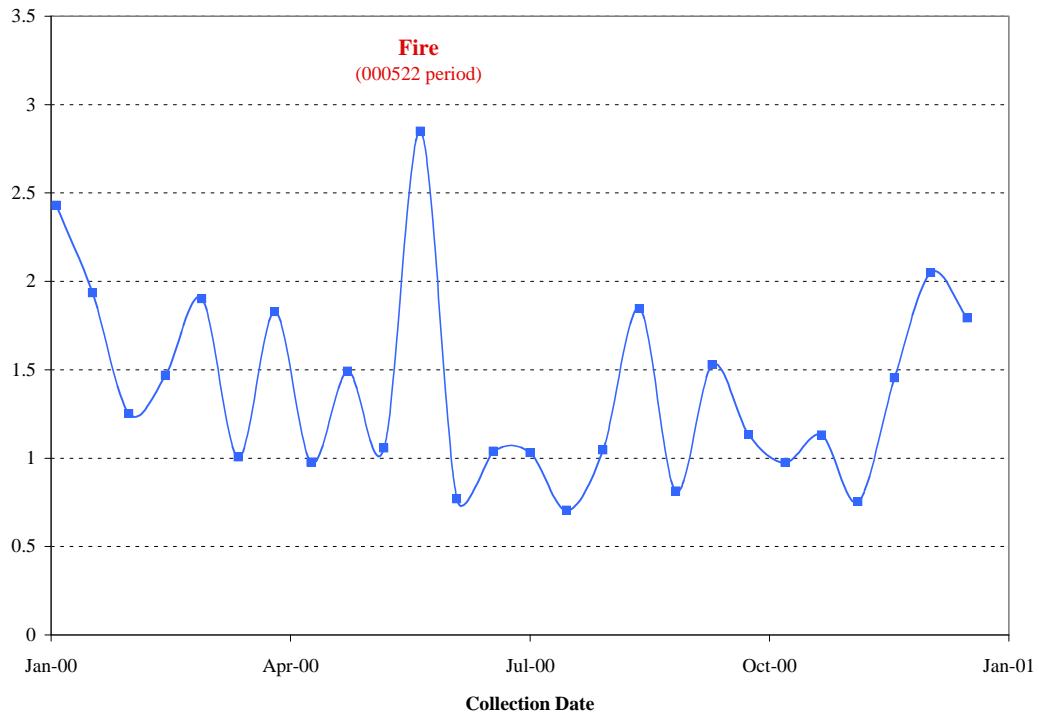


Figure 18. Biweekly gross beta site-to-site variability in 2000.

To compare different areas of northern New Mexico, along with the impact of the smoke from the fire, sites were grouped into one of four categories: LANL onsite, White Rock, Los Alamos town site, and Regional and Pueblo. The gross alpha and gross beta concentrations for these four groups show the largest impact of the high smoke concentrations in the Los Alamos town site and the LANL onsite groups (Figures 19 and 20). Average concentrations in White Rock and Regional and Pueblo samplers are clearly lower than the town site and onsite groups. Even though smoke impacts were observed in White Rock and other regional communities, the alpha and beta concentrations do not appear to be elevated, which indicates lower smoke concentrations. The highest individual locations in each of these four groups are shown in Figures 21 and 22. Interestingly, the Regional and Pueblo group tend to have higher alpha and beta concentrations than the other groups during non-fire periods (Figures 19 and 20). These higher concentrations may be due to the valley bottom locations where many Regional and Pueblo samplers are located. In valley bottoms there tends to be less atmospheric mixing, more sources of atmospheric radon, and more atmospheric inversions that will restrict the dispersion of particles.

As noted above, we assumed that the gross alpha and gross beta measurements represented polonium-210 and bismuth-210, respectively. However, before the fire we had not done these specific radionuclide analyses on any AIRNET filters. Therefore, a number of half-filters were analyzed for polonium-210 and lead-210. The analytical laboratory was not able to analyze for bismuth-210. Polonium-210 and lead-210 concentrations are compared to gross alpha and gross beta concentrations (Figures 23 and 24). These graphs show a direct relationship between gross alpha and polonium-210 and between gross beta and lead-210. The polonium-210 concentrations are higher than the gross alpha concentrations, but the gross alpha concentrations are calculated from front face counts, that underestimate concentrations due to burial of the alpha emitters and subsequent attenuation of the alpha particles. Gross beta activity from bismuth-210 will not be affected by burial, but it will not include the lead-210 due to its low-energy beta particles. Therefore, most of the beta activity is due to bismuth-210, which should be comparable to lead-210 concentrations because it is a short-lived decay product of lead-210. Differences in the lead-210 and gross beta concentrations may be due to differences in volatility during the fire, analytical uncertainty, or an unidentified beta emitter or other beta emitters suspended by the fire such as potassium-40.

Uranium

Three isotopes of uranium are normally found in nature: uranium-234, uranium-235, and uranium-238. Relative isotopic abundances are constant and well characterized. Uranium-238 and uranium-234 are essentially in radioactive equilibrium, with a measured uranium-238 to uranium-234 isotopic activity ratio of 0.993 (as calculated from Walker et al. 1989). Because most uranium used at LANL is either enriched (excess uranium-234 and -235) or depleted (excess uranium-238), we can use comparisons of isotopic concentrations to estimate LANL contributions to ambient air concentrations. Using excess uranium-234 to detect the presence of enriched uranium may not seem suitable because the enrichment process is usually designed to increase uranium-235 concentrations. However, enrichment normally increases uranium-234 at a faster rate than uranium-235, which makes the uranium-234 the better indicator. In addition, the dose, in natural uranium, is more than an order of magnitude higher for uranium-234 than for uranium-235 due to its much shorter half-life. Because the selected analytical process, alpha

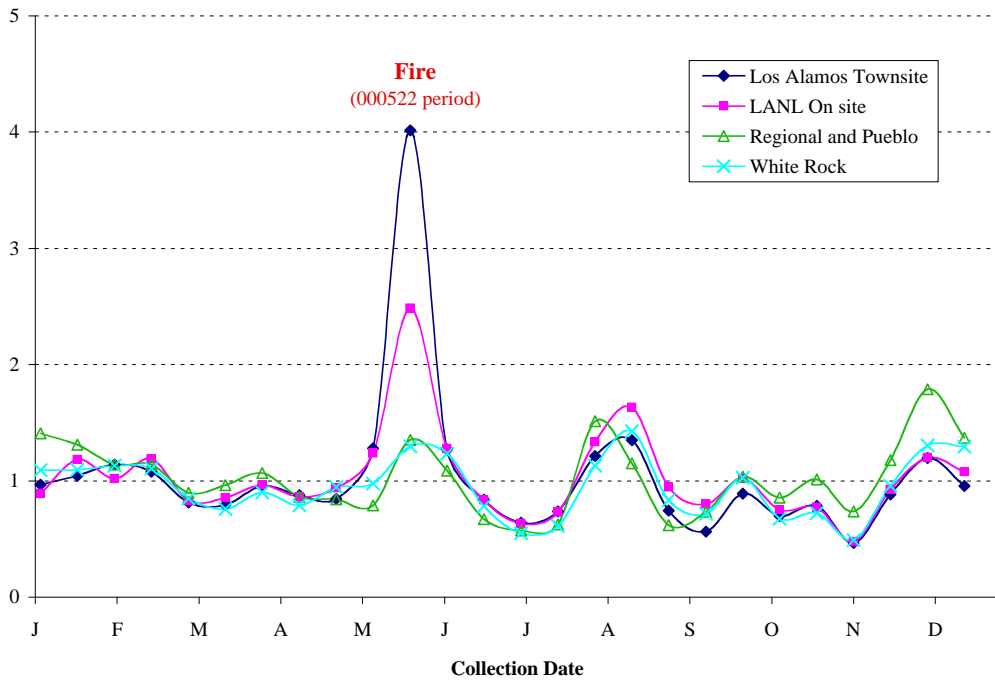


Figure 19. Biweekly gross alpha air concentrations by group for 2000.

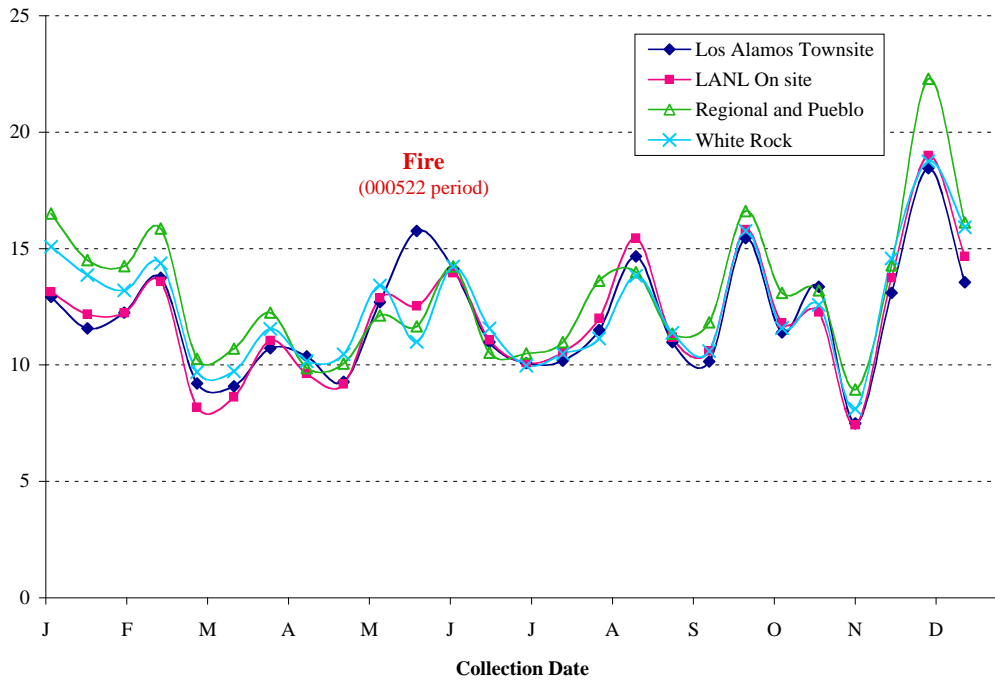


Figure 20. Biweekly gross beta air concentrations by group for 2000.

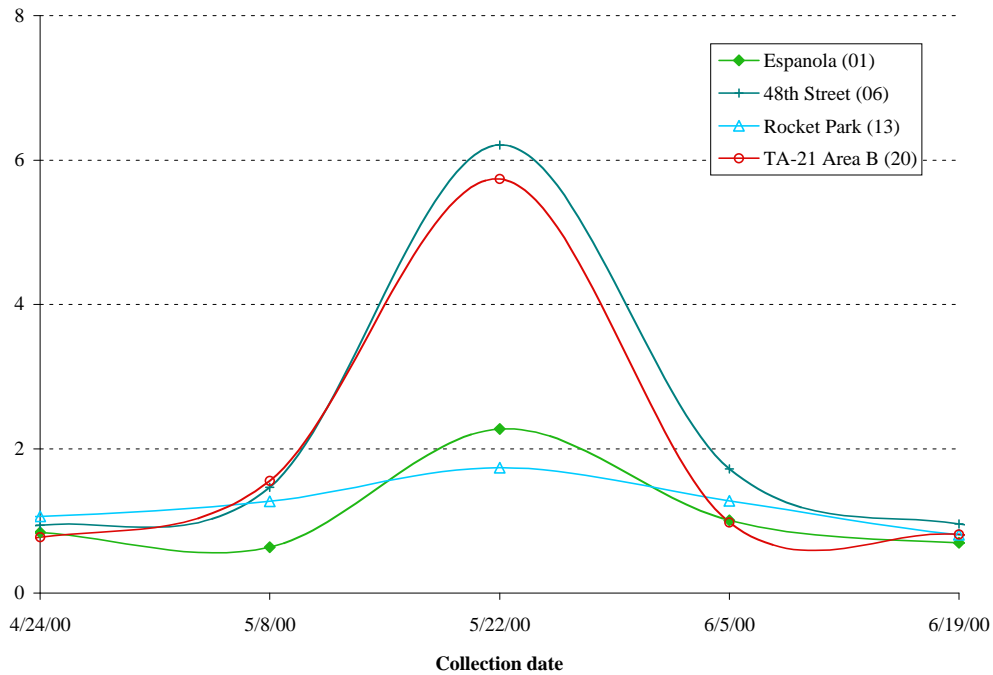


Figure 21. Biweekly gross alpha concentrations for AIRNET sites with the highest concentration in each geographic group.

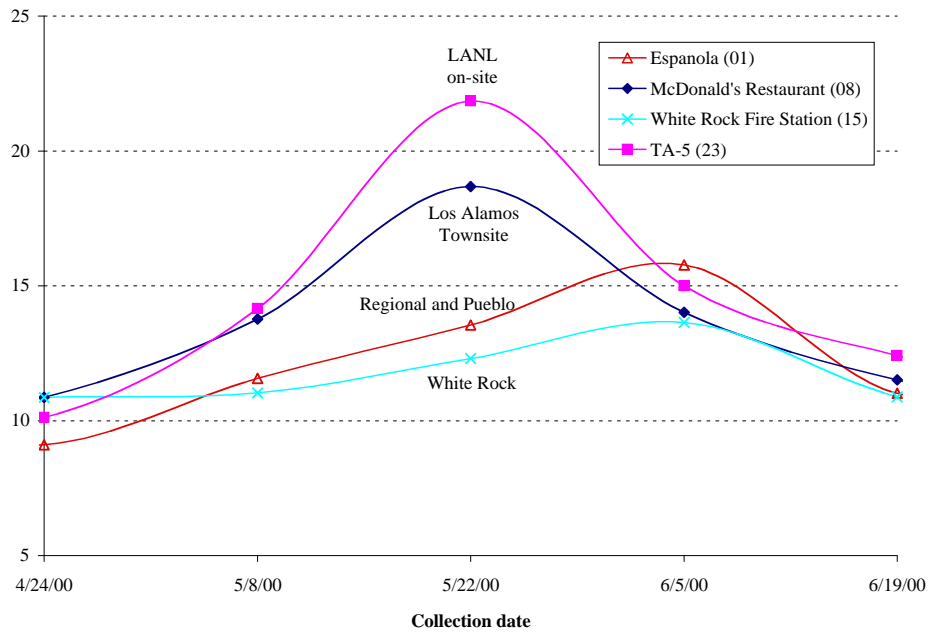


Figure 22. Biweekly gross beta concentrations for AIRNET sites with the highest concentration in each geographic group.

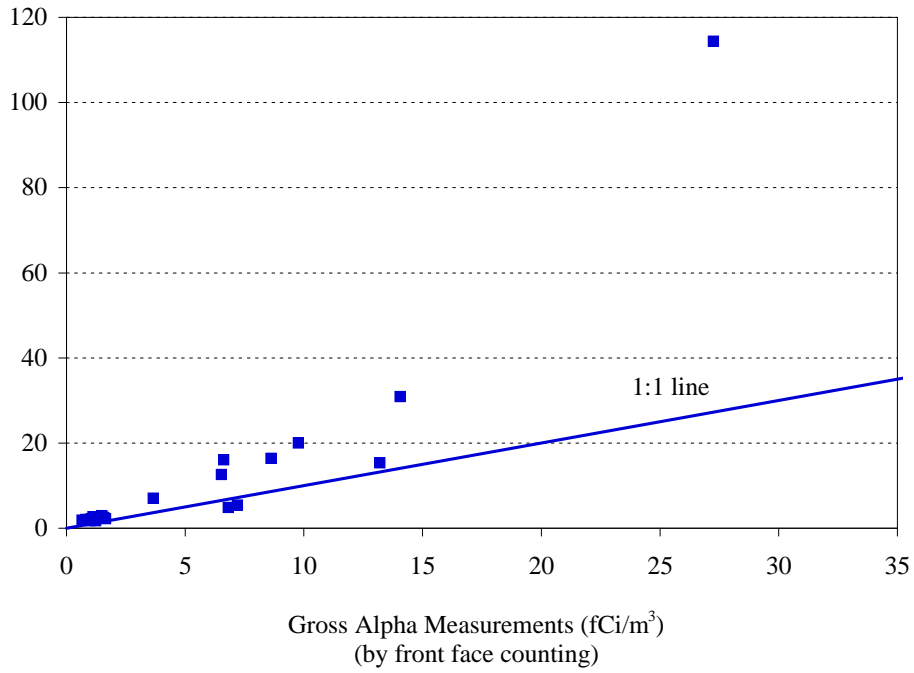


Figure 23. Gross alpha measurements versus polonium-210 measurements during the Cerro Grande fire.

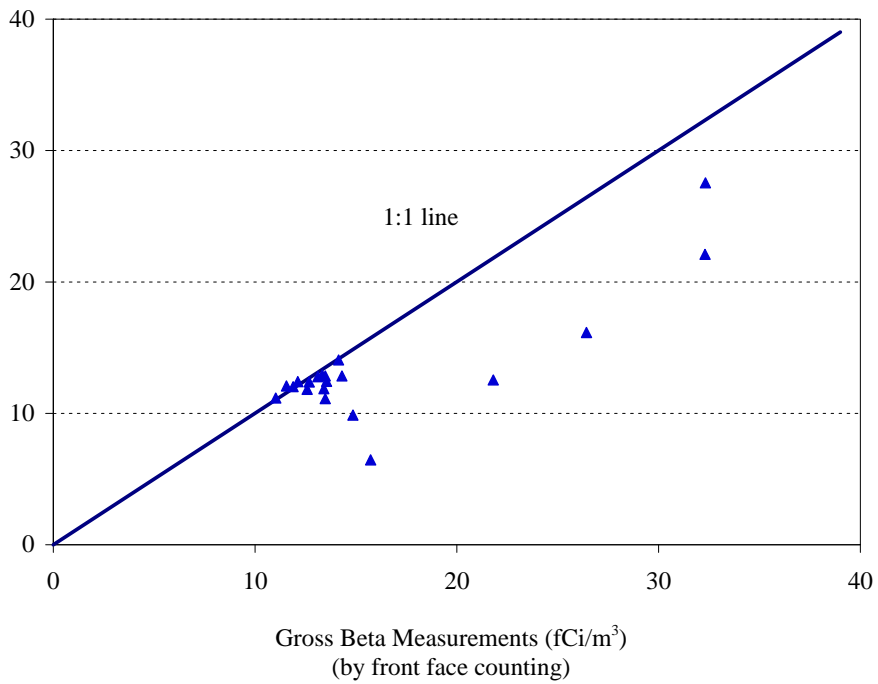


Figure 24. Gross beta measurements versus lead-210 measurements during the Cerro Grande fire.

spectroscopy, measures radioactivity it provides better measurements of the two primary contributors to the total uranium dose (uranium-234 and uranium-238). To calculate excess isotopic uranium, the difference between the two concentrations is compared to the pooled standard deviation. If the concentrations are more than three standard deviations apart, then excess isotopic uranium is considered to be present. Using three standard deviations is consistent with standard industrial quality control processes (Duncan 1986) where the use of two standard deviations results in too many false positives.

All of the samples collected from the 5/08 sampling period through the 5/14 sampling period were analyzed for isotopes of uranium. Many of the short-term uranium measurements were above their uncertainties and much higher than the quarterly concentrations (Figure 25), but isotopic comparisons indicate that the uranium was natural except for two onsite locations, sites 23 and 30 (Table A-22). The high winds during the fire appear to be the primary causes of the high short-term concentrations. Wind speeds at 7 m/sec or faster dramatically increase ambient concentrations of particulate matter (Whicker et al. 2001). During the second quarter of 2000, about 24% of these high winds occurred on May 10 and May 11 based on TA-54 meteorological tower data. The expected percent to occur on these days would only be about 2%. Therefore, these windy days and the physical turbulence from the fire could cause much higher concentrations of natural and depleted uranium simply by resuspending more particulate matter. Additional depleted uranium may have also been resuspended by combustion during the fire, but quarterly concentrations were not unusually high (Figure 26), indicating that physical resuspension processes were the predominant cause of the high short-term concentrations. Finally, recent wind tunnel studies of the AIRNET sampler indicate that it over-samples large particles during high winds (Rogers et al. 2000), which may have also contributed to higher measurements during the high wind conditions.

Even though the annual and quarterly concentrations of uranium isotopes vary, peak concentrations for all three isotopes occur during the second quarter of each year (Figure 27). Furthermore, since the first quarter of 1998, the uranium-238 concentrations have been consistently higher than the uranium-234 concentrations, indicating the presence of depleted uranium in some samples. During the second quarter of 2000 the network-wide concentrations of uranium-234 and uranium-238 were slightly higher than previous and subsequent second quarters indicating unusually high winds, excessively dry conditions, and/or resuspension from combustion. The station at TA-36 (77) was not included in these averages because of the persistent and known presence of depleted uranium in the samples.

Depleted uranium has usually been detected in at least one sample per quarter—most notably the first quarters of 1997, 2001, and 2002 and the fourth quarter of 2002 when significant differences (3s) were detected in about 25% or more of the samples (Figure 28). All of the samples with depleted uranium were collected on LANL property or within Los Alamos County. For the 00Q2 sampling period, six samples had excess depleted uranium, which is the same as the number for 99Q3 and much less than 97Q1. In the six years before 2001, we collected only 15 quarterly composite samples with excess uranium-238 offsite. For the three years from 2001 through 2003, 23 offsite samples with excess uranium-238 were collected. Possible contributing causes for the increased frequency of depleted uranium measurements include below-average rainfall, less vegetation and ground cover after the fire, fire mitigation activities, and/or tree thinning operations. However, it should be noted that the offsite concentrations of depleted uranium are comparable to historical natural uranium concentrations.

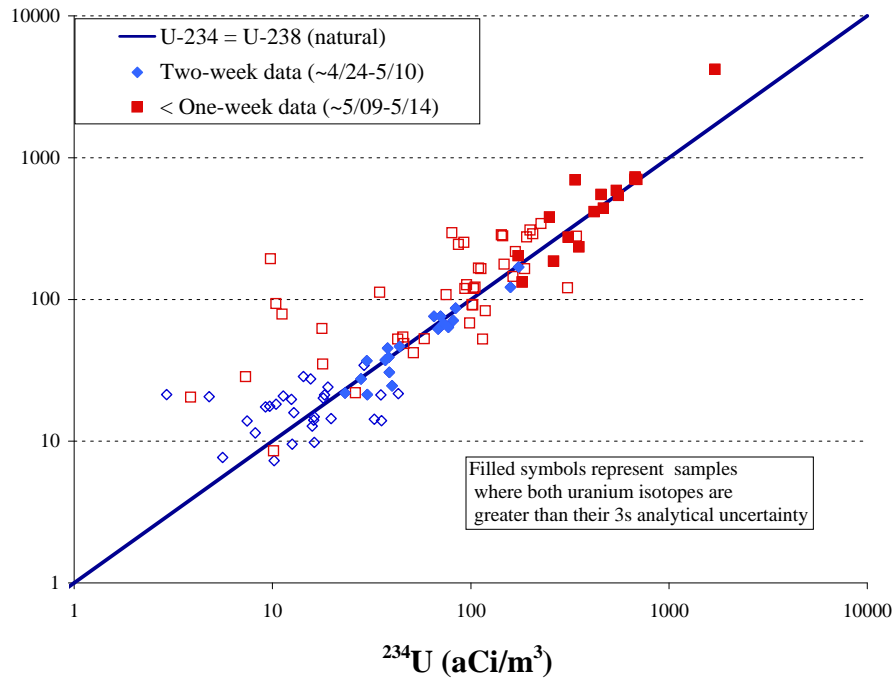


Figure 25. Short-term uranium isotopic concentrations during the Cerro Grande fire.

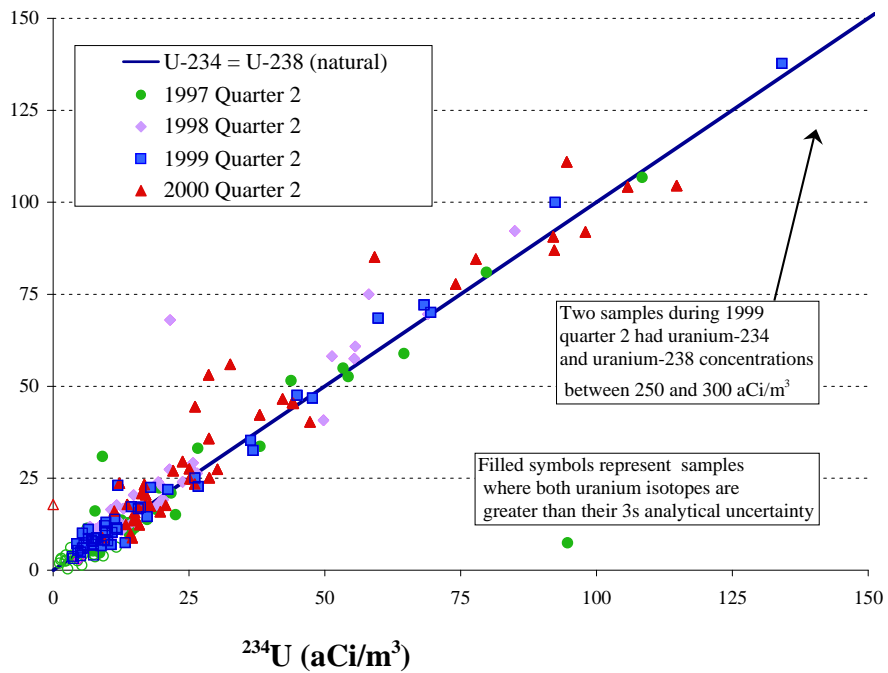


Figure 26. Quarter 2 uranium isotopic concentrations.

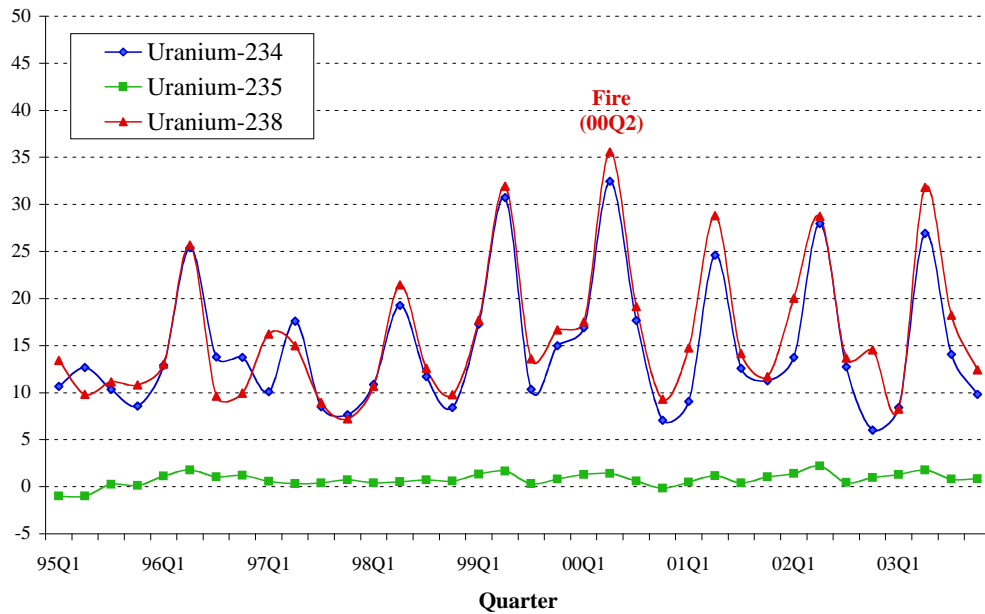


Figure 27. AIRNET quarterly uranium concentrations (network-wide concentrations excluding site 77).

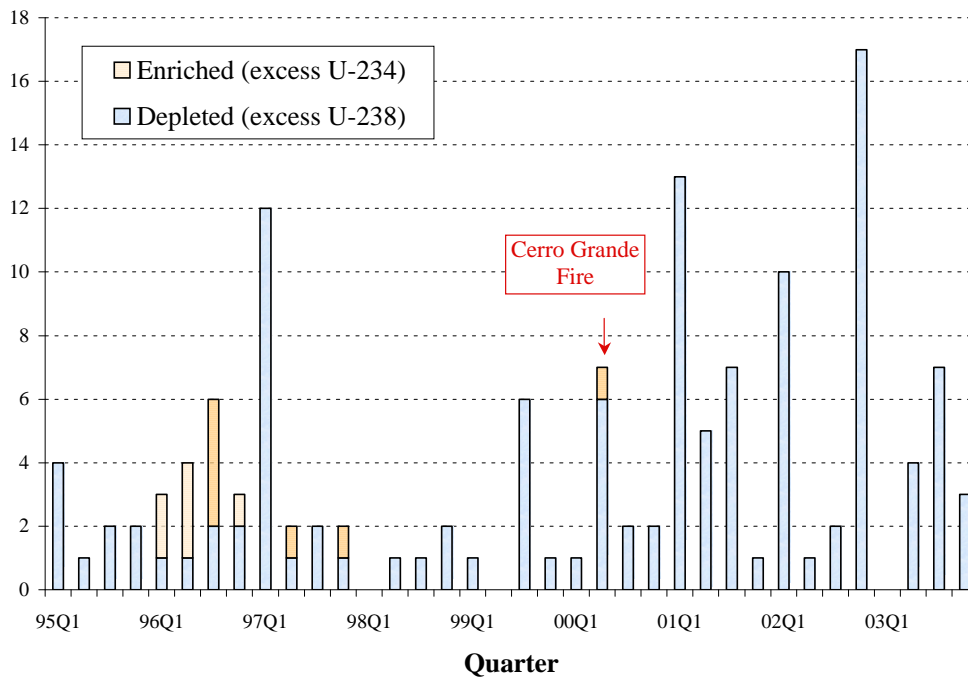


Figure 28. AIRNET sites with excess isotopic uranium.

One 00Q2 sample from site 13 in White Rock appears to have excess enriched uranium based on the difference between the uranium-234 and uranium-238 measurements. However, the uranium-234 concentration appears to be typical while the uranium-238 concentration for this sample was negative. This was the only negative uranium concentration for the year indicating a potential analytical problem.

Station 77 (Figure 29) at TA-36 is located in a posted radiation-control area where depleted uranium is still present as surface contamination. This location was previously identified as having measured excess ambient concentrations of uranium-238 (Eberhart et al. 1999; ESP 1999, 2000, and 2001). Of the 36 quarterly composites analyzed for isotopic uranium at this site, 30 have had excess uranium-238. The 00Q2 sample from this site appears to be typical. Even though the concentrations of uranium at this site are higher than other locations, they are relatively low compared to the EPA public exposure standards, which are about 20 times greater than the highest measured quarterly concentrations.

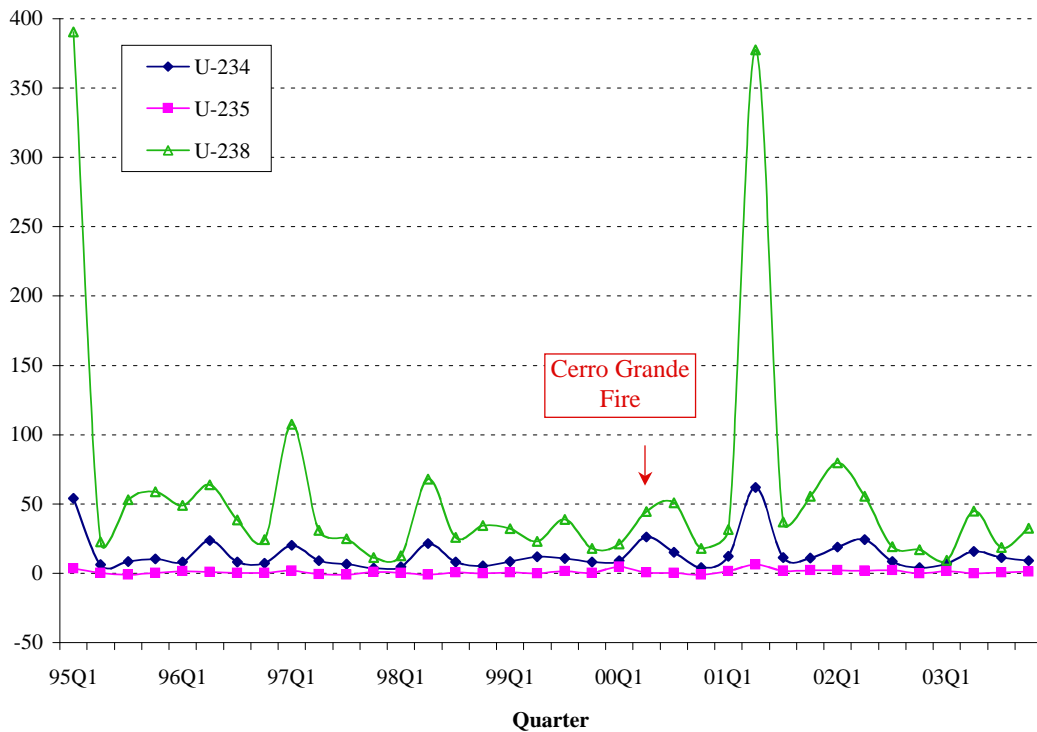


Figure 29. Site 77 uranium concentrations.

Plutonium and Americium

While plutonium and americium occur naturally at extremely low concentrations from cosmic radiation and spontaneous fission (Eisenbud and Gesell 1997), these elements are not naturally present in measurable quantities in the ambient air. All measurable sources are from plutonium research and development activities, nuclear-weapons production and testing, the nuclear fuel

cycle, and other related activities. With few exceptions, worldwide fallout from atmospheric testing of nuclear explosives is the primary source of plutonium in ambient air.

As was the case with uranium, all of the samples collected from the 5/08 sampling period through the 5/14 sampling period were analyzed for isotopes of plutonium and americium. Calculated short-term concentrations of plutonium-238, plutonium-239, and americium-241 during the fire were more variable than historical quarterly concentrations with both higher and lower concentrations. However, only three of the biweekly and short-term plutonium and americium concentrations were greater than their 3s uncertainties (Table A-22 and Figures 30 and 31). The three samples above their 3s uncertainties were from two locations with known sources of contamination: plutonium-239 from site 66 near the former TA-1 processing area waste water outfall in the Los Alamos town site and americium-241 from site 34 in Area G. All of the other samples were below their 3s measurement uncertainties and were generally centered around zero.

Quarterly concentrations of plutonium and americium exhibited a pattern similar to the biweekly and short-term samples. Eleven measurements exceeded their 3s uncertainties (Table A-31 and Figure 32). The two americium-241 measurements and the plutonium-238 measurement above their uncertainties were from the quarterly samples for sites 27 and 34 at TA-54. The remaining eight samples had detectable concentrations of plutonium-239. Three detections were at TA-54 (sites 27, 34, and 36), three were in the Los Alamos town site (sites 07, 08, and 66), one was at TA-21 (site 20), and one was at TA-5 (site 23). All of these measurements were comparable to other measurements at these locations. The network-wide concentrations of americium-241, plutonium-238, and plutonium-239 were not elevated in the second quarter of 2000 (Figure 33) and were less than the majority of the quarterly concentrations before 2000.

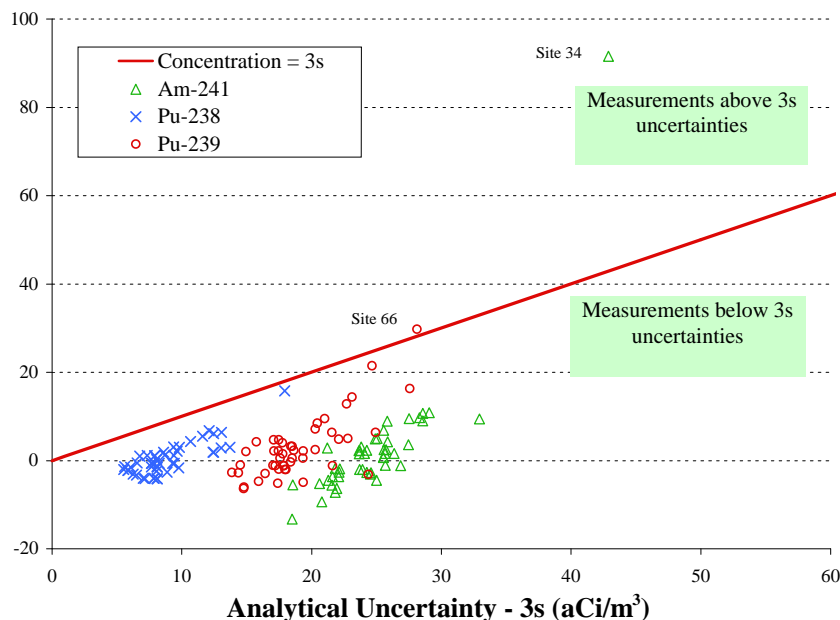


Figure 30. Two-week americium and plutonium concentrations at the beginning of the Cerro Grande fire (000508 samples).

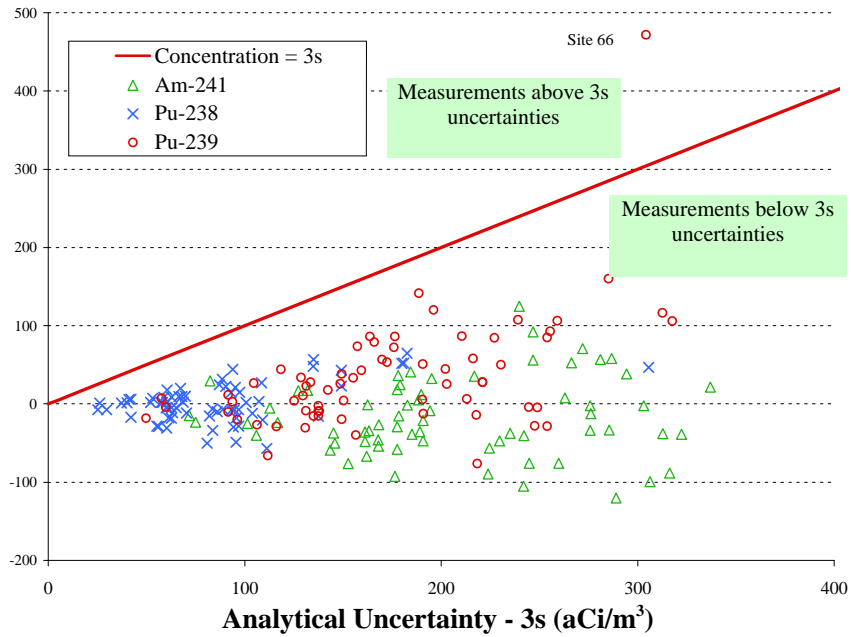


Figure 31. Short-term americium and plutonium concentrations during the Cerro Grande fire (~May 9–14, 2000).

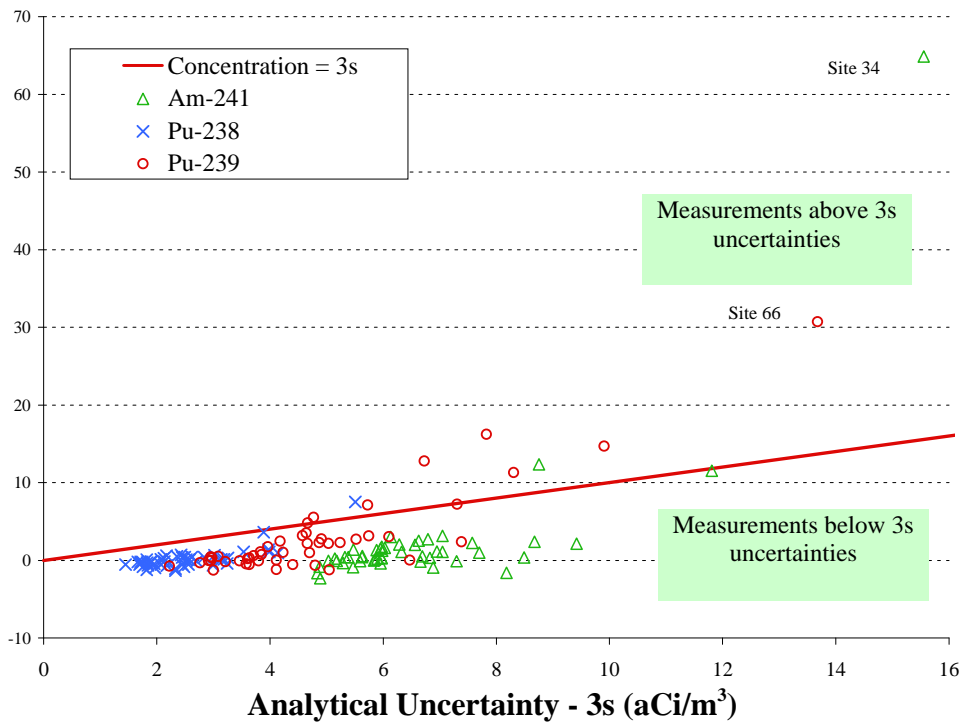


Figure 32. Second quarter 2000 americium and plutonium concentrations.

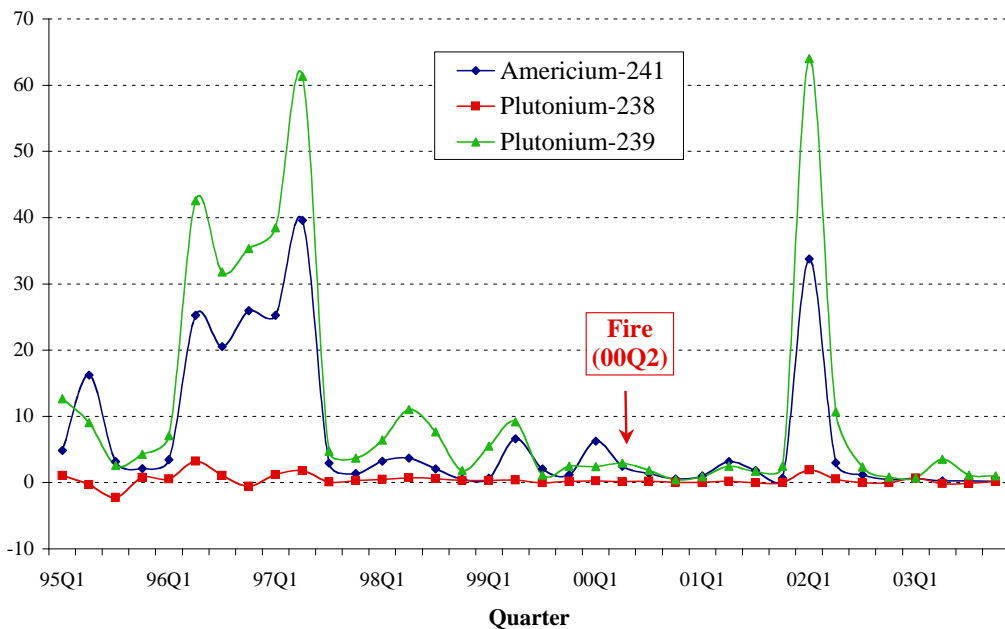


Figure 33. AIRNET quarterly plutonium and americium concentrations.

Other Radionuclides as Measured by Gamma Spectroscopy

The gamma spectroscopy data did not indicate any radionuclides other than from natural sources (Table A-15). The beryllium-7 and the lead-210 measurements are the only radionuclides normally above their minimum detectable activities, but two other radon decay chains, radon-220 and radon-219, also contribute to the radioactivity collected on the filters. Neither chain produces radionuclides that are present in measurable quantities when the AIRNET samples are analyzed, which is typically one to three weeks after the filters are collected in the field. The radon-219 decay products are gone within hours after collection because the longest-lived progeny has a half-life of 36 minutes. The radon-220 decay chain (Figure 34) lasts somewhat longer than the radon-219 chain because one of its decay products, lead-212, has a half-life of 10.6 hours. Some of the AIRNET samples collected during the fire were hand-delivered to the analytical laboratory and counted within a couple of days after collection. Several additional radionuclides from the radon-220 decay chain were detected (lead-212, bismuth-212, and thallium-208) because of this quick turnaround.

Beryllium-7 is cosmogenically produced by the spallation of common atmospheric gases. Like the radon decay products, it is a solid material produced from gas. The fine particles quickly coalesce into larger particles and also deposit on other surfaces such as vegetation. Beryllium-7 has a relatively short half-life, 53 days, but it is long enough to accumulate to some extent in the forests and be released during fires similar to the releases of the radon-222 decay products. Beryllium-7 short-term measurements increased during the fire (Figure 35) while the lead-210 levels were below their detection limits (Figure 36). Concentrations of beryllium-7 and lead-210 returned to pre-fire levels for the samples collected the week of May 22, 2000.

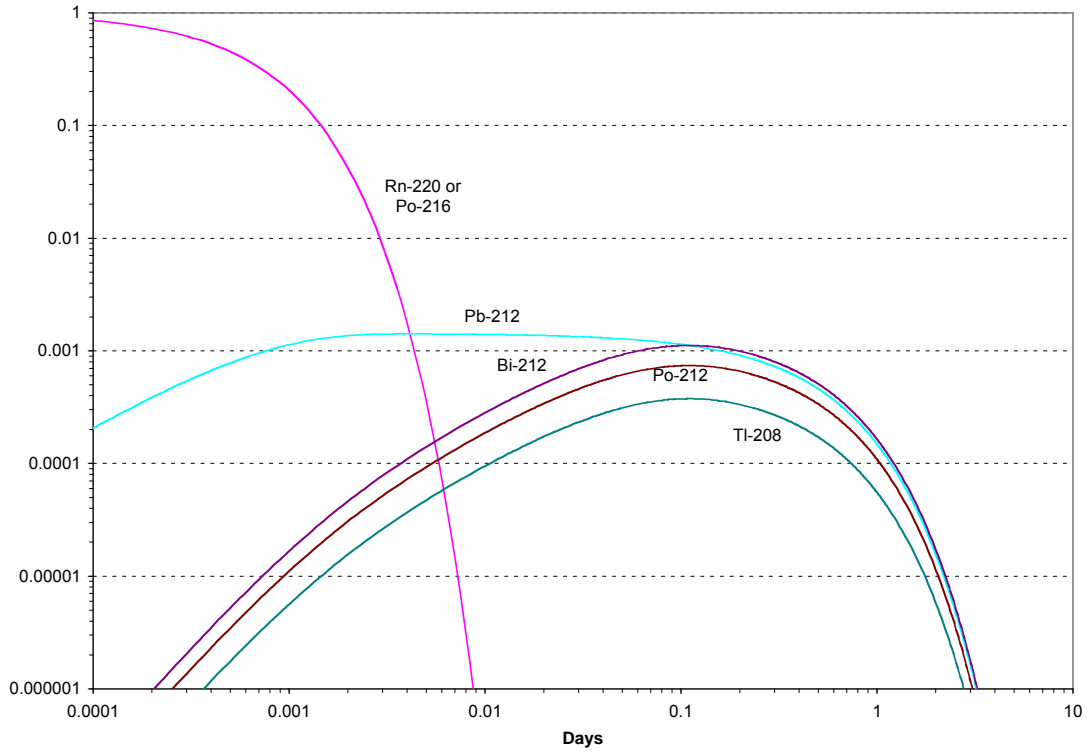


Figure 34. Radon-222 decay chain.

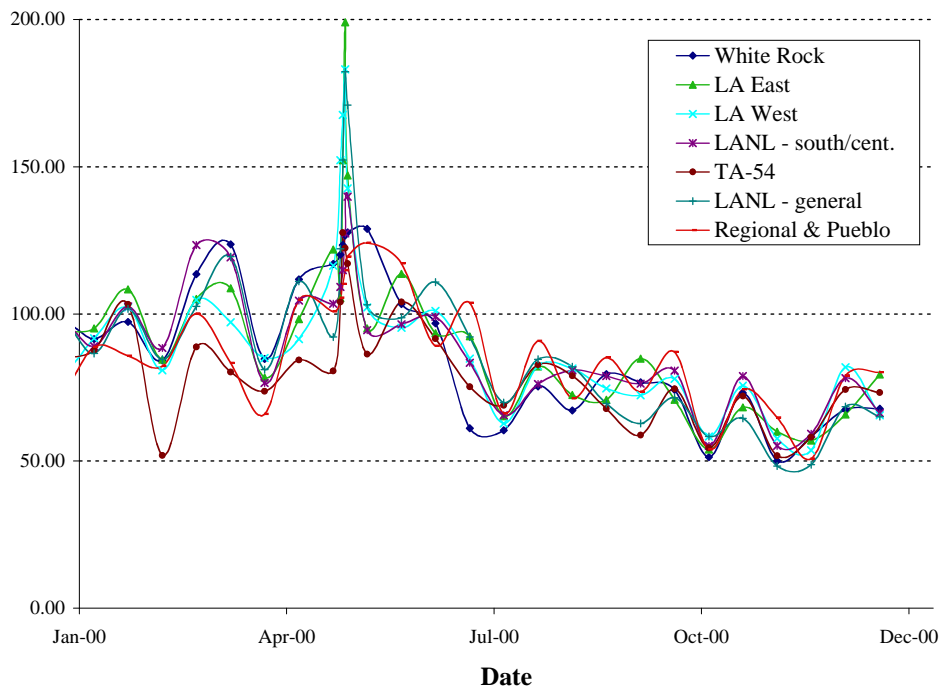


Figure 35. Beryllium-7 gamma spectroscopy measurements grouped by general location.

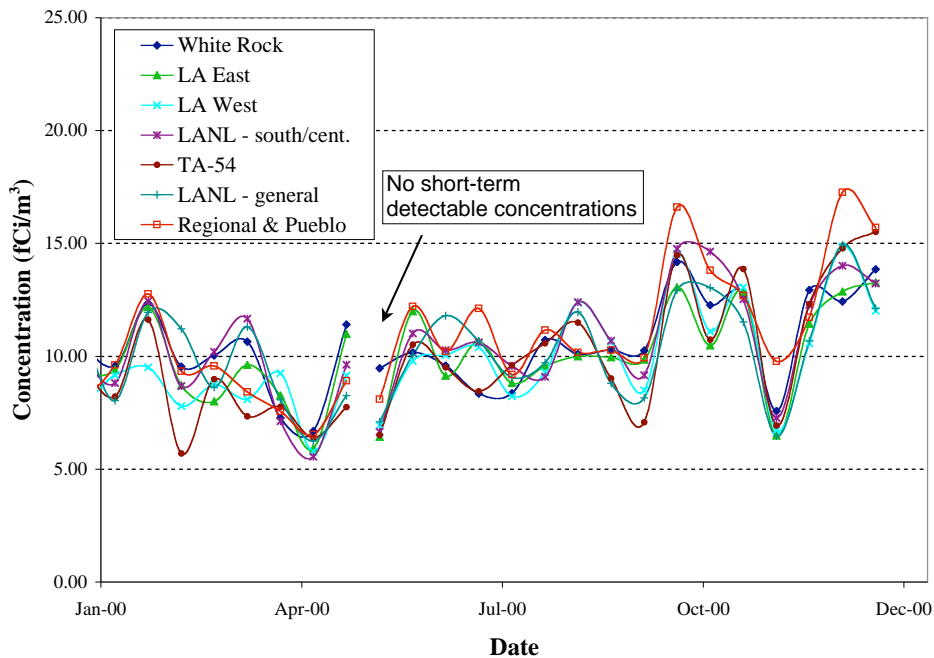


Figure 36. Lead-210 gamma spectroscopy measurements grouped by general location.

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Many people at LANL, the US Department of Energy, and the contract laboratories contributed to our successful efforts to collect and analyze air samples during and after the Cerro Grande fire. I would especially like to recognize the following people for their dedicated efforts that gave me the opportunity to write this paper:

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Appendix

Table A-1. AIRNET Sampler Locations

Site Number	Site Name	Latitude	Longitude	Altitude (m)
01	Española	35.0042	106.0825	1726
03	Santa Fe	35.6540	106.9808	2069
04	Barranca School	35.9027	106.2822	2243
05	Urban Park	35.8920	106.3257	2253
06	48th Street (Twin Tanks Complex)	35.8830	106.3288	2286
07	Gulf/Exxon/Shell Station	35.8807	106.3057	2238
08	McDonalds	35.8782	106.2973	2234
09	Los Alamos Airport	35.8822	106.2758	2192
10	Eastgate	35.8753	106.2555	2146
11	Well PM-1 (E. Jemez Road)	35.8593	106.2255	1995
12	Royal Crest Trailer Court	35.8723	106.2997	2228
13	Rocket Park (formerly Piñon School)	35.8243	106.2120	1965
14	Pajarito Acres	35.8104	106.2134	1959
15	White Rock Fire Station	35.8280	106.2058	1954
16	White Rock Nazarene Church	35.8225	106.2218	1999
17	Bandelier Fire Lookout (near park entrance)	35.7805	106.2663	1991
20	TA-21 Area B	35.8780	106.2812	2208
23	TA-5 (formerly TA-52, Beta Site)	35.8590	106.2799	2169
25	TA-16-450	35.8396	106.3536	2317
26	TA-49	35.8262	106.3178	2214
27	TA-54 Area G (by QA)	35.8316	106.2365	2037
30	Pajarito Booster 2 (P-2)	35.8458	106.2676	2113
31	TA-3	35.8735	106.3227	2248
32	Los Alamos County Landfill	35.8778	106.3170	2262
34	TA-54 Area G-1 (behind trailer)	35.8320	106.2345	2029
35	TA-54 Area G-2 (back fence)	35.8293	106.2387	2037
36	TA-54 Area G-3 (by office)	35.8329	106.2450	2056
38	TA-54 Area G-QA (next to # 27)	35.8321	106.2369	2037
39	TA-49-QA (adjacent to # 26)	35.8262	106.3178	2214
41	San Ildefonso Pueblo Plaza	35.8923	106.1210	1701
45	TA-54 - Area G/ Southeast Perimeter	35.8317	106.2368	2038
47	TA-54 - Area G/ North Perimeter	35.8300	106.2343	2040
49	Pajarito Road (TA-36)	35.8323	106.2523	2031
50	TA-54 - Area G - expansion	35.8318	106.2355	2062
51	TA-54 - Area G - expansion pit	35.8267	106.2408	2056
54	TA-33 East	35.7755	106.2455	1967
55	Santa Fe West (Buckman Booster #4)	35.7027	106.0165	2084
56	El Rancho	35.8953	106.0763	1747
59	Jemez Pueblo - Visitor's Center	35.6111	106.7425	1829
60	LA Canyon	35.8778	106.3073	2135
61	LA Hospital	35.8822	106.3167	2245
62	Crossroads Bible Church (formerly Trinity Bible Church)	35.8808	106.2878	2216
63	Monte Rey South	35.8113	106.2248	1984
66	Los Alamos Inn - South	35.9620	106.3043	2240
71	TA-21.01 (NW Bldg 344)	35.8787	106.2787	2187
76	TA-15-41 (formerly -61)	35.8438	106.3015	2220
77	TA-36 IJ site	35.8370	106.2922	2187
78	TA-15-N	35.8458	106.2848	2199
90	Eastgate - Backup	35.8753	106.2555	2146

Table A-2. Validated AIRNET Samples Collected in 2000

Site Number	Sample Period	Sample Number	Air Volume m ³	Start Date	Start Time (MST)	End Date	End Time (MST)
01	000508	000508.01	2289	4/25/2000	12:05	5/10/2000	11:30
01	000511	000511.01	193	5/10/2000	11:30	5/11/2000	19:35
01	000522	000522.01	1641	5/13/2000	10:47	5/24/2000	8:10
03	000508	000508.03	2124	4/26/2000	13:10	5/10/2000	8:28
03	000511	000511.03	228	5/10/2000	8:28	5/11/2000	18:07
03	000522	000522.03	1401	5/13/2000	9:50	5/23/2000	9:05
04	000508	000508.04	2401	4/24/2000	10:02	5/9/2000	9:39
04	000511	000511.04	306	5/9/2000	9:39	5/11/2000	12:30
04	000513	000513.04	220	5/11/2000	12:30	5/13/2000	16:47
04	000522	000522.04	1681	5/13/2000	16:47	5/24/2000	10:17
05	000508	000508.05	2488	4/24/2000	10:27	5/9/2000	9:53
05	000511	000511.05	98	5/9/2000	9:53	5/11/2000	12:00
06	000508	000508.06	2469	4/24/2000	10:38	5/9/2000	10:04
06	000511	000511.06	170	5/9/2000	10:04	5/11/2000	11:30
06	000513	000513.06	217	5/11/2000	11:30	5/13/2000	16:30
06	000522	000522.06	1478	5/13/2000	16:30	5/23/2000	9:18
07	000508	000508.07	2268	4/24/2000	10:51	5/9/2000	10:19
07	000511	000511.07	165	5/9/2000	10:19	5/11/2000	13:39
07	000513	000513.07	200	5/11/2000	13:39	5/13/2000	14:30
07	000522	000522.07	1372	5/13/2000	14:30	5/23/2000	9:36
08	000508	000508.08	2285	4/24/2000	11:00	5/9/2000	10:27
08	000511	000511.08	169	5/9/2000	10:27	5/11/2000	13:51
08	000513	000513.08	163	5/11/2000	13:51	5/13/2000	15:00
08	000522	000522.08	1531	5/13/2000	15:00	5/23/2000	9:56
09	000508	000508.09	2335	4/24/2000	11:27	5/9/2000	10:53
09	000511	000511.09	166	5/9/2000	10:53	5/11/2000	14:18
09	000513	000513.09	204	5/11/2000	14:18	5/13/2000	15:30
09	000522	000522.09	1457	5/13/2000	15:30	5/23/2000	10:38
10	000511	000511.10	347	5/9/2000	11:01	5/11/2000	14:45
10	000513	000513.10	221	5/11/2000	14:45	5/13/2000	15:40
10	000522	000522.10	1457	5/13/2000	15:40	5/23/2000	10:47
11	000508	000508.11	2257	4/24/2000	13:37	5/9/2000	9:04
11	000513	000513.11	459	5/9/2000	9:04	5/13/2000	19:13
11	000522	000522.11	1354	5/13/2000	19:13	5/23/2000	10:35
12	000508	000508.12	2272	4/24/2000	13:25	5/9/2000	9:14
12	000514	000514.12	437	5/9/2000	9:14	5/14/2000	7:52
12	000522	000522.12	1315	5/14/2000	7:52	5/23/2000	10:46
13	000508	000508.13	2344	4/24/2000	14:00	5/9/2000	8:52
13	000513	000513.13	729	5/9/2000	8:52	5/13/2000	18:47
13	000522	000522.13	1610	5/13/2000	18:47	5/23/2000	14:01
14	000508	000508.14	2395	4/24/2000	14:07	5/9/2000	8:45
14	000513	000513.14	702	5/9/2000	8:45	5/13/2000	18:47
14	000522	000522.14	1570	5/13/2000	18:47	5/23/2000	13:26
15	000508	000508.15	2407	4/24/2000	13:45	5/9/2000	8:57
15	000513	000513.15	459	5/9/2000	8:57	5/13/2000	19:01
15	000522	000522.15	1417	5/13/2000	19:01	5/23/2000	14:22
16	000508	000508.16	2395	4/24/2000	14:16	5/9/2000	8:35
16	000513	000513.16	329	5/9/2000	8:35	5/13/2000	18:33
16	000522	000522.16	1570	5/13/2000	18:33	5/23/2000	13:13
17	000508	000508.17	2354	4/25/2000	11:20	5/10/2000	10:09
17	000512	000512.17	347	5/10/2000	10:09	5/12/2000	13:34
17	000514	000514.17	301	5/12/2000	13:34	5/14/2000	11:27
17	000522	000522.17	1463	5/14/2000	11:27	5/23/2000	13:29
20	000508	000508.20	2284	4/24/2000	11:14	5/9/2000	10:35
20	000511	000511.20	269	5/9/2000	10:35	5/11/2000	14:00
20	000513	000513.20	200	5/11/2000	14:00	5/13/2000	15:10
20	000522	000522.20	1358	5/13/2000	15:10	5/23/2000	10:21
23	000508	000508.23	2288	4/24/2000	15:03	5/9/2000	8:13
23	000513	000513.23	221	5/9/2000	8:13	5/13/2000	18:12
23	000522	000522.23	1471	5/13/2000	18:12	5/23/2000	12:49
25	000508	000508.25	2096	4/25/2000	13:40	5/10/2000	8:53
25	000512	000512.25	172	5/10/2000	8:53	5/12/2000	13:03
25	000514	000514.25	289	5/12/2000	13:03	5/14/2000	10:36
25	000522	000522.25	1475	5/14/2000	10:36	5/23/2000	12:35
26	000508	000508.26	2305	4/25/2000	11:36	5/10/2000	9:34
26	000512	000512.26	306	5/10/2000	9:34	5/12/2000	13:23
26	000514	000514.26	305	5/12/2000	13:23	5/14/2000	11:16
26	000522	000522.26	1493	5/14/2000	11:16	5/23/2000	13:10
27	000508	000508.27	2448	4/25/2000	9:08	5/10/2000	12:01
27	000512	000512.27	269	5/10/2000	12:01	5/12/2000	11:25
27	000514	000514.27	294	5/12/2000	11:25	5/14/2000	9:19

Table A-2 (cont.)

Site Number	Sample Period	Sample Number	Air Volume m ³	Start Date	Start Time (MST)	End Date	End Time (MST)
27	000522	000522.27	1470	5/14/2000	9:19	5/24/2000	7:10
30	000508	000508.30	2387	4/24/2000	14:27	5/9/2000	8:25
30	000514	000514.30	449	5/9/2000	8:25	5/14/2000	8:34
30	000522	000522.30	1358	5/14/2000	8:34	5/23/2000	14:43
31	000508	000508.31	2162	4/25/2000	12:35	5/10/2000	8:29
31	000512	000512.31	316	5/10/2000	8:29	5/12/2000	11:49
31	000514	000514.31	309	5/12/2000	11:49	5/14/2000	10:11
31	000522	000522.31	1383	5/14/2000	10:11	5/23/2000	12:08
32	000508	000508.32	2274	4/24/2000	13:17	5/9/2000	9:23
32	000514	000514.32	437	5/9/2000	9:23	5/14/2000	8:02
32	000522	000522.32	1315	5/14/2000	8:02	5/23/2000	11:04
34	000508	000508.34	2573	4/25/2000	8:47	5/12/2000	8:31
34	000514	000514.34	321	5/12/2000	8:31	5/14/2000	9:46
34	000522	000522.34	1456	5/14/2000	9:46	5/24/2000	8:17
35	000508	000508.35	2424	4/25/2000	9:14	5/10/2000	12:10
35	000512	000512.35	306	5/10/2000	12:10	5/12/2000	11:37
35	000514	000514.35	283	5/12/2000	11:37	5/14/2000	9:22
35	000522	000522.35	1490	5/14/2000	9:22	5/24/2000	7:05
36	000508	000508.36	2438	4/25/2000	9:27	5/10/2000	11:50
36	000512	000512.36	285	5/10/2000	11:50	5/12/2000	11:10
36	000514	000514.36	264	5/12/2000	11:10	5/14/2000	9:05
36	000522	000522.36	1409	5/14/2000	9:05	5/24/2000	7:26
38	000512	000512.38	277	5/10/2000	12:03	5/12/2000	11:30
38	000514	000514.38	294	5/12/2000	11:30	5/14/2000	9:18
38	000522	000522.38	1450	5/14/2000	9:18	5/24/2000	7:12
39	000508	000508.39	2325	4/25/2000	11:34	5/10/2000	9:32
39	000512	000512.39	306	5/10/2000	9:32	5/12/2000	13:22
39	000514	000514.39	313	5/12/2000	13:22	5/14/2000	11:16
39	000522	000522.39	1364	5/14/2000	11:16	5/23/2000	13:08
41	000508	000508.41	2173	4/26/2000	14:58	5/10/2000	11:09
41	000511	000511.41	190	5/10/2000	11:09	5/11/2000	16:40
41	000522	000522.41	1476	5/13/2000	8:16	5/23/2000	6:40
45	000508	000508.45	2652	4/25/2000	8:51	5/12/2000	8:35
45	000514	000514.45	333	5/12/2000	8:35	5/14/2000	9:50
45	000522	000522.45	1516	5/14/2000	9:50	5/24/2000	8:21
47	000508	000508.47	2632	4/25/2000	8:43	5/12/2000	8:26
47	000514	000514.47	333	5/12/2000	8:26	5/14/2000	9:43
47	000522	000522.47	1557	5/14/2000	9:43	5/24/2000	8:11
49	000508	000508.49	2441	4/24/2000	14:22	5/9/2000	8:30
49	000513	000513.49	495	5/9/2000	8:30	5/13/2000	18:24
50	000508	000508.50	2398	4/25/2000	9:18	5/10/2000	11:57
50	000512	000512.50	277	5/10/2000	11:57	5/12/2000	11:18
51	000508	000508.51	2415	4/25/2000	9:22	5/10/2000	11:52
51	000512	000512.51	306	5/10/2000	11:52	5/12/2000	11:13
51	000514	000514.51	287	5/12/2000	11:13	5/14/2000	9:10
51	000522	000522.51	1496	5/14/2000	9:10	5/24/2000	7:32
54	000508	000508.54	2649	4/25/2000	11:02	5/14/2000	14:23
54	000522	000522.54	1658	5/14/2000	14:23	5/24/2000	12:39
55	000508	000508.55	2078	4/26/2000	13:58	5/10/2000	8:58
55	000511	000511.55	207	5/10/2000	8:58	5/11/2000	17:45
55	000522	000522.55	1577	5/13/2000	8:58	5/23/2000	7:39
56	000508	000508.56	2275	4/26/2000	14:37	5/10/2000	10:48
56	000511	000511.56	195	5/10/2000	10:48	5/11/2000	17:03
56	000522	000522.56	1633	5/12/2000	17:10	5/23/2000	6:54
59	000508	000508.59	2407	4/24/2000	10:18	5/10/2000	13:25
59	000522	000522.59	1461	5/10/2000	13:25	5/22/2000	8:49
60	000508	000508.60	2213	4/25/2000	11:52	5/10/2000	10:32
60	000512	000512.60	296	5/10/2000	10:32	5/12/2000	12:00
60	000514	000514.60	305	5/12/2000	12:00	5/14/2000	10:17
60	000522	000522.60	1611	5/14/2000	10:17	5/24/2000	10:37
61	000508	000508.61	2286	4/24/2000	10:45	5/9/2000	10:13
61	000511	000511.61	294	5/9/2000	10:13	5/11/2000	13:20
61	000513	000513.61	225	5/11/2000	13:20	5/13/2000	16:20
61	000522	000522.61	1419	5/13/2000	16:20	5/23/2000	9:28
62	000508	000508.62	2282	4/24/2000	11:22	5/9/2000	10:47
62	000511	000511.62	166	5/9/2000	10:47	5/11/2000	14:12
62	000513	000513.62	221	5/11/2000	14:12	5/13/2000	15:25
62	000522	000522.62	1397	5/13/2000	15:25	5/23/2000	10:28
63	000508	000508.63	2462	4/24/2000	14:13	5/9/2000	8:40
63	000513	000513.63	702	5/9/2000	8:40	5/13/2000	18:40
63	000522	000522.63	1650	5/13/2000	18:40	5/23/2000	13:20

Table A-2 (cont.)

Site Number	Sample Period	Sample Number	Air Volume m ³	Start Date	Start Time (MST)	End Date	End Time (MST)
66	000508	000508.66	2324	4/24/2000	16:15	5/10/2000	8:15
66	000513	000513.66	287	5/10/2000	8:15	5/13/2000	14:42
66	000522	000522.66	1457	5/13/2000	14:42	5/23/2000	9:47
71	000508	000508.71	2236	4/24/2000	11:06	5/9/2000	10:39
71	000511	000511.71	334	5/9/2000	10:39	5/11/2000	14:05
71	000513	000513.71	208	5/11/2000	14:05	5/13/2000	15:15
71	000522	000522.71	1358	5/13/2000	15:15	5/23/2000	10:05
76	000508	000508.76	2201	4/25/2000	14:01	5/10/2000	9:03
76	000512	000512.76	190	5/10/2000	9:03	5/12/2000	12:24
76	000522	000522.76	1309	5/12/2000	12:24	5/24/2000	11:49
77	000508	000508.77	2313	4/25/2000	14:05	5/10/2000	9:07
77	000512	000512.77	197	5/10/2000	9:07	5/12/2000	12:29
77	000514	000514.77	320	5/12/2000	12:29	5/14/2000	10:50
77	000522	000522.77	1577	5/14/2000	10:50	5/24/2000	11:55
78	000508	000508.78	2315	4/25/2000	14:10	5/10/2000	9:13
78	000512	000512.78	193	5/10/2000	9:13	5/12/2000	12:38
78	000522	000522.78	1454	5/12/2000	12:38	5/24/2000	12:02
90	000508	000508.90	2343	4/24/2000	11:35	5/9/2000	11:02
90	000522	000522.90	1577	5/13/2000	15:40	5/23/2000	10:48

Table A-3. Rejected AIRNET Samples Collected in May 2000

Site Number	Sample Period	Sample ID	Start Date	Start Time (MST)	End Date	End Time (MST)	Cause for Rejection
01	000513	000513.01	5/11/00	19:35	5/13/00	10:47	Filter material was not DynaWeb
03	000513	000513.03	5/11/00	18:07	5/13/00	9:50	Filter material was not DynaWeb
05	000522	000522.05	5/11/00	12:00	5/23/00	9:00	power failure
10	000508	000508.10	4/24/00	11:33	5/9/00	11:01	filter did not cover inlet
38	000508	000508.38	4/25/00	9:10	5/10/00	12:03	filter did not cover inlet
41	000513	000513.41	5/11/00	16:40	5/13/00	8:16	Filter material was not DynaWeb
49	000522	000522.49	5/13/00	18:24	5/23/00	13:05	circuit breaker tripped
50	000514	000514.50	5/12/00	11:18	5/14/00	9:15	pump failure
50	000522	000522.50	5/14/00	9:15	5/24/00	7:20	pump failure
55	000513	000513.55	5/11/00	17:45	5/13/00	8:58	Filter material was not DynaWeb
56	000512	000512.56	5/11/00	17:03	5/12/00	17:10	Filter material was not DynaWeb
90	000513	000513.90	5/9/00	11:02	5/13/00	15:40	Start air flow not recorded

Table A-4. Samples With More Than 5% Downtime during the May 2000 Collection Period

Site Number	Sample Period	Sample ID	Timer Reading	Potential Sampling Time	Percent Downtime
04	000511	000511.04	48	51	6
04	000513	000513.04	32	52	39
05	000511	000511.05	28	50	44
05	000522	000522.05	30	285	89
16	000513	000513.16	53	106	50
20	000522	000522.20	216	235	8
23	000513	000513.23	53	106	50
25	000512	000512.25	27	52	48
26	000512	000512.26	45	52	13
39	000512	000512.39	45	52	13
41	000511	000511.41	28	30	5
49	000522	000522.49	21	235	91
50	000514	000514.50	3	46	93
50	000522	000522.50	3	238	99
61	000511	000511.61	48	51	6
71	000522	000522.71	216	235	8
76	000512	000512.76	28	51	45
76	000522	000522.76	214	287	26
77	000512	000512.77	28	51	45
78	000512	000512.78	28	51	46
78	000522	000522.78	214	287	26
90	000513	000513.90	49	101	51

Table A-5. Time Sampled by Sampling Period during May 2000

Sample Period	May 2000	000508	000511	000512	000513	000514	000522
Total Possible Sampling Time (hours)	33714	17733	720	771	1685	1103	11702
Total Actual Sampling Time	32389	17711	685	664	1499	1051	10779
Total Sampling Time with Validated and Verified Samples	31380	16990	685	640	1292	1048	10725
Sampling Time (percent of total possible hours)	96	100	95	86	89	95	92
Sampling Time (percent of total possible hours with validated and verified samples)	93	96	95	83	77	95	92

Table A-6. 2000 Quarter 2 Samples

Site ID	Site Name	Sample ID	Air Volume m³
01	Española	00Q2.01	12423
03	Santa Fe	00Q2.03	11961
04	Barranca School	00Q2.04	13126
05	Urban Park	00Q2.05	11458
06	48th Street (Twin Tanks Complex)	00Q2.06	13214
07	Gulf/Exxon/Shell Station	00Q2.07	10278
08	McDonalds	00Q2.08	12914
09	Los Alamos Airport	00Q2.09	13154
10	Eastgate	00Q2.10	10554
11	Well PM-1 (E. Jemez Road)	00Q2.11	12287
12	Royal Crest Trailer Court	00Q2.12	12380
13	Rocket Park (formerly Piñon School)	00Q2.13	13355
14	Pajarito Acres	00Q2.14	13428
15	White Rock Fire Station	00Q2.15	12642
16	White Rock Nazarene Church	00Q2.16	12848
17	Bandelier Fire Lookout (near park entrance)	00Q2.17	13466
20	TA-21 Area B	00Q2.20	12620
23	TA-5 (formerly TA-52, Beta Site)	00Q2.23	12820
25	TA-16-450	00Q2.25	12993
26	TA-49	00Q2.26	13081
27	TA-54 Area G (by QA)	00Q2.27	12560
30	Pajarito Booster 2 (P-2)	00Q2.30	12099
31	TA-3	00Q2.31	12993
32	Los Alamos County Landfill	00Q2.32	9945
34	TA-54 Area G-1 (behind trailer)	00Q2.34	12687
35	TA-54 Area G-2 (back fence)	00Q2.35	13059
36	TA-54 Area G-3 (by office)	00Q2.36	13206
38	TA-54 Area G-QA (next to # 27)	00Q2.38	8429
39	TA-49-QA (adjacent to # 26)	00Q2.39	11665
41	San Ildefonso Pueblo Plaza	00Q2.41	12848
45	TA-54 - Area G/ Southeast Perimeter	00Q2.45	12940
47	TA-54 - Area G/ North Perimeter	00Q2.47	12744
49	Pajarito Road (TA-36)	00Q2.49	11808
50	TA-54 - Area G - expansion	00Q2.50	11057
51	TA-54 - Area G - expansion pit	00Q2.51	12977
54	TA-33 East	00Q2.54	12743
55	Santa Fe West (Buckman Booster #4)	00Q2.55	12786
56	El Rancho	00Q2.56	13024
59	Jemez Pueblo - Visitor's Center	00Q2.59	10326
60	LA Canyon	00Q2.60	13150
61	LA Hospital	00Q2.61	12774
62	Crossroads Bible Church (formerly Trinity Bible Church)	00Q2.62	12272
63	Monte Rey South	00Q2.63	13733
66	Los Alamos Inn - South	00Q2.66	8127
71	TA-21.01 (NW Bldg 344)	00Q2.71	12981
76	TA-15-41 (formerly -61)	00Q2.76	12504
77	TA-36 IJ site	00Q2.77	13332
78	TA-15-N	00Q2.78	12637
90	Eastgate - Backup	00Q2.90	12710

Table A-7. Clumps of May 2000 Filters Analyzed by Gamma Spectroscopy

Clump ID	Sample Period	Sample Number	Clump Name	Air Volume m ³
CC	000508	000508.CC	White Rock Station Clump	14260
CD	000508	000508.CD	LA East Station Clump	16202
CE	000508	000508.CE	LA West Station Clump	13998
CF	000508	000508.CF	Firing Sites Station Clump	13813
CG	000508	000508.CG	TA-54, Area G Station Clump	22361
CH	000508	000508.CH	On-site Station Clump	13610
CK	000508	000508.CK	Regional Station Clump	13346
CD	000511	000511.CD	LA East Station Clump	1421
CE	000511	000511.CE	LA West Station Clump	726
CH	000511	000511.CH	Onsite Station Clump	334
CK	000511	000511.CK	Regional Station Clump	1014
CF	000512	000512.CF	Firing Sites Station Clump	2322
CG	000512	000512.CG	TA-54, Area G Station Clump	1721
CC	000513	000513.CC	White Rock Station Clump	3381
CD	000513	000513.CD	LA East Station Clump	1666
CE	000513	000513.CE	LA West Station Clump	1383
CH	000513	000513.CH	Onsite Station Clump	1373
CF	000514	000514.CF	Firing Sites Station Clump	1239
CG	000514	000514.CG	TA-54, Area G Station Clump	2429
CH	000514	000514.CH	Onsite Station Clump	598
CC	000522	000522.CC	White Rock Station Clump	9172
CD	000522	000522.CD	LA East Station Clump	10197
CE	000522	000522.CE	LA West Station Clump	8805
CF	000522	000522.CF	Firing Sites Station Clump	8660
CG	000522	000522.CG	TA-54, Area G Station Clump	11844
CH	000522	000522.CH	Onsite Station Clump	8848
CK	000522	000522.CK	Regional Station Clump	9189

Table A-8. Short-term Gross Alpha Concentrations for May 2000 Samples

Sample ID	Site Name	Gross Alpha	
		Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
000511.01	Española	12.8	5.7
000511.03	Santa Fe	2.7	2.8
000511.04	Barranca School	6.3	3.2
000511.05	Urban Park	13.0	8.5
000511.06	48th Street (Twin Tanks Complex)	26.8	8.5
000511.07	Gulf/Exxon/Shell Station	8.4	5.2
000511.08	McDonalds	14.6	6.5
000511.09	Los Alamos Airport	13.6	6.4
000511.10	Eastgate	8.4	3.4
000511.20	TA-21 Area B	10.0	4.3
000511.41	San Ildefonso Pueblo Plaza	4.3	3.7
000511.55	Santa Fe West (Buckman Booster #4)	3.4	3.3
000511.56	El Rancho	0.8	2.5
000511.61	LA Hospital	9.5	4.0
000511.62	Crossroads Bible Church (formerly Trinity Bible Church)	8.3	5.2
000511.71	TA-21.01 (NW Bldg 344)	6.8	3.2
000512.17	Bandelier Fire Lookout (near park entrance)	2.1	2.0
000512.25	TA-16-450	14.4	6.4
000512.26	TA-49	2.3	2.2
000512.27	TA-54 Area G (by QA)	6.7	3.6
000512.31	TA-3	6.4	3.2
000512.35	TA-54 Area G-2 (back fence)	3.1	2.4
000512.36	TA-54 Area G-3 (by office)	5.6	3.2
000512.38	TA-54 Area G-QA (next to # 27)	6.5	3.5
000512.39	TA-49-QA (adjacent to # 26)	3.4	2.5
000512.50	TA-54 - Area G - expansion	6.9	3.6
000512.51	TA-54 - Area G - expansion pit	5.2	3.0
000512.60	LA Canyon	7.3	3.5
000512.76	TA-15-41 (formerly -61)	0.9	2.5
000512.77	TA-36 IJ site	2.0	2.9
000512.78	TA-15-N	1.4	2.7
000513.04	Barranca School	11.2	5.0
000513.06	48th Street (Twin Tanks Complex)	6.9	4.1
000513.07	Gulf/Exxon/Shell Station	12.4	5.5
000513.08	McDonalds	13.2	6.4
000513.09	Los Alamos Airport	11.6	5.3
000513.10	Eastgate	14.2	5.5
000513.11	Well PM-1 (E. Jemez Road)	4.7	2.3
000513.13	Rocket Park (formerly Piñon School)	2.8	1.4
000513.14	Pajarito Acres	2.9	1.4
000513.15	White Rock Fire Station	2.5	1.8
000513.16	White Rock Nazarene Church	0.5	1.5
000513.20	TA-21 Area B	17.9	6.5
000513.23	TA-5 (formerly TA-52, Beta Site)	12.2	5.2
000513.49	Pajarito Road (TA-36)	4.6	2.1
000513.61	LA Hospital	9.1	4.5
000513.62	Crossroads Bible Church (formerly Trinity Bible Church)	5.7	3.8
000513.63	Monte Rey South	2.3	1.3
000513.66	Los Alamos Inn - South	7.9	3.7
000513.71	TA-21.01 (NW Bldg 344)	13.5	5.6
000514.12	Royal Crest Trailer Court	8.4	3.0
000514.17	Bandelier Fire Lookout (near park entrance)	2.0	2.1
000514.25	TA-16-450	1.7	2.1
000514.26	TA-49	3.1	2.5
000514.27	TA-54 Area G (by QA)	4.3	2.8
000514.30	Pajarito Booster 2 (P-2)	6.2	2.6
000514.31	TA-3	6.9	3.4

Table A-8 (cont.)

Sample ID	Site Name	Gross Alpha	
		Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
000514.32	Los Alamos County Landfill	5.9	2.6
000514.34	TA-54 Area G-1 (behind trailer)	1.5	1.9
000514.35	TA-54 Area G-2 (back fence)	3.3	2.6
000514.36	TA-54 Area G-3 (by office)	4.0	2.9
000514.38	TA-54 Area G-QA (next to # 27)	4.3	2.8
000514.39	TA-49-QA (adjacent to # 26)	4.0	2.7
000514.45	TA-54 - Area G/ Southeast Perimeter	4.1	2.6
000514.47	TA-54 - Area G/ North Perimeter	6.8	3.2
000514.51	TA-54 - Area G - expansion pit	4.0	2.8
000514.60	LA Canyon	4.9	2.9
000514.77	TA-36 IJ site	7.4	3.4
000522.01	Española	1.0	0.3
000522.03	Santa Fe	0.9	0.4
000522.04	Barranca School	1.4	0.4
000522.06	48th Street (Twin Tanks Complex)	1.6	0.5
000522.07	Gulf/Exxon/Shell Station	1.5	0.5
000522.08	McDonalds	1.4	0.4
000522.09	Los Alamos Airport	1.9	0.5
000522.10	Eastgate	1.6	0.5
000522.11	Well PM-1 (E. Jemez Road)	1.6	0.5
000522.12	Royal Crest Trailer Court	1.6	0.5
000522.13	Rocket Park (formerly Piñon School)	1.3	0.4
000522.14	Pajarito Acres	0.7	0.3
000522.15	White Rock Fire Station	0.7	0.3
000522.16	White Rock Nazarene Church	0.7	0.3
000522.17	Bandelier Fire Lookout (near park entrance)	1.0	0.4
000522.20	TA-21 Area B	2.0	0.5
000522.23	TA-5 (formerly TA-52, Beta Site)	1.5	0.4
000522.25	TA-16-450	1.4	0.4
000522.26	TA-49	1.3	0.4
000522.27	TA-54 Area G (by QA)	1.0	0.4
000522.30	Pajarito Booster 2 (P-2)	1.3	0.4
000522.31	TA-3	1.3	0.4
000522.32	Los Alamos County Landfill	1.5	0.5
000522.34	TA-54 Area G-1 (behind trailer)	1.4	0.4
000522.35	TA-54 Area G-2 (back fence)	1.2	0.4
000522.36	TA-54 Area G-3 (by office)	1.1	0.4
000522.38	TA-54 Area G-QA (next to # 27)	1.6	0.5
000522.39	TA-49-QA (adjacent to # 26)	1.3	0.4
000522.41	San Ildefonso Pueblo Plaza	1.0	0.4
000522.45	TA-54 - Area G/ Southeast Perimeter	1.3	0.4
000522.47	TA-54 - Area G/ North Perimeter	1.9	0.5
000522.51	TA-54 - Area G - expansion pit	1.1	0.4
000522.54	TA-33 East	0.8	0.3
000522.55	Santa Fe West (Buckman Booster #4)	1.0	0.4
000522.56	El Rancho	1.3	0.4
000522.59	Jemez Pueblo - Visitor's Center	0.8	0.3
000522.60	LA Canyon	1.1	0.4
000522.61	LA Hospital	1.3	0.4
000522.62	Crossroads Bible Church (formerly Trinity Bible Church)	2.1	0.5
000522.63	Monte Rey South	0.9	0.3
000522.66	Los Alamos Inn - South	1.9	0.5
000522.71	TA-21.01 (NW Bldg 344)	1.9	0.5
000522.76	TA-15-41 (formerly -61)	1.6	0.5
000522.77	TA-36 IJ site	1.8	0.5
000522.78	TA-15-N	1.6	0.5

Table A-9. Short-term Gross Beta Concentrations for May 2000 Samples

Sample ID	Site Name	Gross Beta	
		Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
000511.01	Española	22.0	6.5
000511.03	Santa Fe	15.5	5.1
000511.04	Barranca School	14.9	4.1
000511.05	Urban Park	28.7	11.4
000511.06	48th Street (Twin Tanks Complex)	32.5	8.0
000511.07	Gulf/Exxon/Shell Station	40.1	8.6
000511.08	McDonalds	35.5	8.1
000511.09	Los Alamos Airport	32.5	8.0
000511.10	Eastgate	15.8	3.9
000511.20	TA-21 Area B	18.3	4.8
000511.41	San Ildefonso Pueblo Plaza	13.3	5.7
000511.55	Santa Fe West (Buckman Booster #4)	11.6	5.2
000511.56	El Rancho	13.8	5.6
000511.61	LA Hospital	26.5	5.1
000511.62	Crossroads Bible Church (formerly Trinity Bible Church)	31.0	7.9
000511.71	TA-21.01 (NW Bldg 344)	12.9	3.7
000512.17	Bandelier Fire Lookout (near park entrance)	12.8	3.6
000512.25	TA-16-450	31.4	7.8
000512.26	TA-49	14.5	4.1
000512.27	TA-54 Area G (by QA)	20.2	5.0
000512.31	TA-3	29.6	5.0
000512.35	TA-54 Area G-2 (back fence)	8.6	3.6
000512.36	TA-54 Area G-3 (by office)	14.2	4.3
000512.38	TA-54 Area G-QA (next to # 27)	21.3	4.9
000512.39	TA-49-QA (adjacent to # 26)	11.9	3.9
000512.50	TA-54 - Area G - expansion	20.9	4.9
000512.51	TA-54 - Area G - expansion pit	12.0	3.9
000512.60	LA Canyon	23.2	4.8
000512.76	TA-15-41 (formerly -61)	9.2	5.3
000512.77	TA-36 II site	11.5	5.4
000512.78	TA-15-N	8.8	5.2
000513.04	Barranca School	10.8	5.0
000513.06	48th Street (Twin Tanks Complex)	30.0	6.5
000513.07	Gulf/Exxon/Shell Station	29.0	6.8
000513.08	McDonalds	34.2	8.2
000513.09	Los Alamos Airport	26.1	6.5
000513.10	Eastgate	21.4	5.8
000513.11	Well PM-1 (E. Jemez Road)	14.0	3.0
000513.13	Rocket Park (formerly Piñon School)	11.0	2.1
000513.14	Pajarito Acres	10.9	2.1
000513.15	White Rock Fire Station	15.7	3.2
000513.16	White Rock Nazarene Church	11.0	3.6
000513.20	TA-21 Area B	20.3	6.2
000513.23	TA-5 (formerly TA-52, Beta Site)	62.8	8.4
000513.49	Pajarito Road (TA-36)	14.3	2.9
000513.61	LA Hospital	30.3	6.4
000513.62	Crossroads Bible Church (formerly Trinity Bible Church)	26.6	6.1
000513.63	Monte Rey South	12.2	2.2
000513.66	Los Alamos Inn - South	24.7	5.0
000513.71	TA-21.01 (NW Bldg 344)	23.5	6.2
000514.12	Royal Crest Trailer Court	19.1	3.5
000514.17	Bandelier Fire Lookout (near park entrance)	10.1	3.7
000514.25	TA-16-450	10.0	3.8
000514.26	TA-49	10.2	3.7
000514.27	TA-54 Area G (by QA)	8.8	3.7
000514.30	Pajarito Booster 2 (P-2)	29.4	4.1

Table A-9 (cont.)

Sample ID	Site Name	Gross Beta	
		Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
000514.31	TA-3	10.9	3.8
000514.32	Los Alamos County Landfill	24.8	3.9
000514.34	TA-54 Area G-1 (behind trailer)	11.5	3.7
000514.35	TA-54 Area G-2 (back fence)	7.0	3.7
000514.36	TA-54 Area G-3 (by office)	10.3	4.2
000514.38	TA-54 Area G-QA (next to # 27)	11.0	3.9
000514.39	TA-49-QA (adjacent to # 26)	11.4	3.8
000514.45	TA-54 - Area G/ Southeast Perimeter	13.1	3.7
000514.47	TA-54 - Area G/ North Perimeter	14.1	3.8
000514.51	TA-54 - Area G - expansion pit	12.5	4.1
000514.60	LA Canyon	11.5	3.9
000514.77	TA-36 IJ site	13.5	3.9
000522.01	Española	12.5	0.9
000522.03	Santa Fe	10.1	0.8
000522.04	Barranca School	11.3	0.8
000522.06	48th Street (Twin Tanks Complex)	10.9	0.9
000522.07	Gulf/Exxon/Shell Station	11.8	0.9
000522.08	McDonalds	11.8	0.9
000522.09	Los Alamos Airport	11.9	0.9
000522.10	Eastgate	11.4	0.9
000522.11	Well PM-1 (E. Jemez Road)	10.1	0.9
000522.12	Royal Crest Trailer Court	11.3	0.9
000522.13	Rocket Park (formerly Piñon School)	11.5	0.8
000522.14	Pajarito Acres	10.1	0.8
000522.15	White Rock Fire Station	10.8	0.9
000522.16	White Rock Nazarene Church	10.4	0.8
000522.17	Bandelier Fire Lookout (near park entrance)	10.3	0.8
000522.20	TA-21 Area B	11.9	0.9
000522.23	TA-5 (formerly TA-52, Beta Site)	12.6	0.9
000522.25	TA-16-450	11.2	0.9
000522.26	TA-49	10.2	0.8
000522.27	TA-54 Area G (by QA)	10.7	0.8
000522.30	Pajarito Booster 2 (P-2)	12.0	0.9
000522.31	TA-3	10.1	0.9
000522.32	Los Alamos County Landfill	12.3	1.0
000522.34	TA-54 Area G-1 (behind trailer)	11.3	0.9
000522.35	TA-54 Area G-2 (back fence)	9.6	0.8
000522.36	TA-54 Area G-3 (by office)	9.8	0.8
000522.38	TA-54 Area G-QA (next to # 27)	10.5	0.9
000522.39	TA-49-QA (adjacent to # 26)	10.8	0.9
000522.41	San Ildefonso Pueblo Plaza	11.3	0.9
000522.45	TA-54 - Area G/ Southeast Perimeter	10.9	0.8
000522.47	TA-54 - Area G/ North Perimeter	11.0	0.8
000522.51	TA-54 - Area G - expansion pit	9.8	0.8
000522.54	TA-33 East	11.1	0.8
000522.55	Santa Fe West (Buckman Booster #4)	11.3	0.8
000522.56	El Rancho	11.3	0.8
000522.59	Jemez Pueblo - Visitor's Center	11.3	0.9
000522.60	LA Canyon	10.3	0.8
000522.61	LA Hospital	12.1	0.9
000522.62	Crossroads Bible Church (formerly Trinity Bible Church)	12.6	0.9
000522.63	Monte Rey South	10.2	0.8
000522.66	Los Alamos Inn - South	11.8	0.9
000522.71	TA-21.01 (NW Bldg 344)	12.3	0.9
000522.76	TA-15-41 (formerly -61)	12.6	1.0
000522.77	TA-36 IJ site	12.1	0.9
000522.78	TA-15-N	11.5	0.9

**Table A-10. Short-term Gross Alpha and Gross Beta Concentrations
above their 3s Uncertainties**

Sample ID	Site Name	Alpha Air Concentration (fCi/m ³)	Beta Air Concentration (fCi/m ³)
000511.01	Española	12.8	22.0
000511.03	Santa Fe		15.5
000511.04	Barranca School	6.3	14.9
000511.05	Urban Park	13.0	28.7
000511.06	48th Street (Twin Tanks Complex)	26.8	32.5
000511.07	Gulf/Exxon/Shell Station	8.4	40.1
000511.08	McDonalds	14.6	35.5
000511.09	Los Alamos Airport	13.6	32.5
000511.10	Eastgate	8.4	15.8
000511.20	TA-21 Area B	10.0	18.3
000511.41	San Ildefonso Pueblo Plaza		13.3
000511.55	Santa Fe West (Buckman Booster #4)		11.6
000511.56	El Rancho		13.8
000511.61	LA Hospital	9.5	26.5
000511.62	Crossroads Bible Church (formerly Trinity Bible Church)	8.3	31.0
000511.71	TA-21.01 (NW Bldg 344)	6.8	12.9
000512.17	Bandelier Fire Lookout (near park entrance)		12.8
000512.25	TA-16-450	14.4	31.4
000512.26	TA-49		14.5
000512.27	TA-54 Area G (by QA)	6.7	20.2
000512.31	TA-3	6.4	29.6
000512.35	TA-54 Area G-2 (back fence)		8.6
000512.36	TA-54 Area G-3 (by office)	5.6	14.2
000512.38	TA-54 Area G-QA (next to # 27)	6.5	21.3
000512.39	TA-49-QA (adjacent to # 26)		11.9
000512.50	TA-54 - Area G - expansion	6.9	20.9
000512.51	TA-54 - Area G - expansion pit	5.2	12.0
000512.60	LA Canyon	7.3	23.2
000512.76	TA-15-41 (formerly -61)		9.2
000512.77	TA-36 IJ site		11.5
000512.78	TA-15-N		8.8
000513.04	Barranca School	11.2	10.8
000513.06	48th Street (Twin Tanks Complex)	6.9	30.0
000513.07	Gulf/Exxon/Shell Station	12.4	29.0
000513.08	McDonalds	13.2	34.2
000513.09	Los Alamos Airport	11.6	26.1
000513.10	Eastgate	14.2	21.4
000513.11	Well PM-1 (E. Jemez Road)	4.7	14.0
000513.13	Rocket Park (formerly Piñon School)	2.8	11.1
000513.14	Pajarito Acres	2.9	10.9
000513.15	White Rock Fire Station		15.7
000513.16	White Rock Nazarene Church		11.0
000513.20	TA-21 Area B	17.9	20.3
000513.23	TA-5 (formerly TA-52, Beta Site)	12.2	62.8
000513.49	Pajarito Road (TA-36)	4.6	14.3
000513.61	LA Hospital	9.1	30.3
000513.62	Crossroads Bible Church (formerly Trinity Bible Church)	5.7	26.6
000513.63	Monte Rey South	2.3	12.2
000513.66	Los Alamos Inn - South	7.9	24.7
000513.71	TA-21.01 (NW Bldg 344)	13.5	23.5
000514.12	Royal Crest Trailer Court	8.4	19.1
000514.17	Bandelier Fire Lookout (near park entrance)		10.1
000514.25	TA-16-450		10.0
000514.26	TA-49		10.2
000514.27	TA-54 Area G (by QA)	4.3	8.8

Table A-10 (cont.)

Sample ID	Site Name	Alpha Air Concentration (fCi/m ³)	Beta Air Concentration (fCi/m ³)
000514.30	Pajarito Booster 2 (P-2)	6.2	29.4
000514.31	TA-3	6.9	10.9
000514.32	Los Alamos County Landfill	5.9	24.8
000514.34	TA-54 Area G-1 (behind trailer)		11.5
000514.35	TA-54 Area G-2 (back fence)		7.0
000514.36	TA-54 Area G-3 (by office)		10.3
000514.38	TA-54 Area G-QA (next to # 27)	4.3	11.0
000514.39	TA-49-QA (adjacent to # 26)	4.0	11.4
000514.45	TA-54 - Area G/ Southeast Perimeter	4.1	13.1
000514.47	TA-54 - Area G/ North Perimeter	6.8	14.1
000514.51	TA-54 - Area G - expansion pit		12.5
000514.60	LA Canyon	4.9	11.5
000514.77	TA-36 IJ site	7.4	13.5
000522.01	Española	1.0	12.5
000522.03	Santa Fe	0.9	10.1
000522.04	Barranca School	1.4	11.3
000522.06	48th Street (Twin Tanks Complex)	1.6	10.9
000522.07	Gulf/Exxon/Shell Station	1.5	11.8
000522.08	McDonalds	1.4	11.8
000522.09	Los Alamos Airport	1.9	11.9
000522.10	Eastgate	1.6	11.4
000522.11	Well PM-1 (E. Jemez Road)	1.6	10.1
000522.12	Royal Crest Trailer Court	1.6	11.3
000522.13	Rocket Park (formerly Piñon School)	1.3	11.5
000522.14	Pajarito Acres	0.7	10.1
000522.15	White Rock Fire Station	0.7	10.8
000522.16	White Rock Nazarene Church	0.7	10.4
000522.17	Bandelier Fire Lookout (near park entrance)	1.0	10.3
000522.20	TA-21 Area B	2.0	11.9
000522.23	TA-5 (formerly TA-52, Beta Site)	1.5	12.6
000522.25	TA-16-450	1.4	11.2
000522.26	TA-49	1.3	10.2
000522.27	TA-54 Area G (by QA)	1.0	10.7
000522.30	Pajarito Booster 2 (P-2)	1.3	12.0
000522.31	TA-3	1.3	10.1
000522.32	Los Alamos County Landfill	1.5	12.3
000522.34	TA-54 Area G-1 (behind trailer)	1.4	11.3
000522.35	TA-54 Area G-2 (back fence)	1.2	9.6
000522.36	TA-54 Area G-3 (by office)	1.1	9.8
000522.38	TA-54 Area G-QA (next to # 27)	1.6	10.5
000522.39	TA-49-QA (adjacent to # 26)	1.3	10.9
000522.41	San Ildefonso Pueblo Plaza	1.0	11.3
000522.45	TA-54 - Area G/ Southeast Perimeter	1.3	10.9
000522.47	TA-54 - Area G/ North Perimeter	1.9	11.0
000522.51	TA-54 - Area G - expansion pit	1.1	9.8
000522.54	TA-33 East	0.8	11.1
000522.55	Santa Fe West (Buckman Booster #4)	1.0	11.3
000522.56	El Rancho	1.3	11.3
000522.59	Jemez Pueblo - Visitor's Center	0.8	11.3
000522.60	LA Canyon	1.1	10.3
000522.61	LA Hospital	1.3	12.1
000522.62	Crossroads Bible Church (formerly Trinity Bible Church)	2.1	12.6
000522.63	Monte Rey South	0.9	10.2
000522.66	Los Alamos Inn - South	1.9	11.8
000522.71	TA-21.01 (NW Bldg 344)	1.9	12.3
000522.76	TA-15-41 (formerly -61)	1.6	12.6
000522.77	TA-36 IJ site	1.8	12.1
000522.78	TA-15-N	1.6	11.5

Table A-11. Biweekly Gross Alpha Concentrations for May 2000 Samples

Sample ID	Site Name	Gross Alpha	
		Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
000508.01	Española	0.6	0.4
000508.03	Santa Fe	0.6	0.4
000508.04	Barranca School	0.9	0.4
000508.05	Urban Park	0.9	0.5
000508.06	48th Street (Twin Tanks Complex)	1.5	0.6
000508.07	Gulf/Exxon/Shell Station	0.6	0.4
000508.08	McDonalds	1.2	0.5
000508.09	Los Alamos Airport	1.1	0.5
000508.11	Well PM-1 (E. Jemez Road)	1.1	0.5
000508.12	Royal Crest Trailer Court	1.4	0.5
000508.13	Rocket Park (formerly Piñon School)	1.3	0.5
000508.14	Pajarito Acres	0.7	0.4
000508.15	White Rock Fire Station	1.0	0.5
000508.16	White Rock Nazarene Church	0.8	0.4
000508.17	Bandelier Fire Lookout (near park entrance)	1.2	0.5
000508.20	TA-21 Area B	1.6	0.6
000508.23	TA-5 (formerly TA-52, Beta Site)	1.0	0.5
000508.25	TA-16-450	1.7	0.6
000508.26	TA-49	1.1	0.5
000508.27	TA-54 Area G (by QA)	1.1	0.5
000508.30	Pajarito Booster 2 (P-2)	0.8	0.4
000508.31	TA-3	1.5	0.6
000508.32	Los Alamos County Landfill	1.2	0.6
000508.34	TA-54 Area G-1 (behind trailer)	1.1	0.5
000508.35	TA-54 Area G-2 (back fence)	1.3	0.5
000508.36	TA-54 Area G-3 (by office)	1.7	0.6
000508.39	TA-49-QA (adjacent to # 26)	1.1	0.5
000508.41	San Ildefonso Pueblo Plaza	0.7	0.4
000508.45	TA-54 - Area G/ Southeast Perimeter	1.6	0.5
000508.47	TA-54 - Area G/ North Perimeter	1.1	0.4
000508.49	Pajarito Road (TA-36)	1.0	0.5
000508.50	TA-54 - Area G - expansion	1.2	0.5
000508.51	TA-54 - Area G - expansion pit	0.6	0.4
000508.54	TA-33 East	1.2	0.5
000508.55	Santa Fe West (Buckman Booster #4)	1.1	0.5
000508.56	El Rancho	1.2	0.5
000508.59	Jemez Pueblo - Visitor's Center	0.6	0.4
000508.60	LA Canyon	2.2	0.8
000508.61	LA Hospital	1.5	0.6
000508.62	Crossroads Bible Church (formerly Trinity Bible Church)	1.4	0.5
000508.63	Monte Rey South	0.9	0.4
000508.66	Los Alamos Inn - South	1.3	0.6
000508.71	TA-21.01 (NW Bldg 344)	1.5	0.6
000508.76	TA-15-41 (formerly -61)	1.4	0.5
000508.77	TA-36 IJ site	1.3	0.5
000508.78	TA-15-N	1.2	0.5
000508.90	Eastgate - Backup	1.6	0.6
000522.01	Espanola	2.3	0.7
000522.03	Santa Fe	1.1	0.5
000522.04	Barranca School	3.0	0.7
000522.06	48th Street (Twin Tanks Complex)	6.2	1.5
000522.07	Gulf/Exxon/Shell Station	4.1	1.2
000522.08	McDonalds	5.1	1.4
000522.09	Los Alamos Airport	5.1	1.3
000522.10	Eastgate	4.5	1.0

Table A-11 (cont.)

Sample ID	Site Name	Gross Alpha	
		Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
000522.11	Well PM-1 (E. Jemez Road)	2.6	0.8
000522.12	Royal Crest Trailer Court	4.0	1.1
000522.13	Rocket Park (formerly Piñon School)	1.7	0.5
000522.14	Pajarito Acres	1.4	0.5
000522.15	White Rock Fire Station	1.3	0.6
000522.16	White Rock Nazarene Church	0.7	0.4
000522.17	Bandelier Fire Lookout (near park entrance)	1.3	0.5
000522.20	TA-21 Area B	5.7	1.3
000522.23	TA-5 (formerly TA-52, Beta Site)	3.4	1.0
000522.25	TA-16-450	2.7	0.8
000522.26	TA-49	1.7	0.6
000522.27	TA-54 Area G (by QA)	2.3	0.7
000522.30	Pajarito Booster 2 (P-2)	3.0	1.0
000522.31	TA-3	2.9	0.8
000522.32	Los Alamos County Landfill	3.0	0.9
000522.34	TA-54 Area G-1 (behind trailer)	1.5	0.5
000522.35	TA-54 Area G-2 (back fence)	1.8	0.6
000522.36	TA-54 Area G-3 (by office)	2.1	0.7
000522.38	TA-54 Area G-QA (next to # 27)	2.7	0.7
000522.39	TA-49-QA (adjacent to # 26)	2.0	0.6
000522.41	San Ildefonso Pueblo Plaza	1.3	0.5
000522.45	TA-54 - Area G/ Southeast Perimeter	1.8	0.6
000522.47	TA-54 - Area G/ North Perimeter	2.7	0.7
000522.51	TA-54 - Area G - expansion pit	2.1	0.6
000522.54	TA-33 East	0.8	0.3
000522.55	Santa Fe West (Buckman Booster #4)	1.3	0.5
000522.56	El Rancho	1.3	0.4
000522.59	Jemez Pueblo - Visitor's Center	0.8	0.3
000522.60	LA Canyon	2.5	0.7
000522.61	LA Hospital	3.7	0.9
000522.62	Crossroads Bible Church (formerly Trinity Bible Church)	3.6	1.0
000522.63	Monte Rey South	1.4	0.5
000522.66	Los Alamos Inn - South	3.4	1.0
000522.71	TA-21.01 (NW Bldg 344)	4.5	1.0
000522.76	TA-15-41 (formerly -61)	1.5	0.5
000522.77	TA-36 IJ site	2.7	0.7
000522.78	TA-15-N	1.6	0.5

Table A-12. Biweekly Gross Beta Concentrations for May 2000 Samples

Sample ID	Site Name	Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
000508.01	Española	11.6	1.1
000508.03	Santa Fe	10.0	1.0
000508.04	Barranca School	13.5	1.1
000508.05	Urban Park	12.6	1.2
000508.06	48th Street (Twin Tanks Complex)	12.6	1.2
000508.07	Gulf/Exxon/Shell Station	11.2	1.2
000508.08	McDonalds	13.8	1.2
000508.09	Los Alamos Airport	14.3	1.2
000508.11	Well PM-1 (E. Jemez Road)	13.1	1.1
000508.12	Royal Crest Trailer Court	12.5	1.1
000508.13	Rocket Park (formerly Piñon School)	14.4	1.2
000508.14	Pajarito Acres	12.9	1.1
000508.15	White Rock Fire Station	11.0	1.0
000508.16	White Rock Nazarene Church	14.4	1.2
000508.17	Bandelier Fire Lookout (near park entrance)	13.9	1.2
000508.20	TA-21 Area B	12.8	1.1
000508.23	TA-5 (formerly TA-52, Beta Site)	14.2	1.2
000508.25	TA-16-450	13.3	1.2
000508.26	TA-49	12.7	1.1
000508.27	TA-54 Area G (by QA)	12.1	1.1
000508.30	Pajarito Booster 2 (P-2)	11.9	1.1
000508.31	TA-3	13.4	1.2
000508.32	Los Alamos County Landfill	11.9	1.2
000508.34	TA-54 Area G-1 (behind trailer)	12.7	1.1
000508.35	TA-54 Area G-2 (back fence)	12.0	1.1
000508.36	TA-54 Area G-3 (by office)	10.8	1.0
000508.39	TA-49-QA (adjacent to # 26)	12.7	1.1
000508.41	San Ildefonso Pueblo Plaza	13.3	1.2
000508.45	TA-54 - Area G/ Southeast Perimeter	13.1	1.1
000508.47	TA-54 - Area G/ North Perimeter	12.9	1.1
000508.49	Pajarito Road (TA-36)	13.2	1.1
000508.50	TA-54 - Area G - expansion	13.5	1.1
000508.51	TA-54 - Area G - expansion pit	11.7	1.0
000508.54	TA-33 East	13.9	1.1
000508.55	Santa Fe West (Buckman Booster #4)	13.6	1.2
000508.56	El Rancho	13.1	1.1
000508.59	Jemez Pueblo - Visitor's Center	11.2	1.0
000508.60	LA Canyon	12.2	1.3
000508.61	LA Hospital	12.1	1.3
000508.62	Crossroads Bible Church (formerly Trinity Bible Church)	13.9	1.2
000508.63	Monte Rey South	13.8	1.1
000508.66	Los Alamos Inn - South	11.1	1.2
000508.71	TA-21.01 (NW Bldg 344)	13.2	1.2
000508.76	TA-15-41 (formerly -61)	14.3	1.2
000508.77	TA-36 IJ site	13.7	1.2
000508.78	TA-15-N	12.2	1.1
000508.90	Eastgate - Backup	13.3	1.1
000522.01	Española	13.6	1.0
000522.03	Santa Fe	10.8	1.0
000522.04	Barranca School	11.8	1.0
000522.06	48th Street (Twin Tanks Complex)	17.1	1.7
000522.07	Gulf/Exxon/Shell Station	18.6	1.8
000522.08	McDonalds	18.7	1.8
000522.09	Los Alamos Airport	17.1	1.7
000522.10	Eastgate	13.5	1.2
000522.11	Well PM-1 (E. Jemez Road)	11.3	1.1
000522.12	Royal Crest Trailer Court	14.0	1.4

Table A-12 (cont.)

Sample ID	Site Name	Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
000522.13	Rocket Park (formerly Piñon School)	11.3	0.9
000522.14	Pajarito Acres	10.4	0.9
000522.15	White Rock Fire Station	12.3	1.1
000522.16	White Rock Nazarene Church	10.5	0.9
000522.17	Bandelier Fire Lookout (near park entrance)	10.7	1.0
000522.20	TA-21 Area B	14.2	1.4
000522.23	TA-5 (formerly TA-52, Beta Site)	21.8	1.7
000522.25	TA-16-450	12.9	1.1
000522.26	TA-49	10.9	1.0
000522.27	TA-54 Area G (by QA)	11.8	1.1
000522.30	Pajarito Booster 2 (P-2)	18.1	1.5
000522.31	TA-3	13.4	1.2
000522.32	Los Alamos County Landfill	16.6	1.5
000522.34	TA-54 Area G-1 (behind trailer)	11.4	1.0
000522.35	TA-54 Area G-2 (back fence)	9.1	0.9
000522.36	TA-54 Area G-3 (by office)	10.5	1.0
000522.38	TA-54 Area G-QA (next to # 27)	12.2	1.1
000522.39	TA-49-QA (adjacent to # 26)	11.1	1.0
000522.41	San Ildefonso Pueblo Plaza	11.5	1.0
000522.45	TA-54 - Area G/ Southeast Perimeter	11.3	0.9
000522.47	TA-54 - Area G/ North Perimeter	11.6	1.0
000522.51	TA-54 - Area G - expansion pit	10.5	1.0
000522.54	TA-33 East	11.1	0.8
000522.55	Santa Fe West (Buckman Booster #4)	11.4	1.0
000522.56	El Rancho	11.5	0.9
000522.59	Jemez Pueblo - Visitor's Center	11.3	0.9
000522.60	LA Canyon	12.4	1.0
000522.61	LA Hospital	16.9	1.4
000522.62	Crossroads Bible Church (formerly Trinity Bible Church)	17.4	1.6
000522.63	Monte Rey South	10.8	0.9
000522.66	Los Alamos Inn - South	14.9	1.4
000522.71	TA-21.01 (NW Bldg 344)	14.2	1.3
000522.76	TA-15-41 (formerly -61)	12.2	1.1
000522.77	TA-36 IJ site	12.3	1.0
000522.78	TA-15-N	11.2	1.0

**Table A-13. Biweekly Gross Alpha and Gross Beta Concentrations
above their 3s Uncertainties**

Sample ID	Site Name	Alpha Air Concentration (fCi/m ³)	Beta Air Concentration (fCi/m ³)
000508.01	Española	0.6	11.6
000508.03	Santa Fe		10.0
000508.04	Barranca School	0.9	13.5
000508.05	Urban Park	0.9	12.6
000508.06	48th Street (Twin Tanks Complex)	1.5	12.6
000508.07	Gulf/Exxon/Shell Station		11.2
000508.08	McDonalds	1.2	13.8
000508.09	Los Alamos Airport	1.1	14.3
000508.11	Well PM-1 (E. Jemez Road)	1.1	13.1
000508.12	Royal Crest Trailer Court	1.4	12.5
000508.13	Rocket Park (formerly Piñon School)	1.3	14.4
000508.14	Pajarito Acres	0.7	12.9
000508.15	White Rock Fire Station	1.0	11.0
000508.16	White Rock Nazarene Church	0.8	14.5
000508.17	Bandelier Fire Lookout (near park entrance)	1.2	13.9
000508.20	TA-21 Area B	1.6	12.8
000508.23	TA-5 (formerly TA-52, Beta Site)	1.0	14.2
000508.25	TA-16-450	1.7	13.3
000508.26	TA-49	1.1	12.7
000508.27	TA-54 Area G (by QA)	1.1	12.1
000508.30	Pajarito Booster 2 (P-2)	0.8	11.9
000508.31	TA-3	1.5	13.4
000508.32	Los Alamos County Landfill	1.2	11.9
000508.34	TA-54 Area G-1 (behind trailer)	1.1	12.7
000508.35	TA-54 Area G-2 (back fence)	1.3	12.0
000508.36	TA-54 Area G-3 (by office)	1.7	10.8
000508.39	TA-49-QA (adjacent to # 26)	1.1	12.7
000508.41	San Ildefonso Pueblo Plaza	0.7	13.3
000508.45	TA-54 - Area G/ Southeast Perimeter	1.6	13.1
000508.47	TA-54 - Area G/ North Perimeter	1.1	12.9
000508.49	Pajarito Road (TA-36)	1.0	13.2
000508.50	TA-54 - Area G - expansion	1.2	13.5
000508.51	TA-54 - Area G - expansion pit	0.6	11.7
000508.54	TA-33 East	1.2	13.9
000508.55	Santa Fe West (Buckman Booster #4)	1.1	13.6
000508.56	El Rancho	1.2	13.1
000508.59	Jemez Pueblo - Visitor's Center	0.6	11.2
000508.60	LA Canyon	2.2	12.2
000508.61	LA Hospital	1.5	12.1
000508.62	Crossroads Bible Church (formerly Trinity Bible Church)	1.4	13.9
000508.63	Monte Rey South	0.9	13.8
000508.66	Los Alamos Inn - South	1.3	11.1
000508.71	TA-21.01 (NW Bldg 344)	1.5	13.2
000508.76	TA-15-41 (formerly -61)	1.4	14.3
000508.77	TA-36 IJ site	1.3	13.7
000508.78	TA-15-N	1.2	12.2
000508.90	Eastgate - Backup	1.6	13.3
000522.01	Española	2.3	13.6
000522.03	Santa Fe	1.1	10.8
000522.04	Barranca School	3.0	11.8
000522.06	48th Street (Twin Tanks Complex)	6.2	17.1
000522.07	Gulf/Exxon/Shell Station	4.1	18.6
000522.08	McDonalds	5.1	18.7
000522.09	Los Alamos Airport	5.1	17.1

Table A-13 (cont.)

Sample ID	Site Name	Alpha Air Concentration (fCi/m ³)	Beta Air Concentration (fCi/m ³)
000522.10	Eastgate	4.5	13.5
000522.11	Well PM-1 (E. Jemez Road)	2.6	11.3
000522.12	Royal Crest Trailer Court	4.0	14.0
000522.13	Rocket Park (formerly Piñon School)	1.7	11.3
000522.14	Pajarito Acres	1.4	10.4
000522.15	White Rock Fire Station	1.3	12.3
000522.16	White Rock Nazarene Church	0.7	10.5
000522.17	Bandelier Fire Lookout (near park entrance)	1.3	10.7
000522.20	TA-21 Area B	5.7	14.2
000522.23	TA-5 (formerly TA-52, Beta Site)	3.4	21.8
000522.25	TA-16-450	2.7	12.9
000522.26	TA-49	1.7	10.9
000522.27	TA-54 Area G (by QA)	2.3	11.8
000522.30	Pajarito Booster 2 (P-2)	3.0	18.1
000522.31	TA-3	2.9	13.4
000522.32	Los Alamos County Landfill	3.0	16.6
000522.34	TA-54 Area G-1 (behind trailer)	1.5	11.4
000522.35	TA-54 Area G-2 (back fence)	1.8	9.1
000522.36	TA-54 Area G-3 (by office)	2.1	10.5
000522.38	TA-54 Area G-QA (next to # 27)	2.7	12.2
000522.39	TA-49-QA (adjacent to # 26)	2.1	11.1
000522.41	San Ildefonso Pueblo Plaza	1.3	11.5
000522.45	TA-54 - Area G/ Southeast Perimeter	1.8	11.3
000522.47	TA-54 - Area G/ North Perimeter	2.7	11.6
000522.51	TA-54 - Area G - expansion pit	2.1	10.5
000522.54	TA-33 East	0.8	11.1
000522.55	Santa Fe West (Buckman Booster #4)	1.3	11.4
000522.56	El Rancho	1.3	11.5
000522.59	Jemez Pueblo - Visitor's Center	0.8	11.3
000522.60	LA Canyon	2.5	12.4
000522.61	LA Hospital	3.7	16.9
000522.62	Crossroads Bible Church (formerly Trinity Bible Church)	3.6	17.4
000522.63	Monte Rey South	1.4	10.8
000522.66	Los Alamos Inn - South	3.4	14.9
000522.71	TA-21.01 (NW Bldg 344)	4.5	14.2
000522.76	TA-15-41 (formerly -61)	1.5	12.2
000522.77	TA-36 IJ site	2.7	12.3
000522.78	TA-15-N	1.6	11.2

Table A-14. Gamma Spectroscopy Measurements for May 2000 Clumps

Analyte	Sample ID	Clump Name	Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
Be-7	000508.CC	White Rock Station Clump	117	12
Be-7	000508.CD	LA East Station Clump	122	12
Be-7	000508.CE	LA West Station Clump	92	9
Be-7	000508.CE	LA West Station Clump	140	14
Be-7	000508.CF	Firing Sites Station Clump	103	10
Be-7	000508.CG	TA-54, Area G Station Clump	81	8
Be-7	000508.CH	Onsite Station Clump	92	9
Be-7	000508.CK	Regional Station Clump	101	10
Be-7	000511.CD	LA East Station Clump	105	18
Be-7	000511.CE	LA West Station Clump	152	27
Be-7	000511.CK	Regional Station Clump	105	18
Be-7	000512.CF	Firing Sites Station Clump	115	18
Be-7	000512.CG	TA-54, Area G Station Clump	129	20
Be-7	000512.CG	TA-54, Area G Station Clump	126	20
Be-7	000513.CC	White Rock Station Clump	127	14
Be-7	000513.CD	LA East Station Clump	199	22
Be-7	000513.CE	LA West Station Clump	183	21
Be-7	000513.CH	Onsite Station Clump	182	21
Be-7	000514.CF	Firing Sites Station Clump	140	18
Be-7	000514.CG	TA-54, Area G Station Clump	117	13
Be-7	000514.CH	Onsite Station Clump	123	25
Be-7	000514.CH	Onsite Station Clump	219	31
Be-7	000522.CC	White Rock Station Clump	129	11
Be-7	000522.CD	LA East Station Clump	95	8
Be-7	000522.CE	LA West Station Clump	102	9
Be-7	000522.CF	Firing Sites Station Clump	94	8
Be-7	000522.CG	TA-54, Area G Station Clump	86	8
Be-7	000522.CH	Onsite Station Clump	103	9
Be-7	000522.CK	Regional Station Clump	134	12
Be-7	000522.CK	Regional Station Clump	114	10
Bi-212	000512.CG	TA-54, Area G Station Clump	25.7	5.3
K-40	000508.CD	LA East Station Clump	4.1	1.1
Pb-210	000508.CC	White Rock Station Clump	11.4	0.9
Pb-210	000508.CD	LA East Station Clump	11.0	0.7
Pb-210	000508.CE	LA West Station Clump	9.2	0.7
Pb-210	000508.CE	LA West Station Clump	12.9	0.9
Pb-210	000508.CF	Firing Sites Station Clump	9.6	0.7
Pb-210	000508.CG	TA-54, Area G Station Clump	7.7	0.5
Pb-210	000508.CH	Onsite Station Clump	8.3	0.7
Pb-210	000508.CK	Regional Station Clump	8.9	0.7
Pb-210	000522.CC	White Rock Station Clump	9.5	0.9
Pb-210	000522.CD	LA East Station Clump	6.4	0.7
Pb-210	000522.CE	LA West Station Clump	6.9	0.8
Pb-210	000522.CF	Firing Sites Station Clump	6.7	0.8
Pb-210	000522.CG	TA-54, Area G Station Clump	6.5	0.7
Pb-210	000522.CH	Onsite Station Clump	7.1	1.0
Pb-210	000522.CK	Regional Station Clump	8.1	0.8
Pb-210	000522.CK	Regional Station Clump	9.4	0.8
Pb-212	000508.CK	Regional Station Clump	0.9	0.1
Pb-212	000512.CF	Firing Sites Station Clump	16.7	3.1
Pb-212	000512.CG	TA-54, Area G Station Clump	40.0	6.6
Pb-212	000522.CC	White Rock Station Clump	0.6	0.2
Pb-212	000522.CK	Regional Station Clump	1.5	0.3
Tl-208	000512.CG	TA-54, Area G Station Clump	13.4	1.3

Table A-15. Gamma Spectroscopy Measurements above their 3s Uncertainties

Sample ID	Clump Name	Air Concentration (fCi/m ³)					
		Beryllium-7	Bismuth-212	Potassium-40	Lead-210	Lead-212	Thallium-208
000508.CC	White Rock Station Clump	117			11		
000508.CD	LA East Station Clump	122		4	11		
000508.CE	LA West Station Clump	116			11		
000508.CF	Firing Sites Station Clump	103			10		
000508.CG	TA-54, Area G Station Clump	81			8		
000508.CH	Onsite Station Clump	92			8		
000508.CK	Regional Station Clump	101			9	1	
000511.CD	LA East Station Clump	105					
000511.CE	LA West Station Clump	152					
000511.CK	Regional Station Clump	105					
000512.CF	Firing Sites Station Clump	115				17	
000512.CG	TA-54, Area G Station Clump	128	26			40	13
000513.CC	White Rock Station Clump	127					
000513.CD	LA East Station Clump	199					
000513.CE	LA West Station Clump	183					
000513.CH	Onsite Station Clump	182					
000514.CF	Firing Sites Station Clump	140					
000514.CG	TA-54, Area G Station Clump	117					
000514.CH	Onsite Station Clump	171					
000522.CC	White Rock Station Clump	129			9	1	
000522.CD	LA East Station Clump	95			6		
000522.CE	LA West Station Clump	102			7		
000522.CF	Firing Sites Station Clump	94			7		
000522.CG	TA-54, Area G Station Clump	86			7		
000522.CH	Onsite Station Clump	103			7		
000522.CK	Regional Station Clump	124			9	1	

**Table A-16. Biweekly and Short-term Americium-241 Concentrations
for May 2000 Samples**

Sample ID	Site Name	²⁴¹ Am	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000508.01	Española	-7	15
000508.03	Santa Fe	4	18
000508.04	Barranca School	-9	14
000508.05	Urban Park	9	18
000508.06	48th Street (Twin Tanks Complex)	2	16
000508.07	Gulf/Exxon/Shell Station	2	17
000508.08	McDonalds	1	17
000508.09	Los Alamos Airport	-4	17
000508.11	Well PM-1 (E. Jemez Road)	4	17
000508.12	Royal Crest Trailer Court	-1	17
000508.13	Rocket Park (formerly Piñon School)	-4	14
000508.14	Pajarito Acres	11	19
000508.15	White Rock Fire Station	-3	16
000508.16	White Rock Nazarene Church	9	19
000508.17	Bandelier Fire Lookout (near park entrance)	11	19
000508.20	TA-21 Area B	7	17
000508.23	TA-5 (formerly TA-52, Beta Site)	2	16
000508.25	TA-16-450	-3	16
000508.26	TA-49	-4	15
000508.27	TA-54 Area G (by QA)	3	16
000508.30	Pajarito Booster 2 (P-2)	1	16
000508.31	TA-3	-2	16
000508.32	Los Alamos County Landfill	2	17
000508.34	TA-54 Area G-1 (behind trailer)	92	29
000508.35	TA-54 Area G-2 (back fence)	10	19
000508.36	TA-54 Area G-3 (by office)	-13	12
000508.39	TA-49-QA (adjacent to # 26)	-4	14
000508.41	San Ildefonso Pueblo Plaza	-1	18
000508.45	TA-54 - Area G/ Southeast Perimeter	3	14
000508.47	TA-54 - Area G/ North Perimeter	-5	12
000508.49	Pajarito Road (TA-36)	-3	15
000508.50	TA-54 - Area G - expansion	-5	14
000508.51	TA-54 - Area G - expansion pit	-2	15
000508.54	TA-33 East	9	17
000508.55	Santa Fe West (Buckman Booster #4)	9	22
000508.56	El Rancho	-6	15
000508.59	Jemez Pueblo - Visitor's Center	2	16
000508.60	LA Canyon	2	18
000508.61	LA Hospital	1	17
000508.62	Crossroads Bible Church (formerly Trinity Bible Church)	2	17
000508.63	Monte Rey South	2	16
000508.66	Los Alamos Inn - South	5	17
000508.71	TA-21.01 (NW Bldg 344)	-6	14
000508.76	TA-15-41 (formerly -61)	-2	16
000508.77	TA-36 IJ site	-2	15
000508.78	TA-15-N	-3	16
000508.90	Eastgate - Backup	5	17
000511.01	Española	-33	190
000511.03	Santa Fe	-90	149
000511.04	Barranca School	18	118
000511.05	Urban Park	-148	335
000511.06	48th Street (Twin Tanks Complex)	-120	193
000511.07	Gulf/Exxon/Shell Station	22	225
000511.08	McDonalds	-38	209
000511.09	Los Alamos Airport	-39	215
000511.10	Eastgate	-59	96
000511.20	TA-21 Area B	-39	123

Table A-16 (cont.)

Sample ID	Site Name	²⁴¹ Am	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000511.41	San Ildefonso Pueblo Plaza	-76	173
000511.55	Santa Fe West (Buckman Booster #4)	-41	161
000511.56	El Rancho	-105	161
000511.61	LA Hospital	33	130
000511.62	Crossroads Bible Church (formerly Trinity Bible Church)	-99	204
000511.71	TA-21.01 (NW Bldg 344)	41	123
000512.17	Bandelier Fire Lookout (near park entrance)	-36	108
000512.25	TA-16-450	-2	202
000512.26	TA-49	-67	108
000512.27	TA-54 Area G (by QA)	36	145
000512.31	TA-3	-27	112
000512.35	TA-54 Area G-2 (back fence)	-47	127
000512.36	TA-54 Area G-3 (by office)	125	160
000512.38	TA-54 Area G-QA (next to # 27)	92	165
000512.39	TA-49-QA (adjacent to # 26)	-34	109
000512.50	TA-54 - Area G - expansion	56	165
000512.51	TA-54 - Area G - expansion pit	-21	127
000512.60	LA Canyon	12	127
000512.76	TA-15-41 (formerly -61)	-34	184
000512.77	TA-36 IJ site	38	196
000512.78	TA-15-N	-13	184
000513.04	Barranca School	-47	153
000513.06	48th Street (Twin Tanks Complex)	-76	163
000513.07	Gulf/Exxon/Shell Station	-2	184
000513.08	McDonalds	-88	211
000513.09	Los Alamos Airport	57	187
000513.10	Eastgate	52	178
000513.11	Well PM-1 (E. Jemez Road)	-40	71
000513.13	Rocket Park (formerly Piñon School)	30	55
000513.14	Pajarito Acres	-15	48
000513.15	White Rock Fire Station	-5	75
000513.16	White Rock Nazarene Church	-50	97
000513.20	TA-21 Area B	58	191
000513.23	TA-5 (formerly TA-52, Beta Site)	71	181
000513.49	Pajarito Road (TA-36)	-25	68
000513.61	LA Hospital	-37	157
000513.62	Crossroads Bible Church (formerly Trinity Bible Church)	-56	150
000513.63	Monte Rey South	-23	50
000513.66	Los Alamos Inn - South	-8	130
000513.71	TA-21.01 (NW Bldg 344)	8	175
000514.12	Royal Crest Trailer Court	-24	78
000514.17	Bandelier Fire Lookout (near park entrance)	-48	107
000514.25	TA-16-450	-15	119
000514.26	TA-49	-54	112
000514.27	TA-54 Area G (by QA)	5	126
000514.30	Pajarito Booster 2 (P-2)	17	85
000514.31	TA-3	25	119
000514.32	Los Alamos County Landfill	17	88
000514.34	TA-54 Area G-1 (behind trailer)	36	119
000514.35	TA-54 Area G-2 (back fence)	-58	118
000514.36	TA-54 Area G-3 (by office)	-93	118
000514.38	TA-54 Area G-QA (next to # 27)	-35	126
000514.39	TA-49-QA (adjacent to # 26)	-46	112
000514.45	TA-54 - Area G/ Southeast Perimeter	-37	97
000514.47	TA-54 - Area G/ North Perimeter	-1	108
000514.51	TA-54 - Area G - expansion pit	-29	118
000514.60	LA Canyon	-1	122
000514.77	TA-36 IJ site	-76	102

**Table A-17. Biweekly and Short-term Plutonium-238 Concentrations
for May 2000 Samples**

Sample ID	Site Name	²³⁸ Pu	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000508.01	Española	-2	5
000508.03	Santa Fe	1	6
000508.04	Barranca School	2	8
000508.05	Urban Park	-1	4
000508.06	48th Street (Twin Tanks Complex)	2	6
000508.07	Gulf/Exxon/Shell Station	6	8
000508.08	McDonalds	0	5
000508.09	Los Alamos Airport	1	5
000508.11	Well PM-1 (E. Jemez Road)	-2	4
000508.12	Royal Crest Trailer Court	-4	5
000508.13	Rocket Park (formerly Piñon School)	-4	5
000508.14	Pajarito Acres	6	8
000508.15	White Rock Fire Station	-1	5
000508.16	White Rock Nazarene Church	2	8
000508.17	Bandelier Fire Lookout (near park entrance)	-4	5
000508.20	TA-21 Area B	-4	5
000508.23	TA-5 (formerly TA-52, Beta Site)	-1	5
000508.25	TA-16-450	-2	7
000508.26	TA-49	3	9
000508.27	TA-54 Area G (by QA)	-1	5
000508.30	Pajarito Booster 2 (P-2)	-1	6
000508.31	TA-3	3	6
000508.32	Los Alamos County Landfill	-3	4
000508.34	TA-54 Area G-1 (behind trailer)	16	12
000508.35	TA-54 Area G-2 (back fence)	-2	4
000508.36	TA-54 Area G-3 (by office)	4	7
000508.39	TA-49-QA (adjacent to # 26)	-4	5
000508.41	San Ildefonso Pueblo Plaza	3	9
000508.45	TA-54 - Area G/ Southeast Perimeter	-2	4
000508.47	TA-54 - Area G/ North Perimeter	1	5
000508.49	Pajarito Road (TA-36)	-3	4
000508.50	TA-54 - Area G - expansion	-2	4
000508.51	TA-54 - Area G - expansion pit	1	5
000508.54	TA-33 East	-1	4
000508.55	Santa Fe West (Buckman Booster #4)	-3	6
000508.56	El Rancho	-2	5
000508.59	Jemez Pueblo - Visitor's Center	-1	5
000508.60	LA Canyon	3	7
000508.61	LA Hospital	-1	5
000508.62	Crossroads Bible Church (formerly Trinity Bible Church)	6	9
000508.63	Monte Rey South	7	8
000508.66	Los Alamos Inn - South	-1	6
000508.71	TA-21.01 (NW Bldg 344)	1	6
000508.76	TA-15-41 (formerly -61)	2	6
000508.77	TA-36 IJ site	-4	5
000508.78	TA-15-N	1	5
000508.90	Eastgate - Backup	-1	5
000511.01	Española	-49	64
000511.03	Santa Fe	-50	54
000511.04	Barranca School	2	40
000511.05	Urban Park	47	204
000511.06	48th Street (Twin Tanks Complex)	27	72
000511.07	Gulf/Exxon/Shell Station	52	121
000511.08	McDonalds	-20	73
000511.09	Los Alamos Airport	52	120
000511.10	Eastgate	-10	57
000511.20	TA-21 Area B	2	46
000511.41	San Ildefonso Pueblo Plaza	-29	65

Table A-17 (cont.)

Sample ID	Site Name	²³⁸ Pu	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000511.55	Santa Fe West (Buckman Booster #4)	-7	59
000511.56	El Rancho	-7	63
000511.61	LA Hospital	9	42
000511.62	Crossroads Bible Church (formerly Trinity Bible Church)	-57	74
000511.71	TA-21.01 (NW Bldg 344)	-28	37
000512.17	Bandelier Fire Lookout (near park entrance)	7	35
000512.25	TA-16-450	3	71
000512.26	TA-49	-31	40
000512.27	TA-54 Area G (by QA)	24	58
000512.31	TA-3	-30	63
000512.35	TA-54 Area G-2 (back fence)	2	39
000512.36	TA-54 Area G-3 (by office)	44	63
000512.38	TA-54 Area G-QA (next to # 27)	9	44
000512.39	TA-49-QA (adjacent to # 26)	15	65
000512.50	TA-54 - Area G - expansion	9	45
000512.51	TA-54 - Area G - expansion pit	8	39
000512.60	LA Canyon	2	67
000512.76	TA-15-41 (formerly -61)	-8	65
000512.77	TA-36 IJ site	-7	62
000512.78	TA-15-N	-18	64
000513.04	Barranca School	-34	56
000513.06	48th Street (Twin Tanks Complex)	-16	92
000513.07	Gulf/Exxon/Shell Station	23	99
000513.08	McDonalds	65	122
000513.09	Los Alamos Airport	22	60
000513.10	Eastgate	57	90
000513.11	Well PM-1 (E. Jemez Road)	1	27
000513.13	Rocket Park (formerly Piñon School)	-7	17
000513.14	Pajarito Acres	1	18
000513.15	White Rock Fire Station	-7	20
000513.16	White Rock Nazarene Church	-29	37
000513.20	TA-21 Area B	43	99
000513.23	TA-5 (formerly TA-52, Beta Site)	-6	56
000513.49	Pajarito Road (TA-36)	1	25
000513.61	LA Hospital	-15	55
000513.62	Crossroads Bible Church (formerly Trinity Bible Church)	48	90
000513.63	Monte Rey South	18	40
000513.66	Los Alamos Inn - South	-12	69
000513.71	TA-21.01 (NW Bldg 344)	32	59
000514.12	Royal Crest Trailer Court	-17	28
000514.17	Bandelier Fire Lookout (near park entrance)	-18	41
000514.25	TA-16-450	-5	40
000514.26	TA-49	2	40
000514.27	TA-54 Area G (by QA)	-18	42
000514.30	Pajarito Booster 2 (P-2)	6	27
000514.31	TA-3	-11	42
000514.32	Los Alamos County Landfill	6	28
000514.34	TA-54 Area G-1 (behind trailer)	2	38
000514.35	TA-54 Area G-2 (back fence)	-5	43
000514.36	TA-54 Area G-3 (by office)	10	47
000514.38	TA-54 Area G-QA (next to # 27)	-12	47
000514.39	TA-49-QA (adjacent to # 26)	21	64
000514.45	TA-54 - Area G/ Southeast Perimeter	2	35
000514.47	TA-54 - Area G/ North Perimeter	20	45
000514.51	TA-54 - Area G - expansion pit	-5	42
000514.60	LA Canyon	-5	40
000514.77	TA-36 IJ site	14	62

**Table A-18. Biweekly and Short-term Plutonium-239 Concentrations
for May 2000 Samples**

Sample ID	Site Name	²³⁹ Pu	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000508.01	Española	-0.3	12.3
000508.03	Santa Fe	-3.2	16.3
000508.04	Barranca School	6.4	14.4
000508.05	Urban Park	-2.7	9.2
000508.06	48th Street (Twin Tanks Complex)	-1.1	11.4
000508.07	Gulf/Exxon/Shell Station	0.6	12.9
000508.08	McDonalds	3.2	12.3
000508.09	Los Alamos Airport	-2.0	12.0
000508.11	Well PM-1 (E. Jemez Road)	2.3	12.4
000508.12	Royal Crest Trailer Court	5.0	15.2
000508.13	Rocket Park (formerly Piñon School)	4.8	14.7
000508.14	Pajarito Acres	0.5	11.7
000508.15	White Rock Fire Station	4.7	11.7
000508.16	White Rock Nazarene Church	-1.1	14.4
000508.17	Bandelier Fire Lookout (near park entrance)	-1.2	11.9
000508.20	TA-21 Area B	16.3	18.4
000508.23	TA-5 (formerly TA-52, Beta Site)	8.4	13.6
000508.25	TA-16-450	-5.1	11.6
000508.26	TA-49	-1.2	11.5
000508.27	TA-54 Area G (by QA)	14.4	15.4
000508.30	Pajarito Booster 2 (P-2)	2.2	11.6
000508.31	TA-3	2.4	13.5
000508.32	Los Alamos County Landfill	-4.7	10.6
000508.34	TA-54 Area G-1 (behind trailer)	21.5	16.4
000508.35	TA-54 Area G-2 (back fence)	-2.8	9.6
000508.36	TA-54 Area G-3 (by office)	2.2	12.9
000508.39	TA-49-QA (adjacent to # 26)	-6.3	9.8
000508.41	San Ildefonso Pueblo Plaza	-4.9	12.9
000508.45	TA-54 - Area G/ Southeast Perimeter	-1.0	9.7
000508.47	TA-54 - Area G/ North Perimeter	2.0	10.0
000508.49	Pajarito Road (TA-36)	-6.0	9.9
000508.50	TA-54 - Area G - expansion	4.7	11.4
000508.51	TA-54 - Area G - expansion pit	7.2	13.5
000508.54	TA-33 East	4.3	10.5
000508.55	Santa Fe West (Buckman Booster #4)	6.4	16.6
000508.56	El Rancho	3.2	12.3
000508.59	Jemez Pueblo - Visitor's Center	-2.0	11.7
000508.60	LA Canyon	1.5	11.8
000508.61	LA Hospital	4.1	11.8
000508.62	Crossroads Bible Church (formerly Trinity Bible Church)	12.8	15.1
000508.63	Monte Rey South	2.1	11.4
000508.66	Los Alamos Inn - South	29.7	18.7
000508.71	TA-21.01 (NW Bldg 344)	9.5	14.0
000508.76	TA-15-41 (formerly -61)	0.6	12.3
000508.77	TA-36 IJ site	-2.9	10.9
000508.78	TA-15-N	-1.2	11.9
000508.90	Eastgate - Backup	-2.0	12.0
000511.01	Española	-14.1	145.3
000511.03	Santa Fe	84.5	151.3
000511.04	Barranca School	-15.4	91.7
000511.05	Urban Park	115.7	287.6
000511.06	48th Street (Twin Tanks Complex)	-27.7	165.1
000511.07	Gulf/Exxon/Shell Station	92.8	170.3
000511.08	McDonalds	-4.2	166.0
000511.09	Los Alamos Airport	116.4	208.4
000511.10	Eastgate	38.3	99.6
000511.20	TA-21 Area B	-39.9	104.4

Table A-18 (cont.)

Sample ID	Site Name	²³⁹ Pu	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000511.41	San Ildefonso Pueblo Plaza	27.8	147.4
000511.55	Santa Fe West (Buckman Booster #4)	25.5	135.2
000511.56	El Rancho	58.0	144.1
000511.61	LA Hospital	86.1	117.6
000511.62	Crossroads Bible Church (formerly Trinity Bible Church)	-28.5	169.3
000511.71	TA-21.01 (NW Bldg 344)	141.7	125.8
000512.17	Bandelier Fire Lookout (near park entrance)	-19.4	99.6
000512.25	TA-16-450	-4.2	163.0
000512.26	TA-49	-2.3	91.7
000512.27	TA-54 Area G (by QA)	79.1	110.6
000512.31	TA-3	86.3	109.2
000512.35	TA-54 Area G-2 (back fence)	10.7	86.4
000512.36	TA-54 Area G-3 (by office)	53.6	115.0
000512.38	TA-54 Area G-QA (next to # 27)	120.0	130.8
000512.39	TA-49-QA (adjacent to # 26)	-8.9	91.7
000512.50	TA-54 - Area G - expansion	33.5	103.4
000512.51	TA-54 - Area G - expansion pit	-15.4	90.0
000512.60	LA Canyon	17.9	94.9
000512.76	TA-15-41 (formerly -61)	27.8	147.4
000512.77	TA-36 IJ site	6.5	142.0
000512.78	TA-15-N	-76.4	145.6
000513.04	Barranca School	-12.3	127.4
000513.06	48th Street (Twin Tanks Complex)	107.5	159.4
000513.07	Gulf/Exxon/Shell Station	106.5	172.8
000513.08	McDonalds	106.0	211.7
000513.09	Los Alamos Airport	84.8	169.4
000513.10	Eastgate	51.2	127.1
000513.11	Well PM-1 (E. Jemez Road)	11.5	61.1
000513.13	Rocket Park (formerly Piñon School)	7.2	38.4
000513.14	Pajarito Acres	-3.9	39.9
000513.15	White Rock Fire Station	-10.3	61.1
000513.16	White Rock Nazarene Church	-26.5	70.9
000513.20	TA-21 Area B	86.5	140.4
000513.23	TA-5 (formerly TA-52, Beta Site)	159.9	190.2
000513.49	Pajarito Road (TA-36)	26.8	69.7
000513.61	LA Hospital	50.2	153.6
000513.62	Crossroads Bible Church (formerly Trinity Bible Church)	5.8	127.0
000513.63	Monte Rey South	-18.1	33.2
000513.66	Los Alamos Inn - South	471.9	202.9
000513.71	TA-21.01 (NW Bldg 344)	44.6	134.7
000514.12	Royal Crest Trailer Court	-19.9	64.1
000514.17	Bandelier Fire Lookout (near park entrance)	-29.0	77.4
000514.25	TA-16-450	73.6	104.9
000514.26	TA-49	-8.9	92.0
000514.27	TA-54 Area G (by QA)	72.3	117.3
000514.30	Pajarito Booster 2 (P-2)	2.9	62.5
000514.31	TA-3	4.2	83.4
000514.32	Los Alamos County Landfill	44.1	79.0
000514.34	TA-54 Area G-1 (behind trailer)	-8.5	87.5
000514.35	TA-54 Area G-2 (back fence)	25.8	99.1
000514.36	TA-54 Area G-3 (by office)	42.8	106.3
000514.38	TA-54 Area G-QA (next to # 27)	4.4	100.2
000514.39	TA-49-QA (adjacent to # 26)	-66.3	74.5
000514.45	TA-54 - Area G/ Southeast Perimeter	33.9	85.7
000514.47	TA-54 - Area G/ North Perimeter	27.9	89.0
000514.51	TA-54 - Area G - expansion pit	-30.4	87.2
000514.60	LA Canyon	56.7	113.3
000514.77	TA-36 IJ site	22.7	87.5

**Table A-19. Biweekly and Short-term Uranium-234 Concentrations
for May 2000 Samples**

Sample ID	Site Name	²³⁴ U	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000508.01	Española	39	22
000508.03	Santa Fe	73	27
000508.04	Barranca School	44	18
000508.05	Urban Park	20	14
000508.06	48th Street (Twin Tanks Complex)	10	14
000508.07	Gulf/Exxon/Shell Station	68	21
000508.08	McDonalds	36	22
000508.09	Los Alamos Airport	12	15
000508.11	Well PM-1 (E. Jemez Road)	16	19
000508.12	Royal Crest Trailer Court	13	15
000508.13	Rocket Park (formerly Piñon School)	6	12
000508.14	Pajarito Acres	28	18
000508.15	White Rock Fire Station	10	18
000508.16	White Rock Nazarene Church	43	24
000508.17	Bandelier Fire Lookout (near park entrance)	18	18
000508.20	TA-21 Area B	71	26
000508.23	TA-5 (formerly TA-52, Beta Site)	9	15
000508.25	TA-16-450	8	17
000508.26	TA-49	7	15
000508.27	TA-54 Area G (by QA)	77	21
000508.30	Pajarito Booster 2 (P-2)	10	14
000508.31	TA-3	19	17
000508.32	Los Alamos County Landfill	81	21
000508.34	TA-54 Area G-1 (behind trailer)	175	29
000508.35	TA-54 Area G-2 (back fence)	16	14
000508.36	TA-54 Area G-3 (by office)	30	15
000508.39	TA-49-QA (adjacent to # 26)	5	13
000508.41	San Ildefonso Pueblo Plaza	30	16
000508.45	TA-54 - Area G/ Southeast Perimeter	38	16
000508.47	TA-54 - Area G/ North Perimeter	158	27
000508.49	Pajarito Road (TA-36)	3	12
000508.50	TA-54 - Area G - expansion	84	22
000508.51	TA-54 - Area G - expansion pit	39	18
000508.54	TA-33 East	16	13
000508.55	Santa Fe West (Buckman Booster #4)	35	24
000508.56	El Rancho	40	22
000508.59	Jemez Pueblo - Visitor's Center	37	21
000508.60	LA Canyon	11	15
000508.61	LA Hospital	16	14
000508.62	Crossroads Bible Church (formerly Trinity Bible Church)	18	18
000508.63	Monte Rey South	23	17
000508.66	Los Alamos Inn - South	16	15
000508.71	TA-21.01 (NW Bldg 344)	33	17
000508.76	TA-15-41 (formerly -61)	-3	14
000508.77	TA-36 IJ site	14	15
000508.78	TA-15-N	13	15
000508.90	Eastgate - Backup	16	15
000511.01	Española	110	172
000511.03	Santa Fe	145	152
000511.04	Barranca School	174	114
000511.05	Urban Park	-29	291
000511.06	48th Street (Twin Tanks Complex)	113	205
000511.07	Gulf/Exxon/Shell Station	675	304
000511.08	McDonalds	468	250
000511.09	Los Alamos Airport	309	255
000511.10	Eastgate	182	100
000511.20	TA-21 Area B	94	130
000511.41	San Ildefonso Pueblo Plaza	59	158

Table A-19 (cont.)

Sample ID	Site Name	²³⁴ U	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000511.55	Santa Fe West (Buckman Booster #4)	-4	141
000511.56	El Rancho	-4	143
000511.61	LA Hospital	92	119
000511.62	Crossroads Bible Church (formerly Trinity Bible Church)	164	210
000511.71	TA-21.01 (NW Bldg 344)	75	100
000512.17	Bandelier Fire Lookout (near park entrance)	96	122
000512.25	TA-16-450	262	202
000512.26	TA-49	102	138
000512.27	TA-54 Area G (by QA)	420	159
000512.31	TA-3	351	158
000512.35	TA-54 Area G-2 (back fence)	43	94
000512.36	TA-54 Area G-3 (by office)	18	104
000512.38	TA-54 Area G-QA (next to # 27)	675	172
000512.39	TA-49-QA (adjacent to # 26)	148	138
000512.50	TA-54 - Area G - expansion	689	179
000512.51	TA-54 - Area G - expansion pit	311	136
000512.60	LA Canyon	105	143
000512.76	TA-15-41 (formerly -61)	38	149
000512.77	TA-36 IJ site	87	176
000512.78	TA-15-N	47	181
000513.04	Barranca School	-13	134
000513.06	48th Street (Twin Tanks Complex)	227	231
000513.07	Gulf/Exxon/Shell Station	556	251
000513.08	McDonalds	81	197
000513.09	Los Alamos Airport	143	166
000513.10	Eastgate	250	161
000513.11	Well PM-1 (E. Jemez Road)	103	75
000513.13	Rocket Park (formerly Piñon School)	26	40
000513.14	Pajarito Acres	10	42
000513.15	White Rock Fire Station	11	66
000513.16	White Rock Nazarene Church	46	90
000513.20	TA-21 Area B	206	167
000513.23	TA-5 (formerly TA-52, Beta Site)	1709	381
000513.49	Pajarito Road (TA-36)	-42	70
000513.61	LA Hospital	192	223
000513.62	Crossroads Bible Church (formerly Trinity Bible Church)	168	145
000513.63	Monte Rey South	7	43
000513.66	Los Alamos Inn - South	199	175
000513.71	TA-21.01 (NW Bldg 344)	342	321
000514.12	Royal Crest Trailer Court	103	82
000514.17	Bandelier Fire Lookout (near park entrance)	10	116
000514.25	TA-16-450	18	97
000514.26	TA-49	187	164
000514.27	TA-54 Area G (by QA)	99	143
000514.30	Pajarito Booster 2 (P-2)	337	149
000514.31	TA-3	-22	92
000514.32	Los Alamos County Landfill	455	192
000514.34	TA-54 Area G-1 (behind trailer)	35	109
000514.35	TA-54 Area G-2 (back fence)	-38	123
000514.36	TA-54 Area G-3 (by office)	35	160
000514.38	TA-54 Area G-QA (next to # 27)	4	107
000514.39	TA-49-QA (adjacent to # 26)	119	160
000514.45	TA-54 - Area G/ Southeast Perimeter	51	94
000514.47	TA-54 - Area G/ North Perimeter	45	95
000514.51	TA-54 - Area G - expansion pit	18	102
000514.60	LA Canyon	115	191
000514.77	TA-36 IJ site	10	132

**Table A-20. Biweekly and Short-term Uranium-235 Concentrations
for May 2000 Samples**

Sample ID	Site Name	²³⁵ U	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000508.01	Española	-4	12
000508.03	Santa Fe	6	16
000508.04	Barranca School	13	14
000508.05	Urban Park	6	13
000508.06	48th Street (Twin Tanks Complex)	-2	13
000508.07	Gulf/Exxon/Shell Station	-4	11
000508.08	McDonalds	-3	12
000508.09	Los Alamos Airport	5	11
000508.11	Well PM-1 (E. Jemez Road)	4	12
000508.12	Royal Crest Trailer Court	1	12
000508.13	Rocket Park (formerly Piñon School)	-2	11
000508.14	Pajarito Acres	-1	11
000508.15	White Rock Fire Station	-2	11
000508.16	White Rock Nazarene Church	8	14
000508.17	Bandelier Fire Lookout (near park entrance)	5	14
000508.20	TA-21 Area B	2	12
000508.23	TA-5 (formerly TA-52, Beta Site)	-8	14
000508.25	TA-16-450	-2	13
000508.26	TA-49	-3	14
000508.27	TA-54 Area G (by QA)	6	12
000508.30	Pajarito Booster 2 (P-2)	-6	11
000508.31	TA-3	7	14
000508.32	Los Alamos County Landfill	5	14
000508.34	TA-54 Area G-1 (behind trailer)	7	12
000508.35	TA-54 Area G-2 (back fence)	-3	10
000508.36	TA-54 Area G-3 (by office)	6	12
000508.39	TA-49-QA (adjacent to # 26)	-1	12
000508.41	San Ildefonso Pueblo Plaza	3	12
000508.45	TA-54 - Area G/ Southeast Perimeter	-1	12
000508.47	TA-54 - Area G/ North Perimeter	2	12
000508.49	Pajarito Road (TA-36)	1	11
000508.50	TA-54 - Area G - expansion	-2	12
000508.51	TA-54 - Area G - expansion pit	-1	14
000508.54	TA-33 East	-1	12
000508.55	Santa Fe West (Buckman Booster #4)	2	16
000508.56	El Rancho	1	12
000508.59	Jemez Pueblo - Visitor's Center	1	14
000508.60	LA Canyon	-2	12
000508.61	LA Hospital	-3	10
000508.62	Crossroads Bible Church (formerly Trinity Bible Church)	9	15
000508.63	Monte Rey South	-2	14
000508.66	Los Alamos Inn - South	-3	10
000508.71	TA-21.01 (NW Bldg 344)	7	13
000508.76	TA-15-41 (formerly -61)	-11	11
000508.77	TA-36 IJ site	-5	13
000508.78	TA-15-N	-4	11
000508.90	Eastgate - Backup	-6	9
000511.01	Española	11	167
000511.03	Santa Fe	-34	111
000511.04	Barranca School	0	87
000511.05	Urban Park	-122	223
000511.06	48th Street (Twin Tanks Complex)	-58	157
000511.07	Gulf/Exxon/Shell Station	-23	162
000511.08	McDonalds	155	198
000511.09	Los Alamos Airport	-11	161
000511.10	Eastgate	6	77
000511.20	TA-21 Area B	1	100
000511.41	San Ildefonso Pueblo Plaza	-104	133

Table A-20 (cont.)

²³⁵U

Sample ID	Site Name	Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000511.55	Santa Fe West (Buckman Booster #4)	-48	118
000511.56	El Rancho	-61	113
000511.61	LA Hospital	7	91
000511.62	Crossroads Bible Church (formerly Trinity Bible Church)	1	161
000511.71	TA-21.01 (NW Bldg 344)	12	95
000512.17	Bandelier Fire Lookout (near park entrance)	12	77
000512.25	TA-16-450	-11	155
000512.26	TA-49	14	109
000512.27	TA-54 Area G (by QA)	75	108
000512.31	TA-3	-19	85
000512.35	TA-54 Area G-2 (back fence)	-45	73
000512.36	TA-54 Area G-3 (by office)	-28	100
000512.38	TA-54 Area G-QA (next to # 27)	-7	91
000512.39	TA-49-QA (adjacent to # 26)	125	109
000512.50	TA-54 - Area G - expansion	-21	92
000512.51	TA-54 - Area G - expansion pit	0	88
000512.60	LA Canyon	-20	90
000512.76	TA-15-41 (formerly -61)	-73	114
000512.77	TA-36 IJ site	1	135
000512.78	TA-15-N	42	139
000513.04	Barranca School	-63	132
000513.06	48th Street (Twin Tanks Complex)	111	190
000513.07	Gulf/Exxon/Shell Station	1	134
000513.08	McDonalds	-73	184
000513.09	Los Alamos Airport	-9	128
000513.10	Eastgate	-63	108
000513.11	Well PM-1 (E. Jemez Road)	-8	55
000513.13	Rocket Park (formerly Piñon School)	-3	34
000513.14	Pajarito Acres	-23	33
000513.15	White Rock Fire Station	-35	60
000513.16	White Rock Nazarene Church	-18	83
000513.20	TA-21 Area B	51	137
000513.23	TA-5 (formerly TA-52, Beta Site)	146	186
000513.49	Pajarito Road (TA-36)	8	68
000513.61	LA Hospital	36	149
000513.62	Crossroads Bible Church (formerly Trinity Bible Church)	-63	102
000513.63	Monte Rey South	6	40
000513.66	Los Alamos Inn - South	42	93
000513.71	TA-21.01 (NW Bldg 344)	78	197
000514.12	Royal Crest Trailer Court	0	59
000514.17	Bandelier Fire Lookout (near park entrance)	-59	89
000514.25	TA-16-450	35	92
000514.26	TA-49	27	110
000514.27	TA-54 Area G (by QA)	-74	91
000514.30	Pajarito Booster 2 (P-2)	27	75
000514.31	TA-3	-25	80
000514.32	Los Alamos County Landfill	32	94
000514.34	TA-54 Area G-1 (behind trailer)	19	83
000514.35	TA-54 Area G-2 (back fence)	-7	95
000514.36	TA-54 Area G-3 (by office)	-7	101
000514.38	TA-54 Area G-QA (next to # 27)	48	108
000514.39	TA-49-QA (adjacent to # 26)	-57	86
000514.45	TA-54 - Area G/ Southeast Perimeter	30	83
000514.47	TA-54 - Area G/ North Perimeter	-54	69
000514.51	TA-54 - Area G - expansion pit	-27	82
000514.60	LA Canyon	-72	88
000514.77	TA-36 IJ site	25	104

**Table A-21. Biweekly and Short-term Uranium-238 Concentrations
for May 2000 Samples**

Sample ID	Site Name	²³⁸ U	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000508.01	Española	31	18
000508.03	Santa Fe	68	23
000508.04	Barranca School	47	17
000508.05	Urban Park	14	12
000508.06	48th Street (Twin Tanks Complex)	7	12
000508.07	Gulf/Exxon/Shell Station	62	18
000508.08	McDonalds	14	14
000508.09	Los Alamos Airport	20	14
000508.11	Well PM-1 (E. Jemez Road)	27	18
000508.12	Royal Crest Trailer Court	16	14
000508.13	Rocket Park (formerly Piñon School)	8	11
000508.14	Pajarito Acres	28	17
000508.15	White Rock Fire Station	18	13
000508.16	White Rock Nazarene Church	22	17
000508.17	Bandelier Fire Lookout (near park entrance)	21	14
000508.20	TA-21 Area B	76	21
000508.23	TA-5 (formerly TA-52, Beta Site)	17	15
000508.25	TA-16-450	11	14
000508.26	TA-49	14	13
000508.27	TA-54 Area G (by QA)	64	19
000508.30	Pajarito Booster 2 (P-2)	18	13
000508.31	TA-3	24	15
000508.32	Los Alamos County Landfill	71	19
000508.34	TA-54 Area G-1 (behind trailer)	169	28
000508.35	TA-54 Area G-2 (back fence)	14	12
000508.36	TA-54 Area G-3 (by office)	21	14
000508.39	TA-49-QA (adjacent to # 26)	21	13
000508.41	San Ildefonso Pueblo Plaza	37	15
000508.45	TA-54 - Area G/ Southeast Perimeter	45	16
000508.47	TA-54 - Area G/ North Perimeter	122	24
000508.49	Pajarito Road (TA-36)	21	13
000508.50	TA-54 - Area G - expansion	87	21
000508.51	TA-54 - Area G - expansion pit	39	16
000508.54	TA-33 East	10	10
000508.55	Santa Fe West (Buckman Booster #4)	21	19
000508.56	El Rancho	25	14
000508.59	Jemez Pueblo - Visitor's Center	37	17
000508.60	LA Canyon	21	13
000508.61	LA Hospital	15	13
000508.62	Crossroads Bible Church (formerly Trinity Bible Church)	20	14
000508.63	Monte Rey South	22	13
000508.66	Los Alamos Inn - South	19	13
000508.71	TA-21.01 (NW Bldg 344)	14	14
000508.76	TA-15-41 (formerly -61)	15	13
000508.77	TA-36 IJ site	29	14
000508.78	TA-15-N	10	12
000508.90	Eastgate - Backup	13	11
000511.01	Española	166	159
000511.03	Santa Fe	280	141
000511.04	Barranca School	203	106
000511.05	Urban Park	41	259
000511.06	48th Street (Twin Tanks Complex)	165	190
000511.07	Gulf/Exxon/Shell Station	729	294
000511.08	McDonalds	438	238
000511.09	Los Alamos Airport	121	195
000511.10	Eastgate	133	93
000511.20	TA-21 Area B	119	120
000511.41	San Ildefonso Pueblo Plaza	53	123

Table A-21 (cont.)

²³⁸U

Sample ID	Site Name	Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
000511.55	Santa Fe West (Buckman Booster #4)	39	114
000511.56	El Rancho	72	136
000511.61	LA Hospital	252	137
000511.62	Crossroads Bible Church (formerly Trinity Bible Church)	145	152
000511.71	TA-21.01 (NW Bldg 344)	108	87
000512.17	Bandelier Fire Lookout (near park entrance)	127	93
000512.25	TA-16-450	186	147
000512.26	TA-49	92	106
000512.27	TA-54 Area G (by QA)	416	144
000512.31	TA-3	234	127
000512.35	TA-54 Area G-2 (back fence)	52	89
000512.36	TA-54 Area G-3 (by office)	-7	87
000512.38	TA-54 Area G-QA (next to # 27)	700	162
000512.39	TA-49-QA (adjacent to # 26)	177	106
000512.50	TA-54 - Area G - expansion	700	166
000512.51	TA-54 - Area G - expansion pit	275	114
000512.60	LA Canyon	122	109
000512.76	TA-15-41 (formerly -61)	-11	133
000512.77	TA-36 IJ site	243	164
000512.78	TA-15-N	-10	131
000513.04	Barranca School	163	134
000513.06	48th Street (Twin Tanks Complex)	342	223
000513.07	Gulf/Exxon/Shell Station	541	242
000513.08	McDonalds	294	201
000513.09	Los Alamos Airport	284	152
000513.10	Eastgate	381	153
000513.11	Well PM-1 (E. Jemez Road)	91	64
000513.13	Rocket Park (formerly Piñon School)	22	37
000513.14	Pajarito Acres	9	34
000513.15	White Rock Fire Station	78	67
000513.16	White Rock Nazarene Church	49	84
000513.20	TA-21 Area B	290	155
000513.23	TA-5 (formerly TA-52, Beta Site)	4188	618
000513.49	Pajarito Road (TA-36)	89	81
000513.61	LA Hospital	276	215
000513.62	Crossroads Bible Church (formerly Trinity Bible Church)	217	144
000513.63	Monte Rey South	28	39
000513.66	Los Alamos Inn - South	307	169
000513.71	TA-21.01 (NW Bldg 344)	279	233
000514.12	Royal Crest Trailer Court	119	73
000514.17	Bandelier Fire Lookout (near park entrance)	93	107
000514.25	TA-16-450	62	92
000514.26	TA-49	164	132
000514.27	TA-54 Area G (by QA)	68	110
000514.30	Pajarito Booster 2 (P-2)	696	185
000514.31	TA-3	0	77
000514.32	Los Alamos County Landfill	549	190
000514.34	TA-54 Area G-1 (behind trailer)	112	101
000514.35	TA-54 Area G-2 (back fence)	28	114
000514.36	TA-54 Area G-3 (by office)	-30	96
000514.38	TA-54 Area G-QA (next to # 27)	20	92
000514.39	TA-49-QA (adjacent to # 26)	83	128
000514.45	TA-54 - Area G/ Southeast Perimeter	42	83
000514.47	TA-54 - Area G/ North Perimeter	54	80
000514.51	TA-54 - Area G - expansion pit	35	92
000514.60	LA Canyon	52	132
000514.77	TA-36 IJ site	193	151

Table A-22. Biweekly and Short-term Uranium, Plutonium, and Americium Concentrations above their 3s Uncertainties

Sample ID	Site Name	Air Concentration (aCi/m ³)				Excess ²³⁴ U or ²³⁸ U
		²⁴¹ Am	²³⁹ Pu	²³⁴ U	²³⁸ U	
000508.01	Española			39	31	
000508.03	Santa Fe			73	68	
000508.04	Barranca School			44	47	
000508.07	Gulf/Exxon/Shell Station			68	62	
000508.08	McDonalds			36		
000508.11	Well PM-1 (E. Jemez Road)				27	
000508.14	Pajarito Acres			28	28	
000508.16	White Rock Nazarene Church			43		
000508.17	Bandelier Fire Lookout				21	
000508.20	TA-21 Area B			71	76	
000508.27	TA-54 Area G (by QA)			77	64	
000508.31	TA-3				24	
000508.32	Los Alamos County Landfill			81	71	
000508.34	TA-54 Area G-1 (behind trailer)	92		175	169	
000508.36	TA-54 Area G-3 (by office)			30	21	
000508.39	TA-49-QA (adjacent to # 26)				21	
000508.41	San Ildefonso Pueblo Plaza			30	37	
000508.45	TA-54 - Area G/ Southeast Perimeter			38	45	
000508.47	TA-54 - Area G/ North Perimeter			158	122	
000508.49	Pajarito Road (TA-36)				21	
000508.50	TA-54 - Area G - expansion			84	87	
000508.51	TA-54 - Area G - expansion pit			39	39	
000508.56	El Rancho			40	25	
000508.59	Jemez Pueblo - Visitor's Center			37	37	
000508.60	LA Canyon				21	
000508.63	Monte Rey South				22	
000508.66	Los Alamos Inn - South		30			
000508.71	TA-21.01 (NW Bldg 344)			33		
000508.77	TA-36 IJ site				29	
000511.03	Santa Fe				280	
000511.04	Barranca School			174	203	
000511.07	Gulf/Exxon/Shell Station			675	729	
000511.08	McDonalds			468	438	
000511.10	Eastgate			182		
000511.61	LA Hospital				252	
000512.27	TA-54 Area G (by QA)			420	416	
000512.31	TA-3			351	234	
000512.38	TA-54 Area G-QA (next to # 27)			675	700	
000512.39	TA-49-QA (adjacent to # 26)				177	
000512.50	TA-54 - Area G - expansion			689	700	
000512.51	TA-54 - Area G - expansion pit			311	275	
000513.06	48th Street (Twin Tanks Complex)				342	
000513.07	Gulf/Exxon/Shell Station			556	541	
000513.09	Los Alamos Airport				284	
000513.10	Eastgate			250	381	
000513.20	TA-21 Area B				290	
000513.23	TA-5 (formerly TA-52, Beta Site)			1709	4188	²³⁸ U

Table A-22 (cont.)

Sample ID	Site Name	Air Concentration (aCi/m ³)				Excess ²³⁴ U or ²³⁸ U
		²⁴¹ Am	²³⁹ Pu	²³⁴ U	²³⁸ U	
000513.62	Crossroads Bible Church				217	
000513.66	Los Alamos Inn - South		472		307	
000514.12	Royal Crest Trailer Court				119	
000514.30	Pajarito Booster 2 (P-2)			337	696	²³⁸ U
000514.32	Los Alamos County Landfill			455	549	

Table A-23. Polonium-210 and Lead-210 Concentrations Measured in May 2000

Analyte	Sample ID	Site Name	Air Concentration (fCi/m ³)	2s Uncertainty (fCi/m ³)
Pb-210	000508.01	Española	11.9	0.9
Pb-210	000508.04	Barranca School	12.7	0.9
Pb-210	000508.06	48th Street (Twin Tanks Complex)	11.7	0.9
Pb-210	000508.09	Los Alamos Airport	12.7	0.9
Pb-210	000508.15	White Rock Fire Station	11.0	0.9
Pb-210	000508.23	TA-5 (formerly TA-52, Beta Site)	13.9	0.9
Pb-210	000508.30	Pajarito Booster 2 (P-2)	11.9	0.9
Pb-210	000508.31	TA-3	11.7	1.0
Pb-210	000508.39	TA-49-QA (adjacent to # 26)	12.2	0.9
Pb-210	000508.45	TA-54 - Area G/ Southeast Perimeter	12.7	0.8
Pb-210	000508.50	TA-54 - Area G - expansion	11.0	0.9
Pb-210	000508.55	Santa Fe West (Buckman Booster #4)	12.3	1.0
Pb-210	000508.61	LA Hospital	12.3	0.9
Pb-210	000508.90	Eastgate - Backup	12.8	0.9
Pb-210	000511.01	Española	13.5	9.1
Pb-210	000511.04	Barranca School	10.5	5.8
Pb-210	000511.06	48th Street (Twin Tanks Complex)	28.6	10.7
Pb-210	000511.09	Los Alamos Airport	23.2	10.8
Pb-210	000511.10	Eastgate	7.0	5.0
Pb-210	000511.61	LA Hospital	16.8	6.1
Pb-210	000512.31	TA-3	18.8	5.7
Pb-210	000512.38	TA-54 Area G-QA (next to # 27)	10.5	6.4
Pb-210	000512.39	TA-49-QA (adjacent to # 26)	8.8	5.8
Pb-210	000512.50	TA-54 - Area G - expansion	11.1	6.3
Po-210	000508.01	Española	1.7	0.2
Po-210	000508.04	Barranca School	1.9	0.2
Po-210	000508.06	48th Street (Twin Tanks Complex)	2.8	0.2
Po-210	000508.09	Los Alamos Airport	2.5	0.2
Po-210	000508.15	White Rock Fire Station	1.6	0.2
Po-210	000508.23	TA-5 (formerly TA-52, Beta Site)	2.1	0.2
Po-210	000508.30	Pajarito Booster 2 (P-2)	1.9	0.2
Po-210	000508.31	TA-3	2.4	0.2
Po-210	000508.39	TA-49-QA (adjacent to # 26)	2.6	0.2
Po-210	000508.45	TA-54 - Area G/ Southeast Perimeter	2.1	0.2
Po-210	000508.50	TA-54 - Area G - expansion	1.6	0.2
Po-210	000508.55	Santa Fe West (Buckman Booster #4)	1.8	0.2
Po-210	000508.61	LA Hospital	2.4	0.2
Po-210	000508.90	Eastgate - Backup	2.4	0.2
Po-210	000511.01	Española	14.8	1.7
Po-210	000511.04	Barranca School	12.3	1.4
Po-210	000511.06	48th Street (Twin Tanks Complex)	113.7	8.1
Po-210	000511.09	Los Alamos Airport	30.3	2.9
Po-210	000511.10	Eastgate	16.0	1.6
Po-210	000511.61	LA Hospital	19.6	2.1
Po-210	000512.31	TA-3	15.7	1.6
Po-210	000512.38	TA-54 Area G-QA (next to # 27)	4.5	0.6
Po-210	000512.39	TA-49-QA (adjacent to # 26)	6.7	1.0
Po-210	000512.50	TA-54 - Area G - expansion	5.0	0.8

Table A-24. Polonium-210 and Lead-210 above their 3s Uncertainties

Sample ID	Site Name	Air Concentration (fCi/m ³)	
		²¹⁰ Pb	²¹⁰ Po
000508.01	Española	11.9	1.7
000508.04	Barranca School	12.7	1.9
000508.06	48th Street (Twin Tanks Complex)	11.7	2.8
000508.09	Los Alamos Airport	12.7	2.5
000508.15	White Rock Fire Station	11.0	1.6
000508.23	TA-5 (formerly TA-52, Beta Site)	13.9	2.1
000508.30	Pajarito Booster 2 (P-2)	11.9	1.9
000508.31	TA-3	11.7	2.4
000508.39	TA-49-QA (adjacent to # 26)	12.2	2.6
000508.45	TA-54 - Area G/ Southeast Perimeter	12.7	2.1
000508.50	TA-54 - Area G - expansion	11.0	1.6
000508.55	Santa Fe West (Buckman Booster #4)	12.3	1.8
000508.61	LA Hospital	12.3	2.4
000508.90	Eastgate - Backup	12.8	2.4
000511.01	Española		14.8
000511.04	Barranca School	10.5	12.3
000511.06	48th Street (Twin Tanks Complex)	28.6	113.7
000511.09	Los Alamos Airport	23.2	30.3
000511.10	Eastgate		16.0
000511.61	LA Hospital	16.8	19.6
000512.31	TA-3	18.8	15.7
000512.38	TA-54 Area G-QA (next to # 27)	10.5	4.5
000512.39	TA-49-QA (adjacent to # 26)	8.8	6.7
000512.50	TA-54 - Area G - expansion	11.1	5.0

Table A-25. Americium-241 Concentrations for 2000 Quarter 2

Sample ID	Site Name	²⁴¹ Am	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
00Q2.01	Española	-0.1	4.9
00Q2.03	Santa Fe	-0.4	4.0
00Q2.04	Barranca School	0.3	4.6
00Q2.05	Urban Park	2.7	4.5
00Q2.06	48th Street (Twin Tanks Complex)	-1.6	5.5
00Q2.07	Gulf/Exxon/Shell Station	2.2	5.0
00Q2.08	McDonalds	1.6	4.0
00Q2.09	Los Alamos Airport	2.1	6.3
00Q2.10	Eastgate	1.0	5.1
00Q2.11	Well PM-1 (E. Jemez Road)	0.4	3.8
00Q2.12	Royal Crest Trailer Court	2.0	4.2
00Q2.13	Rocket Park (formerly Piñon School)	-0.1	3.5
00Q2.14	Pajarito Acres	0.2	3.4
00Q2.15	White Rock Fire Station	0.2	3.9
00Q2.16	White Rock Nazarene Church	0.4	3.6
00Q2.17	Bandelier Fire Lookout	1.3	3.9
00Q2.20	TA-21 Area B	1.3	3.7
00Q2.23	TA-5 (formerly TA-52, Beta Site)	1.1	4.2
00Q2.25	TA-16-450	0.0	3.9
00Q2.26	TA-49	-0.1	3.7
00Q2.27	TA-54 Area G (by QA)	12.3	5.8
00Q2.30	Pajarito Booster 2 (P-2)	2.0	4.4
00Q2.31	TA-3	-0.2	4.4
00Q2.32	Los Alamos County Landfill	1.1	4.6
00Q2.34	TA-54 Area G-1 (behind trailer)	64.9	10.4
00Q2.35	TA-54 Area G-2 (back fence)	-0.4	3.5
00Q2.36	TA-54 Area G-3 (by office)	-2.3	3.3
00Q2.38	TA-54 Area G-QA (next to # 27)	11.6	7.9
00Q2.39	TA-49-QA (adjacent to # 26)	-1.0	4.6
00Q2.41	San Ildefonso Pueblo Plaza	-1.6	3.2
00Q2.45	TA-54 - Area G/ Southeast Perimeter	3.0	4.1
00Q2.47	TA-54 - Area G/ North Perimeter	1.5	4.0
00Q2.49	Pajarito Road (TA-36)	0.1	3.9
00Q2.50	TA-54 - Area G - expansion	2.4	5.8
00Q2.51	TA-54 - Area G - expansion pit	2.5	4.4
00Q2.54	TA-33 East	-0.9	3.3
00Q2.55	Santa Fe West (Buckman Booster #4)	3.2	4.7
00Q2.56	El Rancho	1.8	4.0
00Q2.59	Jemez Pueblo - Visitor's Center	0.5	4.5
00Q2.60	LA Canyon	1.2	4.0
00Q2.61	LA Hospital	1.1	4.7
00Q2.62	Crossroads Bible Church	0.6	3.8
00Q2.63	Monte Rey South	-0.1	3.4
00Q2.66	Los Alamos Inn - South	0.4	5.7
00Q2.71	TA-21.01 (NW Bldg 344)	0.4	3.6
00Q2.76	TA-15-41 (formerly -61)	0.3	4.0
00Q2.77	TA-36 IJ site	0.3	4.0
00Q2.78	TA-15-N	-0.9	3.6

Table A-26. Plutonium-238 Concentrations for 2000 Quarter 2

Sample ID	Site Name	²³⁸ Pu	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
00Q2.01	Española	-1.1	1.6
00Q2.03	Santa Fe	-0.3	1.2
00Q2.04	Barranca School	0.6	2.0
00Q2.05	Urban Park	-0.4	1.3
00Q2.06	48th Street (Twin Tanks Complex)	0.4	1.9
00Q2.07	Gulf/Exxon/Shell Station	-0.7	1.5
00Q2.08	McDonalds	-0.5	1.0
00Q2.09	Los Alamos Airport	0.9	2.8
00Q2.10	Eastgate	1.1	2.4
00Q2.11	Well PM-1 (E. Jemez Road)	-1.2	1.2
00Q2.12	Royal Crest Trailer Court	0.4	1.7
00Q2.13	Rocket Park (formerly Piñon School)	0.7	1.6
00Q2.14	Pajarito Acres	-0.2	1.1
00Q2.15	White Rock Fire Station	-0.6	1.1
00Q2.16	White Rock Nazarene Church	0.1	1.7
00Q2.17	Bandelier Fire Lookout	-0.7	1.2
00Q2.20	TA-21 Area B	0.1	1.7
00Q2.23	TA-5 (formerly TA-52, Beta Site)	-0.8	1.7
00Q2.25	TA-16-450	-0.6	1.4
00Q2.26	TA-49	0.4	1.6
00Q2.27	TA-54 Area G (by QA)	0.1	1.7
00Q2.30	Pajarito Booster 2 (P-2)	-0.2	1.4
00Q2.31	TA-3	0.1	2.1
00Q2.32	Los Alamos County Landfill	0.3	2.2
00Q2.34	TA-54 Area G-1 (behind trailer)	7.5	3.7
00Q2.35	TA-54 Area G-2 (back fence)	-0.4	1.1
00Q2.36	TA-54 Area G-3 (by office)	0.6	1.4
00Q2.38	TA-54 Area G-QA (next to # 27)	1.1	2.7
00Q2.39	TA-49-QA (adjacent to # 26)	-0.4	2.2
00Q2.41	San Ildefonso Pueblo Plaza	-0.2	1.2
00Q2.45	TA-54 - Area G/ Southeast Perimeter	-0.7	2.0
00Q2.47	TA-54 - Area G/ North Perimeter	3.6	2.6
00Q2.49	Pajarito Road (TA-36)	-0.3	1.3
00Q2.50	TA-54 - Area G - expansion	-0.5	1.6
00Q2.51	TA-54 - Area G - expansion pit	-0.2	1.3
00Q2.54	TA-33 East	-0.9	1.2
00Q2.55	Santa Fe West (Buckman Booster #4)	-1.0	1.3
00Q2.56	El Rancho	-0.2	1.1
00Q2.59	Jemez Pueblo - Visitor's Center	0.1	2.1
00Q2.60	LA Canyon	0.1	1.4
00Q2.61	LA Hospital	-0.1	1.8
00Q2.62	Crossroads Bible Church	0.1	1.2
00Q2.63	Monte Rey South	0.5	1.6
00Q2.66	Los Alamos Inn - South	1.4	2.7
00Q2.71	TA-21.01 (NW Bldg 344)	0.4	1.7
00Q2.76	TA-15-41 (formerly -61)	0.3	1.4
00Q2.77	TA-36 IJ site	-1.3	1.6
00Q2.78	TA-15-N	-0.6	1.7

Table A-27. Plutonium-239 Concentrations for 2000 Quarter 2

Sample ID	Site Name	²³⁹ Pu	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
00Q2.01	Española	-0.6	3.2
00Q2.03	Santa Fe	-1.2	2.7
00Q2.04	Barranca School	2.3	3.5
00Q2.05	Urban Park	1.0	2.8
00Q2.06	48th Street (Twin Tanks Complex)	0.0	4.3
00Q2.07	Gulf/Exxon/Shell Station	11.3	5.5
00Q2.08	McDonalds	4.8	3.1
00Q2.09	Los Alamos Airport	2.4	4.9
00Q2.10	Eastgate	3.0	4.1
00Q2.11	Well PM-1 (E. Jemez Road)	0.5	2.1
00Q2.12	Royal Crest Trailer Court	2.3	3.2
00Q2.13	Rocket Park (formerly Piñon School)	0.3	2.4
00Q2.14	Pajarito Acres	-0.7	1.5
00Q2.15	White Rock Fire Station	2.4	2.8
00Q2.16	White Rock Nazarene Church	0.5	2.0
00Q2.17	Bandelier Fire Lookout	0.2	2.4
00Q2.20	TA-21 Area B	5.5	3.2
00Q2.23	TA-5 (formerly TA-52, Beta Site)	7.1	3.8
00Q2.25	TA-16-450	0.0	2.7
00Q2.26	TA-49	-0.4	2.4
00Q2.27	TA-54 Area G (by QA)	16.2	5.2
00Q2.30	Pajarito Booster 2 (P-2)	-0.1	2.5
00Q2.31	TA-3	2.7	3.7
00Q2.32	Los Alamos County Landfill	7.2	4.9
00Q2.34	TA-54 Area G-1 (behind trailer)	12.8	4.5
00Q2.35	TA-54 Area G-2 (back fence)	0.6	2.5
00Q2.36	TA-54 Area G-3 (by office)	1.1	2.6
00Q2.38	TA-54 Area G-QA (next to # 27)	14.7	6.6
00Q2.39	TA-49-QA (adjacent to # 26)	-1.2	3.4
00Q2.41	San Ildefonso Pueblo Plaza	0.0	2.0
00Q2.45	TA-54 - Area G/ Southeast Perimeter	3.2	3.0
00Q2.47	TA-54 - Area G/ North Perimeter	2.2	3.1
00Q2.49	Pajarito Road (TA-36)	-0.2	2.1
00Q2.50	TA-54 - Area G - expansion	3.2	3.8
00Q2.51	TA-54 - Area G - expansion pit	1.7	2.6
00Q2.54	TA-33 East	0.3	2.0
00Q2.55	Santa Fe West (Buckman Booster #4)	-0.6	2.9
00Q2.56	El Rancho	0.0	1.9
00Q2.59	Jemez Pueblo - Visitor's Center	1.0	3.1
00Q2.60	LA Canyon	-0.5	2.4
00Q2.61	LA Hospital	2.2	3.4
00Q2.62	Crossroads Bible Church	2.8	3.3
00Q2.63	Monte Rey South	-0.3	1.8
00Q2.66	Los Alamos Inn - South	30.7	9.1
00Q2.71	TA-21.01 (NW Bldg 344)	3.5	3.1
00Q2.76	TA-15-41 (formerly -61)	0.8	2.6
00Q2.77	TA-36 IJ site	-0.1	2.3
00Q2.78	TA-15-N	-1.3	2.0

Table A-28. Uranium-234 Concentrations for 2000 Quarter 2

Sample ID	Site Name	²³⁴ U	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
00Q2.01	Española	25.1	6.4
00Q2.03	Santa Fe	47.3	7.5
00Q2.04	Barranca School	23.8	5.1
00Q2.05	Urban Park	15.7	5.7
00Q2.06	48th Street (Twin Tanks Complex)	11.2	5.9
00Q2.07	Gulf/Exxon/Shell Station	94.5	11.9
00Q2.08	McDonalds	25.1	5.0
00Q2.09	Los Alamos Airport	16.8	7.3
00Q2.10	Eastgate	28.7	7.1
00Q2.11	Well PM-1 (E. Jemez Road)	16.4	5.3
00Q2.12	Royal Crest Trailer Court	28.7	6.5
00Q2.13	Rocket Park (formerly Piñon School)	15.9	5.5
00Q2.14	Pajarito Acres	9.1	3.8
00Q2.15	White Rock Fire Station	17.0	5.1
00Q2.16	White Rock Nazarene Church	15.4	4.5
00Q2.17	Bandelier Fire Lookout	13.3	4.5
00Q2.20	TA-21 Area B	44.2	7.7
00Q2.23	TA-5 (formerly TA-52, Beta Site)	59.2	7.9
00Q2.25	TA-16-450	14.7	5.0
00Q2.26	TA-49	15.0	4.8
00Q2.27	TA-54 Area G (by QA)	105.7	12.5
00Q2.30	Pajarito Booster 2 (P-2)	32.6	6.0
00Q2.31	TA-3	26.1	5.9
00Q2.32	Los Alamos County Landfill	77.8	11.5
00Q2.34	TA-54 Area G-1 (behind trailer)	114.7	11.0
00Q2.35	TA-54 Area G-2 (back fence)	17.9	5.6
00Q2.36	TA-54 Area G-3 (by office)	17.0	4.8
00Q2.38	TA-54 Area G-QA (next to # 27)	92.2	10.3
00Q2.39	TA-49-QA (adjacent to # 26)	13.6	5.8
00Q2.41	San Ildefonso Pueblo Plaza	20.7	6.3
00Q2.45	TA-54 - Area G/ Southeast Perimeter	38.0	5.9
00Q2.47	TA-54 - Area G/ North Perimeter	97.9	9.2
00Q2.49	Pajarito Road (TA-36)	0.0	4.9
00Q2.50	TA-54 - Area G - expansion	74.1	9.0
00Q2.51	TA-54 - Area G - expansion pit	44.0	6.9
00Q2.54	TA-33 East	14.3	5.1
00Q2.55	Santa Fe West (Buckman Booster #4)	14.6	5.6
00Q2.56	El Rancho	30.2	6.8
00Q2.59	Jemez Pueblo - Visitor's Center	42.2	8.6
00Q2.60	LA Canyon	16.3	4.8
00Q2.61	LA Hospital	22.1	6.1
00Q2.62	Crossroads Bible Church	17.7	5.3
00Q2.63	Monte Rey South	15.9	5.3
00Q2.66	Los Alamos Inn - South	21.3	7.1
00Q2.71	TA-21.01 (NW Bldg 344)	19.3	5.0
00Q2.76	TA-15-41 (formerly -61)	12.2	4.9
00Q2.77	TA-36 IJ site	26.1	5.6
00Q2.78	TA-15-N	28.6	5.8

Table A-29. Uranium-235 Concentrations for 2000 Quarter 2

Sample ID	Site Name	²³⁵ U	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
00Q2.01	Española	0.8	3.4
00Q2.03	Santa Fe	3.5	3.3
00Q2.04	Barranca School	2.2	3.2
00Q2.05	Urban Park	0.9	2.4
00Q2.06	48th Street (Twin Tanks Complex)	-0.8	4.1
00Q2.07	Gulf/Exxon/Shell Station	4.9	4.0
00Q2.08	McDonalds	0.5	2.1
00Q2.09	Los Alamos Airport	2.7	4.6
00Q2.10	Eastgate	-0.1	4.0
00Q2.11	Well PM-1 (E. Jemez Road)	0.4	2.2
00Q2.12	Royal Crest Trailer Court	2.6	2.8
00Q2.13	Rocket Park (formerly Piñon School)	0.2	2.1
00Q2.14	Pajarito Acres	0.2	2.0
00Q2.15	White Rock Fire Station	0.8	2.5
00Q2.16	White Rock Nazarene Church	0.8	2.1
00Q2.17	Bandelier Fire Lookout	1.5	3.0
00Q2.20	TA-21 Area B	2.3	2.7
00Q2.23	TA-5 (formerly TA-52, Beta Site)	1.4	3.1
00Q2.25	TA-16-450	0.3	2.7
00Q2.26	TA-49	-0.9	2.8
00Q2.27	TA-54 Area G (by QA)	5.0	3.3
00Q2.30	Pajarito Booster 2 (P-2)	1.7	2.9
00Q2.31	TA-3	0.4	3.2
00Q2.32	Los Alamos County Landfill	3.5	4.2
00Q2.34	TA-54 Area G-1 (behind trailer)	3.7	2.7
00Q2.35	TA-54 Area G-2 (back fence)	0.4	2.1
00Q2.36	TA-54 Area G-3 (by office)	0.8	2.5
00Q2.38	TA-54 Area G-QA (next to # 27)	0.7	4.1
00Q2.39	TA-49-QA (adjacent to # 26)	3.3	3.8
00Q2.41	San Ildefonso Pueblo Plaza	0.5	2.1
00Q2.45	TA-54 - Area G/ Southeast Perimeter	1.1	2.7
00Q2.47	TA-54 - Area G/ North Perimeter	6.6	3.4
00Q2.49	Pajarito Road (TA-36)	3.5	2.9
00Q2.50	TA-54 - Area G - expansion	1.4	3.8
00Q2.51	TA-54 - Area G - expansion pit	2.5	3.1
00Q2.54	TA-33 East	1.0	2.7
00Q2.55	Santa Fe West (Buckman Booster #4)	-0.2	3.0
00Q2.56	El Rancho	-0.6	2.6
00Q2.59	Jemez Pueblo - Visitor's Center	2.4	2.7
00Q2.60	LA Canyon	0.4	2.5
00Q2.61	LA Hospital	0.1	3.2
00Q2.62	Crossroads Bible Church	0.4	2.2
00Q2.63	Monte Rey South	0.1	2.0
00Q2.66	Los Alamos Inn - South	2.3	3.4
00Q2.71	TA-21.01 (NW Bldg 344)	0.1	2.1
00Q2.76	TA-15-41 (formerly -61)	-1.6	2.5
00Q2.77	TA-36 IJ site	0.5	2.6
00Q2.78	TA-15-N	2.6	2.2

Table A-30. Uranium-238 Concentrations for 2000 Quarter 2

Sample ID	Site Name	²³⁸ U	
		Air Concentration (aCi/m ³)	2s Uncertainty (aCi/m ³)
00Q2.01	Española	24.8	5.8
00Q2.03	Santa Fe	40.3	6.5
00Q2.04	Barranca School	29.6	4.7
00Q2.05	Urban Park	17.0	5.4
00Q2.06	48th Street (Twin Tanks Complex)	16.1	5.8
00Q2.07	Gulf/Exxon/Shell Station	111.0	12.6
00Q2.08	McDonalds	27.6	4.8
00Q2.09	Los Alamos Airport	23.3	6.7
00Q2.10	Eastgate	35.8	7.2
00Q2.11	Well PM-1 (E. Jemez Road)	21.2	5.0
00Q2.12	Royal Crest Trailer Court	25.1	5.6
00Q2.13	Rocket Park (formerly Piñon School)	-0.5	4.6
00Q2.14	Pajarito Acres	8.8	3.5
00Q2.15	White Rock Fire Station	20.5	5.1
00Q2.16	White Rock Nazarene Church	13.6	4.2
00Q2.17	Bandelier Fire Lookout	12.5	4.0
00Q2.20	TA-21 Area B	45.4	7.5
00Q2.23	TA-5 (formerly TA-52, Beta Site)	85.1	8.9
00Q2.25	TA-16-450	13.4	4.1
00Q2.26	TA-49	15.6	4.5
00Q2.27	TA-54 Area G (by QA)	104.2	12.4
00Q2.30	Pajarito Booster 2 (P-2)	56.0	7.5
00Q2.31	TA-3	23.5	5.3
00Q2.32	Los Alamos County Landfill	84.5	11.3
00Q2.34	TA-54 Area G-1 (behind trailer)	104.6	10.9
00Q2.35	TA-54 Area G-2 (back fence)	17.4	4.7
00Q2.36	TA-54 Area G-3 (by office)	17.9	4.9
00Q2.38	TA-54 Area G-QA (next to # 27)	86.9	9.2
00Q2.39	TA-49-QA (adjacent to # 26)	17.9	5.3
00Q2.41	San Ildefonso Pueblo Plaza	17.6	5.4
00Q2.45	TA-54 - Area G/ Southeast Perimeter	42.2	5.7
00Q2.47	TA-54 - Area G/ North Perimeter	92.0	8.8
00Q2.49	Pajarito Road (TA-36)	17.8	5.2
00Q2.50	TA-54 - Area G - expansion	77.8	9.2
00Q2.51	TA-54 - Area G - expansion pit	45.6	6.7
00Q2.54	TA-33 East	9.9	4.2
00Q2.55	Santa Fe West (Buckman Booster #4)	8.9	4.6
00Q2.56	El Rancho	27.4	6.0
00Q2.59	Jemez Pueblo - Visitor's Center	46.6	8.4
00Q2.60	LA Canyon	20.8	4.5
00Q2.61	LA Hospital	27.1	6.1
00Q2.62	Crossroads Bible Church	17.7	4.4
00Q2.63	Monte Rey South	12.3	4.5
00Q2.66	Los Alamos Inn - South	28.8	7.6
00Q2.71	TA-21.01 (NW Bldg 344)	15.9	4.7
00Q2.76	TA-15-41 (formerly -61)	23.7	5.1
00Q2.77	TA-36 IJ site	44.5	6.4
00Q2.78	TA-15-N	53.1	7.5

Table A-31. Quarterly Uranium, Plutonium, and Americium Concentrations above their 3s Uncertainties

Sample ID	Site Name	Air Concentration (aCi/m ³)					Excess U	
		²⁴¹ Am	²³⁸ Pu	²³⁹ Pu	²³⁴ U	²³⁵ U		²³⁸ U
00Q2.01	Española				25.1		24.8	
00Q2.03	Santa Fe				47.3		40.3	
00Q2.04	Barranca School				23.8		29.6	
00Q2.05	Urban Park				15.7		17.0	
00Q2.06	48th Street (Twin Tanks Complex)				11.2		16.1	
00Q2.07	Gulf/Exxon/Shell Station			11.3	94.5		111.0	
00Q2.08	McDonalds			4.8	25.1		27.6	
00Q2.09	Los Alamos Airport				16.8		23.3	
00Q2.10	Eastgate				28.7		35.8	
00Q2.11	Well PM-1 (E. Jemez Road)				16.4		21.2	
00Q2.12	Royal Crest Trailer Court				28.7		25.1	
00Q2.13	Rocket Park (formerly Piñon School)				15.9			²³⁴ U
00Q2.14	Pajarito Acres				9.1		8.8	
00Q2.15	White Rock Fire Station				17.0		20.5	
00Q2.16	White Rock Nazarene Church				15.4		13.6	
00Q2.17	Bandelier Fire Lookout				13.3		12.5	
00Q2.20	TA-21 Area B			5.5	44.2		45.4	
00Q2.23	TA-5 (formerly TA-52, Beta Site)			7.1	59.2		85.1	²³⁸ U
00Q2.25	TA-16-450				14.7		13.4	
00Q2.26	TA-49				15.0		15.6	
00Q2.27	TA-54 Area G (by QA)	12.3		16.2	105.7	5.0	104.2	
00Q2.30	Pajarito Booster 2 (P-2)				32.6		56.0	²³⁸ U
00Q2.31	TA-3				26.1		23.5	
00Q2.32	Los Alamos County Landfill				77.8		84.5	
00Q2.34	TA-54 Area G-1 (behind trailer)	64.9	7.5	12.8	114.7		104.6	
00Q2.35	TA-54 Area G-2 (back fence)				17.9		17.4	
00Q2.36	TA-54 Area G-3 (by office)				17.0		17.9	
00Q2.38	TA-54 Area G-QA (next to # 27)			14.7	92.2		86.9	
00Q2.39	TA-49-QA (adjacent to # 26)				13.6		17.9	
00Q2.41	San Ildefonso Pueblo Plaza				20.7		17.6	
00Q2.45	TA-54 - Area G/ Southeast Perimeter				38.0		42.2	
00Q2.47	TA-54 - Area G/ North Perimeter				97.9	6.6	92.0	
00Q2.49	Pajarito Road (TA-36)						17.8	²³⁸ U
00Q2.50	TA-54 - Area G - expansion				74.1		77.8	
00Q2.51	TA-54 - Area G - expansion pit				44.0		45.6	
00Q2.54	TA-33 East				14.3		9.9	
00Q2.55	Santa Fe West (Buckman Booster #4)				14.6		8.9	
00Q2.56	El Rancho				30.2		27.4	
00Q2.59	Jemez Pueblo - Visitor's Center				42.2		46.6	
00Q2.60	LA Canyon				16.3		20.9	
00Q2.61	LA Hospital				22.1		27.1	
00Q2.62	Crossroads Bible Church				17.7		17.7	
00Q2.63	Monte Rey South				15.9		12.3	
00Q2.66	Los Alamos Inn - South			30.7	21.3		28.8	
00Q2.71	TA-21.01 (NW Bldg 344)				19.7		15.9	
00Q2.76	TA-15-41 (formerly -61)				12.2		23.7	²³⁸ U

Table A-31 (cont.)

Sample ID	Site Name	²⁴¹ Am	²³⁸ Pu	Air Concentration (aCi/m ³)			²³⁸ U	Excess U
				²³⁹ Pu	²³⁴ U	²³⁵ U		
00Q2.77	TA-36 IJ site				26.1		44.5	²³⁸ U
00Q2.78	TA-15-N				28.6		53.1	²³⁸ U

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