ENVIRONMENTAL MONITORING REPORT FOR THE NEVADA TEST SITE AND OTHER TEST AREAS USED FOR UNDERGROUND NUCLEAR DETONATIONS

January-December 1972

by the
National Environmental Research Center
U.S. ENVIRONMENTAL PROTECTION AGENCY
Las Vegas, Nevada

Published May 1973

This work performed under a Memorandum of
Understanding No. AT(26-1)-539
for the
U. S. ATOMIC ENERGY COMMISSION

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PREFACE

The Atomic Energy Commission (AEC) has used the Nevada Test Site (NTS) since January 1951 as an area for conducting nuclear detonations, nuclear rocket/engine development, nuclear medicine studies, and miscellaneous nuclear and non-nuclear experiments. Except during the testing moratorium from October 30, 1958, to September 1, 1961, atmospheric nuclear tests were conducted periodically from 1951 through July 17, 1962. Since July 17, 1962, in accordance with the limited test ban treaty, all nuclear detonations have been conducted underground with the expectation of containment except for five nuclear earth-cratering experiments conducted under the Plowshare program.

Under the U. S. Public Health Service (PHS) from 1959 through 1972, and since 1972, under the U. S. Environmental Protection Agency (EPA), facilities have been maintained in Las Vegas, Nevada, for the purpose of providing an Off-Site Radiological Surveillance Program for the AEC. Prior to that time, surveillance was performed by the Los Alamos Scientific Laboratory and by U. S. Army personnel. Although off-site surveillance has been provided by the Las Vegas facility for nuclear experiments at places other than the NTS, the primary effort has been centered around the NTS.

The objective of the Program from the beginning has been to measure levels and trends of radioactivity in the off-site environment surrounding testing areas to assure that the testing is in compliance with existing radiation protection standards. To assess off-site radiation levels, routine sampling networks for milk, water, and air are maintained along with a dosimetry network and special samplings of food crops and soil, etc.

In general, analytical results showing radioactivity levels above naturally occurring levels have been published in reports covering a test series or test project. Beginning in CY 1959 for reactor tests and in CY 1962 for weapons tests, surveillance data for each individual test which released radioactivity off-site were reported separately. Commencing in January 1964 and continuing through December 1970, these individual reports for nuclear

tests were summarized and reported every six months with the analytical results for all routine or special milk samples.

In CY 1971, the AEC implemented a requirement (AEC Manual, Chapter 0513) for a more comprehensive radiological monitoring report from each of the several contractors or agencies involved in major nuclear activities. The compilation of these various reports since that time and their entry into the general literature serve the purpose of providing a single source of information concerning on-going environmental impact data from AEC sponsored activities. To provide more rapid dissemination of data, the monthly reports of analytical results of all air data collected since July 1971 and all milk and water samples collected since January 1972 are submitted to the appropriate state health departments involved and published in Radiation Data and Reports.

Since 1962, aircraft have also been used during nuclear tests to provide rapid monitoring and sampling for releases of radioactivity. Early aircraft monitoring data were used to position mobile radiation monitors, and the results of cloud sampling were used to quantitate the inventories of the radionuclides released. Beginning with CY 1971, all monitoring and sampling results of aircraft were reported in an effluent monitoring data report in accordance with AEC Manual, Chapter 0513.[1]

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INTRODUCTION

Under a Memorandum of Understanding No. AT(26-1)-539 with the U. S. Atomic Energy Commission (AEC), the U. S. Environmental Protection Agency (EPA), National Environmental Research Center-Las Vegas (NERC-LV), continued a program of routine and special radiological surveillance of various media in the environment surrounding the Nevada Test Site (NTS) and other sites designated by the AEC during 1972. This report, prepared in accordance with the AEC Manual, Chapter 0513, contains summaries of NERC-LV sampling methodologies, analytical procedures, and the results of all environmental samples collected in support of AEC nuclear testing activities. Where applicable, sampling results are also compared to appropriate guides for external and internal exposures to ionizing radiation. In addition, a brief summary of pertinent ecological and demographical features of the NTS and the NTS environs is presented for background information.

Nevada Test Site

The major programs conducted at the NTS are nuclear weapons development, proof-testing and weapons safety, testing for peaceful uses of nuclear explosives (Project Plowshare), nuclear rocket development (Project Rover), basic high-energy nuclear physics research, and seismic studies (Vela-Uniform).

At the Nuclear Rocket Development Station (NRDS), located in the southwest corner at the NTS, a program of testing reactors of various designs and purposes has been conducted over the past 13 years. The major programs were oriented toward design feasibility and subsequent development of a nuclear rocket engine. The last tests of these engines were conducted in 1969. No reactors were tested in 1970 and 1971. During 1972, a small reactor called the Nuclear Furnace-1 was tested seven times during May, June, and July.

In addition, underground nuclear testing was conducted at the NTS during 1972. No radioactivity was detected at ground level beyond the boundaries of the NTS following any of these nuclear events or the Nuclear Furnace-1 test series.

Site Location

The Nevada Test Site (Figures 1 and 2) is located in Nye County, Nevada, with its southeast corner about 65 miles northwest of Nevada's largest city, Las Vegas. The NTS has an area of about 1,350 square miles and varies from 25-35 miles in width (east-west) and from 40-55 miles in length (north-south). This area consists of large basins or flats about 3,000-4,000 feet above Mean Sea Level (MSL) surrounded by mountain ranges 6,000-7,000 feet MSL.

The NTS is almost surrounded by an exclusion area collectively named the Nellis Air Force Range. The Range, particularly to the north and east, provides a buffer zone between the test areas and public lands. This buffer zone varies from 15 to 65 miles between the test area and land that is open to the public. Depending upon wind speed and direction, this provides a delay of 1/2 hour to more than six hours before any release of airborne radioactivity crossing the NTS boundary passes over public lands.

Ecology and Climate

The ecology of the site varies considerably. The southern portion is true desert of the Mojave type. The remainder of the NTS is mixed grasslands with Pinon-Juniper at the higher levels. This type of ecosystem is broadly referred to as Basin-Range Desert. The dry lakes found in the lower portion of the basins are highly mineralized silts which do not support any vegetation. The area supports a number of small mammals and reptiles with deer occasionally seen on the plateaus.*

The climate of the NTS is also variable, primarily due to altitude and the rugged terrain. Generally the climate is referred to as Continental

*For an excellent bibliography of appropriate references, see Schultz, Vincent, "References on Nevada Test Site Ecological Research," Great Basin Naturalist, 26[3-4]: December 31, 1966.

Arid. Average annual precipitation ranges from about four inches at the 3,000 foot altitude to around 10 inches on the plateaus. During the winter months, the plateaus may be snow-covered for periods of several days or weeks, while snow is uncommon on the flats. Temperatures vary with elevation, slope, and local air currents. The average daily high (low) temperatures at low altitude is around 50° (25°) F in January and 95° (55°) F in July, with extremes of 110° and -15°. Corresponding temperatures on the plateaus are 35° (25°) F in January and 80° (65°) F in July with extremes of 100° and -20°. Temperatures as low as +30° and higher than 115° have been observed at the NTS.

The prevailing wind direction, as measured on a 100-foot tower at the Yucca observation station, is predominately northerly except for the months of May through August when winds from the south-southwest predominate. Because of the prevalent mountain-valley winds in the basins, south to southwest winds predominate during daylight hours during most months. During the winter months southerly winds have only a slight edge over northerly winds for a few hours during the warmest part of the day. These wind patterns may be quite different at other locations on the NTS because of local terrain effects and differences in elevation.[2]

Geology and Hydrology

Geological and hydrological studies of the NTS have been in progress by the U. S. Geological Survey and various other institutions since 1956, when underground nuclear explosions were first contemplated. Because of this continuing effort, including subsurface studies of numerous boreholes, the surface and underground geological and hydrological characteristics for much of the NTS are known in considerable detail. This is particularly true for those areas in which underground experiments are conducted. A comprehensive summary of the geology and hydrology of the NTS was published in 1968 as Memoir 110 by the Geological Society of America, entitled, "Nevada Test Site."

The lithological features of the NTS may be simply described as being of three major rock units--(1) basement rock of Paleozoic age overlain by (2) volcanic tuffs of Tertiary age, which in the valleys are overlain by (3) alluvium as much as 3,000 feet thick. Underground nuclear tests, except for a very few special-purpose tests, are conducted in either volcanic tuff or alluvium. The basement rocks of Paleozoic age, many thousands of feet thick, are comprised largely of carbonate rocks in the lower and upper zones and clastic rocks in the middle zone. The Tertiary volcanic strata consist dominantly of ashflow tuffs of rhyolitic composition. The aggregate thickness of volcanic rocks is many thousands of feet, but at most places the volcanic section is less than the total aggregate thickness, because of erosion or nondeposition. The volcanic materials were erupted from large volcanic centers known as calderas. The Timber Mountain caldera, at the west-central part of the NTS, and the Silent Canyon caldera, buried beneath Pahute Mesa, are two of the better studied volcanic centers on the NTS. Alluvium covers all of the intermountain valleys and completely obscures the underlying volcanic and Paleozoic strata. It is composed of gravels and other detritus eroded from the adjacent hills and mesas.

Paleozoic rocks are displaced by several large faults of pre-Tertiary age. Tertiary and Recent basin and range faults cut all of the Tertiary and older rocks. Recent alluvium postdates most of the basin and range faults. Much of the geographical makeup of the entire area is due to faulting and subsequent upthrusting.

There are two hydrologic systems on the NTS (Figure 3). Groundwater in the Pahute Mesa system travels at a rate of from 7 to 250 feet per year to the south and southwest toward the Amargosa Desert. Groundwater in the Ash Meadows system moves beneath the NTS from north to south at a rate of from 7.3 to 730 feet/year. Carbon-14 analyses of water from formations underlying the NTS indicate that the lower velocity is nearer the true value. At Mercury Valley, in the extreme southern part of the

NTS, the groundwater flow direction shifts to the southwest toward the Ash Meadows discharge area in the southeastern Amargosa Valley. Best estimates indicate that it would take over 400 years for water from underground testing areas to reach the nearest discharge area.

Depths to water on the NTS vary from a few hundred feet beneath the valleys in the southeastern part of the site to more than 2,000 feet beneath the highlands to the north.[3] Although much of the valley fill is saturated, downward movement of water is extremely slow. The primary acquifer in these formations is the Paleozoic carbonates.

Nevada Test Site Environs

It is difficult to generalize on the ecology, land use and climate of the NTS environs with the exception of the very close-in areas. As an example, within a 200-mile radius west of the NTS, elevations range from below sea level in Death Valley, to 14,495 feet above MSL in the Sierra Nevada Range. Additionally, parts of two valleys of major agricultural importance (the Owens and San Joaquin) are included. The areas south of the NTS are more uniform since the Mojave Desert ecosystem comprises most of this portion of Nevada, California, and Arizona. The areas east of the NTS are primarily Basin Range Desert with some of the older river valleys, such as the Virgin River Valley, supporting small scale, but intensive farming and production of a surprising variety of crops. Grazing is also common in this area, particularly to the northeast. The area north of the NTS is also Basin Range Desert where the major agricultural-related activity is grazing of both cattle and sheep. Only areas of minor agricultural importance, primarily alfalfa hay, are found in this portion of the state within a distance of 200 miles.

The only major body of water close to the NTS is Lake Mead, a man-made lake supplied by water from the Colorado River. Lake Mead is the source of water for almost all domestic, recreational, and industrial purposes in the Las Vegas Valley. Smaller reservoirs and lakes are located in the area; however, they are of limited use, primarily for irrigation and for stock water. In California the Owens River and Haiwee Reservoir feed into the Los Angeles

Aqueduct and are the major sources of domestic water for the Los Angeles area.

Except for the higher elevations, the summers are hot with relatively mild winters. In the close-in areas, precipitation rarely exceeds 10 inches even at higher elevations and the relative humidity is low. Prevailing winds are from the south-southwest in the summer months, while north-northeast winds are often found during the winter months. Because of the terrain and elevation, any generalization of temperature and wind direction must be qualified in terms of specific locality.

Dairy farming is not extensive in the 200-mile radius area under discussion. There are, however, several Grade A dairies located in the Moapa River Valley in Nevada and in the areas around St. George and Cedar City, Utah. Two small dairies are located in the Alamo, Nevada area. Other dairies exist in the Owens Valley in California. It is also fairly common for remote ranches to keep one or two family milk cows. Within 100 miles of the site there are about 3,000 dairy cows. The majority of these cows are located at dairy farms southeast of the NTS, one in the Moapa Valley, several in the Virgin Valley, and one near Las Vegas.

Population Distribution

One of the prime considerations in choosing the present location of the Nevada Test Site (formerly the Nevada Proving Grounds) was its isolation from large population centers while having at least one city close enough to provide adequate services. The NTS is ideally located in this respect. With the exception of Las Vegas and vicinity, there are no major population centers within 200 miles of the site. There are only about 500,000 people living in this total area, about one-half of whom live in the Las Vegas greater metropolitan area. If the City of Las Vegas is not considered in determining population density, there are about two people per square-mile within the 200-mile radius of the NTS Control Point. For comparison, the United States (50 states) has a population density of 57.5 per square mile and the overall Nevada average is 4.4 per square mile.

The off-site areas nearest the NTS (about 50 miles) are predominately rural. Several small communities are located in the area, the largest being in the Pahrump Valley. This rural community with an estimated population of 1,100 is located about 45 miles south of the NTS. The Amargosa Farm area has a population of about 200 and is located about 30 miles southwest of the center of the NTS. The Spring Meadows Farm area is a relatively new development consisting of approximately 10,000 acres with a population of somewhat more than 100. This area is about 35 miles south-southwest of the NTS. The largest town in the near off-site area is Beatty with a population of more than 500 and is located about 40 miles to the west.

In the adjacent states, the Mojave Desert of California, which includes Death Valley National Monument, lies along the southwestern border of Nevada. The population in the Monument boundaries varies considerably from season to season with fewer than 200 permanent residents and tourists in the area during any given period in the summer months. However, during the winter, as many as 7,000 tourists and campers can be in the area, particularly during the major holiday periods. The largest town in this general area is Barstow, located 165 miles south-southwest of the NTS with a population of over 12,000. The Owens Valley, where numerous small towns are located, lies 25 to 35 miles west of Death Valley. The largest town in Owens Valley is Bishop, located 140 miles west-northwest of the NTS, with a population of about 3,000.

The extreme southwestern region of Utah is somewhat more developed than the adjacent part of Nevada. The largest town, Cedar City, with a population of approximately 9,000 is located 175 miles east-northeast of the NTS. The next largest community is St. George, lcoated 135 miles east of the NTS with a population of somewhat more than 7,000.

The extreme northwestern region of Arizona is mostly undeveloped range land with the exception of that portion in the Lake Mead Recreation Area.

Several small retirement communities are found along the Colorado River, primarily at Lake Mojave and Lake Havasu. The largest town in the area is Kingman, located 175 miles southeast of the NTS, with a population of about 6,000.

Figure 4 shows a generalized schematic of human population and milk cow distribution by 30° sectors from the NTS out to a distance of about 200 miles.[4] Figure 5 shows the locations and general land use of areas mentioned above.

Other Test Sites

Underground nuclear detonations have been conducted for various special purposes at sites other than the NTS. The NERC-LV has sampled various media, mostly water, at each of these locations during 1972.

Two of the sites are designated as supplemental test areas by the AEC. These are the Central Nevada Test Area located in the Hot Creek Valley about 60 miles east of Tonopah, Nevada, and Amchitka Island, Alaska, located 1,340 miles west-southwest of Anchorage, Alaska.

The other underground nuclear events were conducted in Colorado, Nevada, New Mexico, and Mississippi. Table 1 shows the name, date, location, yield, depth, and purpose of all underground tests conducted off the NTS.

SUMMARY

During 1972, the monitoring of gamma radiation levels and concentrations of radioactivity in the environs of the NTS was continued through the use of off-site networks of radiation dosimeters and gamma-rate recorders, air samplers, and selected locations at which monthly samples of water and milk were collected for radiological analyses. For each of the underground nuclear detonations and the seven experimental tests of the Nuclear Furnace-1, mobile radiation monitors equipped with radiation monitoring equipment and supplies were on standby in off-site locations to respond to any inadvertent release of radioactivity which might result in a radiological hazard to off-site populations and property.

The only radioactivity produced by nuclear tests at NTS and detected off-site was ^{133}Xe, which was observed in samples collected at stations of the Noble Gas and Tritium Sampling Network at Beatty, Diablo, and Hiko, Nevada. The levels of ^{133}Xe, which were attributed to gaseous seepage from underground tests, occurred only in a few samples. These levels, averaged over the total period sampled during the year, were less than 0.04% of the Concentration Guide of the AEC Manual, Chapter 0524, for a population sample. All other increases in radioactivity concentrations observed in media collected around the NTS were attributed to seasonal variations in old atmospheric fallout and fallout from nuclear detonations by the People's Republic of China on January 7, 1972, and March 18, 1972. Radioactive noble gases were released during the Nuclear Furnace-1 test series and detected by aircraft sampling; however, no radioactivity was detected on the ground beyond the combined areas of the Nellis Air Force Range and the NTS. Based upon the aircraft results, an estimate of the potential radiation exposure to off-site populations was determined to be less than 1% of the Radiation Protection Standards of the AEC Manual, Chapter 0524.

The results of soil samples collected around the NTS and analyzed for plutonium content showed that ^{239}Pu is present outside the boundaries of the NTS at levels greater than that which would be expected from world-wide fallout($\approx$1 nCi/m^2). Further soil sampling, analyses, and evaluations will be conducted in 1973 to

complete a map showing the variation in deposition levels on and around the NTS and to improve the precision of sampling techniques.

During the year, a Long-Term Hydrologic Monitoring Program was begun for off-NTS sites used previously for underground nuclear tests. These sites are located near Fallon, Nevada (Project Shoal), Central Nevada Test Area (Faultless Test), Grand Junction, Colorado (Project Rulison), Farmington, New Mexico(Project Gasbuggy), Carlsbad, New Mexico (Project Gnome), Hattiesburg, Mississippi (Projects Dribble/Miracle Play). This program was initiated to annually check radioactivity concentrations in wells, springs, and surface waters which are down-gradient from ground waters at the project sites. All radioactivity concentrations in the samples collected during the year were at natural background levels with the exception of samples collected at USGS Wells Nos. 4 and 8 at the Project Gnome site and the HT-2M Well at the Project Dribble/Miracle Play site. The USGS wells at the Gnome site were used in a U.S. Geological Survey radioactive tracer study in 1963, at which time ^{137}Cs, ^{131}I, ^{90}Sr, and ^{3}H were injected into Well No. 8 and water was pumped out of Well No. 4. As a result, high levels of ^{3}H and ^{90}Sr were observed in samples collected from both wells while ^{137}Cs was detected only in the sample from Well No. 8. The highest concentration of radioactivity was for ^{90}Sr, which was 4.3 times its Concentration Guide of 3×10^{-7} μCi/ml for exposure to individuals. The HT-2M Well at the Dribble site was drilled about 200 feet from another well in which 338,000 gallons of radioactive waste was injected during CY 1965. During this report period, high levels of ^{3}H was detected in the well, the highest being 6.7×10^{-5} μCi/ml, which is 2.2% of the Concentration Guide for ^{3}H. The radioactivity concentrations of all other samples collected from wells near the contaminated wells were below the Concentration Guides and representative of normal background levels. All of the contaminated wells are fenced, locked, and posted to ensure that the wells are not used by unauthorized persons.

The potential radiation dose equivalents received by off-site populations near the NTS and other locations referred to above were all estimated to be less than 1% of the Radiation Protection Standards of the AEC Manual, Chapter 0524. These estimates were based upon actual measurements of gamma radiation levels at off-site populated locations and measurements of radioactivity concentrations in the pathways of exposure as close to off-site residents as possible, i.e., air, milk and water.

MONITORING DATA COLLECTION, ANALYSIS, AND EVALUATION

The major portion of the off-site radiological safety program for the NTS consists of continuously-operated dosimetry and air sampling networks and scheduled collections of milk and water samples at locations surrounding the NTS. Before each nuclear test, mobile monitors were positioned in the off-site areas most likely to be affected by a possible release of radioactive material. These monitors, equipped with radiation survey instruments, gamma-rate recorders, thermoluminescent dosimeters, portable air samplers, and supplies for collecting environmental samples, were prepared to conduct a monitoring program directed from the NTS Control Point by two-way radio communications. In addition, for each event at the NTS, a U. S. Air Force aircraft with two NERC-LV monitors or two Reynolds Electric Company monitors equipped with portable radiation survey instruments was airborne over surface ground zero to detect and track any radioactive effluent. Two NERC-LV cloud sampling and tracking aircraft were also available to obtain in-cloud samples, assess total cloud volume, and provide long-range tracking in the event of a release of airborne radioactivity.

To assess the plutonium content of soil in areas surrounding the NTS, a special soil study was continued. In addition, a Long-Term Hydrologic Monitoring Program for the NTS and off-NTS underground test areas (except Amchitka, Alaska where the U. S. Geological Survey is performing this function) was begun to monitor radioactivity concentrations in wells, springs, and surface waters which are down gradient of underground water near areas where underground detonations have been performed. The first annual sampling for the Long-Term Hydrologic Monitoring Program for off-NTS project areas was completed during the year; however, routine sampling at the NTS did not commence until January 1973. Integrated monthly samples of the water of combustion of natural gas were also collected by a burner/condenser system on a trunk line carrying gas from producing wells adjacent to the Project Gasbuggy Site near Farmington, New Mexico,to determine if ^{3}H might possibly be entering the producing wells.

Nevada Test Site

No radioactivity was detected beyond the boundaries of the Nevada Test Site

following the tests conducted during CY 1972.

At the Nuclear Rocket Development Station (NRDS), located in the southwest corner of the NTS, an experimental reactor, Nuclear Furnace-1, was operated seven times during May, June, and July 1972. Table 1 lists the date/times and integrated power in Mw* sec.[5] Although radioactivity was detected by aerial monitoring and sampling aircraft, no effluent was detected off-site by ground monitoring systems. Since the monitoring and sampling by aircraft were performed over the NTS and Nellis Air Force Range, the effluent monitoring data were reported separately to the AEC in accordance with the AEC Manual, Chapter 0513.

Table 1 Nuclear Furnace-1 Test Series

EP	Date	Time (PDT)	Thermal Peak Power (Mw)	Integrated Power at Peak Power Mw* sec
IA-1	5/24/72	1738-1902	0.001	Negligible
IA-2	5/25/72	1048-1433	0.05	Negligible
IB	6/1/72	1433-1445	32	7.86×10^3
II	6/28/72	1123-1157	44	6.79×10^4
III	7/12/72	1215-1221	46	7.24×10^3
IV	7/21/72	1232-1323	44	1.18×10^5
V	7/27/72	1136-1330	44	1.36×10^5

The radionuclides detected by aircraft sampling in the Nuclear Furnace-1 effluent were noble gases and daughter products of noble gases; no particulates originating in the reactor or radioiodines were detected by aircraft sampling. An estimate of the potential external gamma radiation exposure at the off-site boundary of the combined areas of the Nevada Test Site and the Nellis Air Force Range was, for the test series, less than 1% of the Radiation Protection Standards of the AEC Manual, Chapter 0524. This estimate was based upon what one might receive at the site boundary if one were within the effluent from each test and at the elevation of the maximum radioactivity concentrations, which actually ranged between 2500 feet and 9000 feet above any off-site population.

A description of NTS sampling networks, and the results from these networks, follows.

Air Surveillance

The Air Surveillance Network, operated by the NERC-LV, consisted of 104 active and 18 standby sampling stations located in 21 western states (Figure 6). Samples of airborne particulates were collected continuously at each active station on 4-inch-diameter glass-fiber filters at a flow rate of about 350 m^3 of air per day. Normally samples were collected over a 24-hour period; however, at several stations operated by state health department and other government agency personnel, they were not always collected on weekends and holidays, which resulted in 48- or 72-hour samples. Activated charcoal cartridges directly behind the glass-fiber filters were used regularly for the collection of gaseous radionuclides at 22 stations near the NTS. Charcoal cartridges could have been added to all other stations by telephone request. The stations were operated by state health department personnel and by private individuals through contract agreements. All air samples were mailed to the NERC-LV unless special retrieval was arranged at selected locations in case of a known release of radioactivity from the NTS.

The glass-fiber filters were counted five minutes for gross beta radioactivity as soon as they were received and again at 5 and 12 days after collection. Samples were counted on gas flow proportional counters calibrated over a range of beta energies from 0.1 to 1.8 MeV. A conservative efficiency value of 45% (corresponding to an average maximum beta energy of 0.5 MeV) was used for data conversion. The 5- and 12-day counts were used to extrapolate gross beta concentrations to mid-collection time for reporting. Extrapolation was accomplished by computer programs and was routinely based on a $T^{1.2}$ decay. For known releases of particulate radioactivity, which for 1972 occurred only from nuclear tests by the People's Republic of China, the decay rate was determined experimentally and used in the extrapolations.

Those filters with total gross beta radioactivity of 500 cpm or greater were gamma scanned on a 4- by 4-inch sodium iodide (Tl-activated) crystal connected to a 400-channel gamma spectrometer. Individual radionuclides were quantitated from spectrometer data by use of a computer matrix technique. If fresh fission products related to a NTS event had been detected, radiochemical analyses, such as strontium and plutonium, would have been made on selected filters. All charcoal cartridges were counted 10 minutes with a gamma spectrometer. Data from those cartridges having a net gross gamma count rate greater than 300 cpm were analyzed by computer matrix technique to quantitate individual radionuclides. Additional analytical information can be found in Table 3.

Table 4 presents the maximum, minimum detected and average concentrations of gross beta radioactivity and individual radionuclides identified by gamma spectroscopy for each location within the network during 1972. The annual gross beta average was determined for each station by summing the station's monthly averages and dividing by twelve, assuming all monthly averages less than the minimum detectable concentration to be equivalent to the minimum detectable concentration. Each annual average for a radionuclide detected at a given station was derived by dividing the sum of its time-integrated concentrations ($pCi\text{-}day/m^3$) by 366 days. This was done assuming that these radionuclides were not present on those filters which did not exceed the screening level of 500 cpm, or 1.4 pCi/m^3 for a 45% counting efficiency and normal sample volume of 350 m^3. This is consistent with the AEC Manual, Chapter 0524, which allows one to consider radionuclides to be absent in a mixture ". . . if (a) the ratio of the concentration of that radionuclide in the mixture. . .to the concentration guide for that radionuclide. . .does not exceed 1/10, and (b) the sum of such ratios for all the radionuclides considered as not present in the mixture does not exceed 1/4. . . ."[6]

As shown by Table 4, the fission products ^{95}Zr, ^{103}Ru, ^{131}I, ^{132}Te, ^{140}Ba, ^{141}Ce, ^{237}U, and ^{239}Np were detected in varying combinations

at all but four sampling locations. None of these radionuclides were associated with nuclear tests at the NTS, since their occurrence throughout the network followed the seasonal trend expected for world-wide fallout and corresponded with the nuclear detonations by the People's Republic of China on January 7, 1972, and March 18, 1972. An example of the variation of gross beta concentrations during the year is shown in Figure 7.

Noble Gas and Tritium Sampling Network

During the months of March and April 1972, a routine air sampling network for monitoring levels of radiokrypton, radioxenon, and ^{3}H in the form of HT, HTO, and CH_3T was established for the NTS. Due to infrequent releases of radioactive gas during drill-back into the shot zone and occasional gaseous seepage from underground shot locations, the AEC Nevada Operations Office requested the NERC-LV to design, field and operate this Network at four on-NTS and six off-site locations. The locations of the off-site sampling stations are Las Vegas, Beatty, Tonopah, Diablo, and Hiko, Nevada, and Death Valley Junction, California. The off-site stations may be located by referring to Figure 6.

The equipment used in this Network is designed in two separate systems: one is a compressed air sampler, and the other is a molecular sieve sampler. The compressed air equipment continuously samples air which is then compressed and stored over seven-day periods in two pressure tanks, which together hold approximately two cubic meters of air at atmospheric pressure. The bottles are replaced weekly and returned to NERC-LV where the samples are analyzed for radionuclides of Kr and Xe and for CH_3T by gas chromatography and liquid scintillation techniques summarized in Table 3 and described by Stevenson and Johns.[7]

The molecular sieve type equipment samples air through a filter to remove particulate matter and then through a 600-gram column of 13X molecular sieve to remove atmospheric water. Tritium-free hydrogen

carrier is added to the air stream by electrolysis of antique water. The air is then passed through another molecular sieve column to remove any water from the electrolysis cell. The dry air with added hydrogen is then passed through a palladium catalyst supported on 13X molecular sieve. The hydrogen is converted to water, which is immediately adsorbed on the molecular sieve. The volume of air passed through the sampler is measured by a dry gas meter. Approximately five cubic meters of air are passed through each sampler over a seven-day sampling period. After each sampler is returned to the laboratory, the first molecular sieve column and the catalytic column are degassed; the water is distilled and analyzed for tritium by liquid scintillation techniques.

Table 5 summarizes the results of this Network by listing the maximum, minimum, and average concentrations for ^{85}Kr, total Xe or ^{133}Xe, CH_3T, ^{3}H, HTO, and HT. The annual average concentrations for each station were calculated over the time period sampled assuming that all values less than the Minimum Detectable Activity (MDA) were equal to the MDA. In the table, all concentrations of ^{85}Kr, Xe or ^{133}Xe, CH_3T, HTO and HT are expressed in the same unit, μCi per ml of air; the concentrations of ^{3}H (representing ^{3}H in water vapor) are reported in the unit μCi per ml of atmospheric moisture.

As shown by Table 5, the maximum and average ^{85}Kr levels at all stations were essentially the same, indicating no contribution from NTS operations. The concentrations of ^{3}H, HTO and HT were generally the same at all locations through the year except for the on-site stations at BJY and Area 12, where concentrations of ^{3}H, HTO and HT reached a maximum of $1.3 \times 10^{-4}\mu Ci/ml$, $9.1 \times 10^{-10}\mu Ci/ml$, and $2.3 \times 10^{-11}\mu Ci/ml$, respectively. All average concentrations for the year were less than 0.01% of the Concentration Guides for ^{3}H in air, which is 6.7×10^{-8} μCi/ml for exposure to an off-site population sample and 5.0×10^{-6} for exposure to a radiation worker. No tritium in the form of CH_3T was detected above its MDA of $5 \times 10^{-12}\mu Ci/ml$ at any of the stations.

The concentrations of Xe were below the MDA of 2 x 10^{-12} μCi/ml at all stations throughout the year except for Beatty, Diablo, and Hiko, Nevada, and the on-site locations Desert Rock, BJY, and Area 12. At these stations ^{133}Xe was detected on a few occasions with concentrations as high as 5.7 x 10^{-10} μCi/ml at Hiko. The average concentration at all locations was below 0.04% of the Concentration Guide for this nuclide, which is 1 x 10^{-7} μCi/ml for an off-site population sample and 1 x 10^{-5} μCi/ml for on-site radiation workers.

Dosimetry Network

The Dosimetry Network during 1972 consisted of 88 locations surrounding the NTS which were monitored continuously with thermoluminescent dosimeters (TLD's). The locations, shown in Figure 8, are all within a 300-mile radius of the center of the NTS and include both inhabited and uninhabited locations. Each Dosimetry Network station was equipped with three EG&G Model TL-12 dosimeters, which were exchanged monthly. Within the general area covered by the dosimetry stations about 60 off-site residents routinely wore one TLD each. These dosimeters were exchanged at the same time as the station dosimeters.

The TL-12 dosimeter has an internal or self-background exposure rate equivalent to 0.7 mR/day, which limits its minimum detection to about 5 mR for a 30-day measurement period. All TLD readings were corrected to ^{137}Cs gamma-roentgen-equivalent values according to individual TLD calibration factors. For purposes of this report, these units of exposure were considered to be equivalent to whole-body gamma doses in rems.

After appropriate corrections were made for the background exposure accumulated during shipment between the laboratory and the monitoring locations, the three TLD readings were averaged. The average exposure value for each month and station was statistically compared to values from the past twelve months to determine whether the new value was within the range of environmental background, or significantly

greater than background. Those which were greater led to calculations of net exposures, whereas those, which were not, were pooled with the background data bank, and the oldest value in the data bank was deleted. Values which were statistically lower than the background range were also deleted and considered invalid measurements. Each of the 60 personnel dosimeter readouts was compared to the background value of the nearest station.

No doses related to nuclear testing were detected by the dosimetry network during 1972. Table 6 lists the maximum, minimum, and average dose equivalent rate (mrem/d) measured at each station in the network during 1972. The maximum and minimum dose rates were selected from dose rates determined from monthly exposures (mrem) divided by the number of days in the exposure period, which was about 30 days depending on minor variations in schedules. The annual average dose rate for each station was calculated by adding the monthly dose equivalent values (mrem) and dividing the sum by the number of days in the period listed in Table 6 for each station. The annual adjusted background dose was derived from the product of the annual average dose rate and 366 days. As shown by this table, the average station background doses ranged from 84 to 200 mrem with a network average of 144 mrem/a. Among the approximately 60 off-site residents who wore dosimeters continuously, no personnel doses greater than background were detected as a result of nuclear testing at NTS.

Several TLD's showed unexplained high readings during 1972. These values, listed in Table 7, are considered to be anomalous readings, not true gamma exposures. Surveys of the locations and interviews with the individuals involved identified no sources of radiation which would produce the exposures. Also, in the case of the stations where three TLD's were issued each month, only one or two dosimeters read high. It is believed that the anomalies were due to phenomena associated with the TLD's rather than some external radiation source.

A network of 32 stationary Eberline RM-11 gamma rate recorders placed at selected air sampling locations was used to document gamma exposure rates at fixed locations (Figure 6). These recorders used a GM tube detector with a 0.01 to 100 mR/h range and were calibrated to ±20% with a ^{137}Cs source. The gamma exposure rates were recorded on 30-hour strip charts, which were exchanged and mailed to the NERC-LV each day. No gamma exposure rates attributable to NTS operations were detected by the network of gamma rate recorders.

Starting in July 1972, the RM-11 gamma rate recorders were gradually replaced by a NERC-LV designed recorder designated as the LSI. This recorder uses a 1- by 12-inch constant-current ionization chamber detector filled with methane. The recorder operates on either 110V a.c. or on a self-contained battery pack. This radiation monitor records gamma radiation levels from .004 mR/h to 40 mR/h with a logarithmic response and an accuracy of better than ±10%. The recorder chart runs at a speed of three inches per hour so that one chart will last for 10 days, although the charts are mailed to NERC-LV weekly. A fresh battery pack will operate the monitor for about two weeks at radiation levels below 1 mR/h and about five days at radiation levels above 1 mR/h. The length of unattended operations from a.c. line power is limited only by the need to change paper in the recorder. During this report period, no increase in exposure rates attributable to NTS operations was detected by the network of gamma rate recorders.

Milk Surveillance Network

Milk is only one of the sources of dietary intake of environmental radioactivity; however, it is a very convenient indicator of the general population's intake of biologically significant radionuclide contaminants. For this reason it is monitored on a routine basis. Few of the fission product radionuclides become incorporated into the milk of the cow due to its selective metabolism. However, those that are incorporated are very important from a radiological health standpoint, and since they are preferentially transferred to the cow's

milk, it is a very sensitive measure of their concentrations in the environmenta. The five most common fission product radionuclides which can occur in milk are ^{89}Sr and ^{90}Sr, ^{131}I, ^{137}Cs, and ^{140}Ba. A sixth radionuclide, ^{40}K, also occurs in milk at a reasonably constant concentration of about 1.2×10^{-6} μCi/ml. Since this is a naturally occurring radionuclide, it was not included in the analytical results summarized in this section.

The milk surveillance networks operated by the NERC-LV were the routine Milk Surveillance Network (MSN) and the Standby Milk Surveillance Network (SMSN). The MSN during 1972 (Figure 9) consisted of 35 different locations at which NERC-LV personnel collected one-gallon milk samples from family cows, commercial pasteurized milk producers, Grade A raw milk intended for pasteurization, and Grade A raw milk for local consumption. In the event of a release of activity from the NTS, intensive sampling would have been conducted in the affected area within 300 miles of the NTS to assess radionuclide concentrations in milk, radiation doses that could result from the ingestion of the milk, and the need for protective action. Milk supplies and producers beyond 300 miles are sampled with the SMSN.

During 1972, 321 milk samples were collected from the MSN. Of the 35 locations, five were alternates where milk was sometimes obtained in the event the primary sampling point did not have milk available. Although the routine locations were scheduled for monthly collection, milk could not usually be obtained at all locations in any one month. Cows not lactating, no one home, or no milk on the day the route monitors arrived at the ranch, were some of the reasons why some of the samples were not collected each month. During the year, milk sampling points also changed as cows were sold, or were otherwise unavailable for regular milkings.

The SMSN consisted of about 185 Grade A milk processing plants in all states west of the Mississippi River which could be requested by

telephone to collect raw milk samples representing milk sheds supplying milk to the plants. Since there were no releases of radioactivity from the NTS or other test locations, this network was not activated except to request an occasional sample to check the network readiness and reliability. No analytical results are reported here for the SMSN, since only one sample was received from each of several selected locations and were not associated with any particular nuclear activity or installation.

All milk samples were analyzed for gamma emitters, ^{89}Sr and ^{90}Sr. Samples collected at six locations from the MSN were routinely analyzed for ^{3}H. Table 3 lists the general analytical procedures and detection limits for these analyses as described by Johns[8] and Lem and Snelling.[9] For gamma spectroscopy analyses, the milk was placed in 3.5-liter Marinelli beakers which position the samples around the crystal detector for high counting efficiency. All routine milk samples were counted for 40 minutes. A computer was used to calculate the activity concentration of each of the detected nuclides at the time of count and extrapolate the results to time of milking.

The analytical results of milk samples collected from the MSN during 1972 are summarized in Table 8. The maximum, minimum, and average concentrations of the ^{137}Cs, ^{89}Sr, ^{90}Sr, and ^{3}H in samples collected during the year are shown for each sampling location at which these analyses were scheduled. In the computation of the average concentrations, sample concentrations of less than the minimum detectable concentration were assumed to be equal to the minimum detectable concentration. If any of the values used in computing the averages were "less than" values, the average was expressed as a "less than" value. During the year, there were a few samples which did not have enough volume to provide the usual minimum sensitivity for gamma spectrum analysis for ^{137}Cs (1.0×10^{-8} μCi/ml). In these cases, the minimum sensitivity was 1.0×10^{-7} μCi/ml.

No radionuclides from NTS operations were detected in any of the milk samples. The levels of ^{137}Cs, ^{89}Sr, and ^{90}Sr varied during the year in accordance with what is normally observed due to variations in world-wide fallout. An example of the trends in concentrations during the year is shown for the Martin Ranch in Figure 7. The variations in concentrations agree reasonably well with the variation in gross beta concentrations in air at the three nearest air sampling locations, Austin, Round Mountain, and Eureka, Nevada.

Water Surveillance Network

The Water Surveillance Network (WSN) operated in off-site areas around the NTS during 1972 consisted of 91 locations (Figures 10 and 11) where NERC-LV personnel collected one-gallon water samples. The samples were collected from community water supplies, wells, open and closed springs, streams, lakes, and ponds. If a release of radioactivity from NTS had occurred, special sampling within the affected area would have been conducted to determine radionuclide concentrations and the possible need to take protective action.

During 1972, 1022 water samples were collected from these 91 locations. All samples were scheduled to be collected monthly, except those from Walker Lake and Pruess Reservoir. These two locations were sampled quarterly. In some cases operational priorities, frozen sources, etc., prevented the sampling of each location every month.

All water samples from the WSN were analyzed by gamma spectroscopy and counted for gross alpha and gross beta radioactivity. Network samples from approximately 25 locations west, south, and southeast of NTS were also routinely analyzed for ^{3}H. For the purpose of identifying the source of the gross radioactivity in all network samples and comparing sample concentrations with the Concentration Guides of the AEC Manual, Chapter 0524, selected samples were given special analyses at least once during the year. For surface water samples, the special analyses included $^{89\text{-}90}Sr$, $^{238\text{-}239}Pu$, U, and ^{226}Ra. For drinking water

samples, the analyses included $^{89-90}Sr$, U, and ^{226}Ra. Table 3 lists the general analytical procedures as described by Johns[8], Lem and Snelling[9], and Talvitie[10,11] and the detection limits.

The analytical results of all water samples collected from the WSN during 1972 are summarized in Table 9, which lists the maximum, minimum, and average concentrations of radioactivity detected in the samples. No gamma-emitting fission products were detected in any of the samples by gamma spectroscopy analysis. No significant trends were observed in the gross alpha, gross beta, or ^{3}H results, although surface waters generally contained higher concentrations than ground waters. The higher concentrations were attributed to world-wide fallout and naturally occurring radionuclides.

The average concentrations for the gross alpha, gross beta, and ^{3}H radioactivity compared to the following Concentration Guides specified in AEC Manual, Chapter 0524 for exposure of individuals:

Type of Radioactivity	Concentration Guide $\mu Ci/ml$
Gross alpha	3×10^{-8}
Gross beta	3×10^{-8}
^{3}H	3×10^{-3}

Those locations which had an annual average concentration greater than these Guides are Hiko, Schofield Dairy (gross beta $C_{avg} = 3.2 \times 10^{-8} \mu Ci/ml$), Comins Lake (gross beta $C_{avg} = 3.6 \times 10^{-8} \mu Ci/ml$), Walker Lake (gross beta $C_{avg} = <1.9 \times 10^{-7} \mu Ci/ml$), and Fallini's Pond (gross beta $C_{avg} = 6.9 \times 10^{-8} \mu Ci/ml$). Of these sources only the Schofield Dairy water is consumed by humans. As shown in Table 9, samples from the locations that were selected for special analyses contained naturally occurring uranium isotopes and daughters including ^{226}Ra. This would account for the high gross beta activities. In addition to the special analysis given the sample from Walker Lake, the sample was also given a longer gamma count in an effort to determine the source

of the relatively high gross beta activity, since the concentrations of uranium and daughter products could not account for all of the gross beta radioactivity. Potassium-40, with a concentration of 1.2 x 10^{-7} μCi/ml, was found to be the isotope responsible for the elevated beta activity. Including the naturally occurring radionuclides listed above which did not result from NTS operations, the radioactivity concentrations in water were less than the values listed in the AEC Manual, Chapter 0524.

Plutonium in Soil

This program began in September 1970 as an integral portion of the work coordinated by the Nevada Applied Ecology Group (NAEG). The NAEG was formed by the AEC to coordinate environmental evaluations corresponding to specified areas of AEC operations. The NAEG's objective in the study is to determine the inventory, distribution, and movement in the ecosystem of on-site and off-site plutonium which was produced by NTS operations.

As part of this study, the NERC-LV was involved in investigating off-NTS air and soil for plutonium content. Air sample analyses have been limited to filters collected at selected Air Surveillance Network Stations (ASN) over a period from 1965 to 1972. Two phases of research have been conducted. Filters from eight air sampling stations distributed over the western United States were chosen for analyses to determine ambient levels of world-wide fallout. Filters were selected for five sampling days near the middle of each month and a plutonium assessment made on a composite of filters. The second phase was to analyze filters collected near the NTS. Stations were selected which were located upwind and downwind of known on-site plutonium deposition areas. Filters were chosen for days when high winds and dry soil conditions existed in the general area of the NTS. Results will be reported on completion of the analyses of these filters.

Initial soil sampling began in September 1970. The selected sampling method was first field tested and refined to suit operational and analytical requirements. This method is defined as the trench method.

A trench was dug and a sample was removed from one side of the trench, over a given surface area, and at various sampling depths. By this method a preliminary soil profile sampling survey was performed to determine the vertical distribution of plutonium and to define an optimum sampling depth. Since this preliminary survey showed that 90% of the plutonium concentrations were found in the top 3 cm of soil in 90% of the samples collected, a 5 cm depth was chosen with a sampling area of 10- by 10-cm. Ten 10- by 10-cm cores were composited to form a total sampling area of 1000 cm^2 for each sample location. All sampling sites were chosen from undisturbed desert "pavement" areas at the intersections of a 5- by 5-mile grid, as much as possible.

Each sample was returned to the NERC-LV in a polyethylene bag and air dried. The total weight was measured and the sample screened with a U. S. Standard screen of 10-mesh. The portion passing through the 10-mesh screen was divided with a Jones sample splitter. Successive splits were made to achieve a sample of about 50 g for Pu analysis. The remainder of the fraction passing 10-mesh was redivided to yield a sample size of about 600 g, which was gamma counted. The 50 g sample for Pu analysis was oven dried and pulverized to less than 200 mesh. A one gram aliquot was then collected from this sample for complete dissolution in hydrofluoric acid; the Pu being separated from the solution by ion exchange techniques and electrodeposited on a stainless steel planchet for alpha spectrometric analysis.[10,11]

The results of soil samples collected around the NTS and analyzed for plutonium content showed that ^{239}Pu is present outside the boundaries of the NTS at levels greater than that which would be expected from world-wide fallout ($\approx$1 nCi/m^2). Since all analytical results are preliminary, none are reported at this time. Further sampling, sample analyses, and evaluations will be conducted in 1973 to complete a map of off-site plutonium deposition levels and to improve the precision of the data.

Other Test Sites

Two programs were operative in 1972 to provide additional data on long-term surveillance at all continental test sites, past and present. The two programs now in effect are (1) sampling for ^{3}H in natural gas from wells adjacent to the Gasbuggy Test Well near Farmington, New Mexico, and (2) scheduled water sampling of wells and other water sources in the vicinity of all continental sites. A description of the two programs are included in this section.

Natural Gas Burner Sampling, Gasbuggy Site

During 1972, integrated monthly samples of the water condensate from the combustion of natural gas were collected from a truck line servicing 28 natural gas wells adjacent to the Gasbuggy Test Well near Farmington, New Mexico. This study, which became routine by November 1971 following the development of a gas burner system, was initiated to determine if natural gas from the nuclear-stimulated Gasbuggy Test Well would introduce radioactive contaminants into the surrounding producing wells. Tritium was chosen as a suitable indicator of radioactive contamination.

With the use of the gas burner system described by Connolly,[14] an air/gas mixture flows through a combustion chamber where it is continuously burned. The resultant water vapor is condensed out of the exhaust gases and collected. Each month the condensate is sent to the NERC-LV for liquid scintillation counting for ^{3}H.

All concentrations of ^{3}H in the twelve monthly condensate samples collected in CY 1972 were below the minimum detectable activity of about 220 pCi/l of condensate water.

Long-Term Hydrologic Monitoring Program

In addition to the continuous program of underground nuclear testing at the NTS, several special purpose underground tests have been conducted in various parts of the continental United States and Alaska (Table 1).

Following each of these events, all surface material contaminated with radioactivity was removed or otherwise disposed of in accordance with appropriate decontamination procedures. Other than an improbable seepage of minor amounts of gaseous radionuclides into the atmosphere, the only other method for radioactivity to enter the biosphere beyond the immediate vicinity of the detonation area would be by transport in ground waters from the cavity and/or rubble chimney created by the detonation.

In previous years, hydrologic monitoring and investigation programs were conducted for the AEC by the U. S. Geological Survey (USGS) and Teledyne Isotopes (formerly Isotopes, Inc.). As a continuation of this effort, the AEC requested the NERC-LV to establish a Long-Term Hydrologic Monitoring Program in the vicinity of all active and inactive test areas. The purpose of this program, as outlined by the Nevada Operations Office, AEC, is to obtain and record appropriate data from reliable sources adequate to:

1) Assure the public safety;
2) If the need should arise, to inform the public, the news media, and the scientific community;
3) Document compliance with existing Federal, state, and local anti-contamination requirements.

To implement this long-term program, NERC-LV began sampling water from wells, springs, and surface waters which are down-gradient of the movement of ground water at the sites of Project Shoal, Project Dribble, Project Gnome, Project Gasbuggy, Project Rulison, and the Faultless Event of the Central Nevada Test Area (CNTA). The sampling frequency for each site was established as once a year in the early spring plus once during any period of flaring of natural gas at those sites where flaring is undertaken. No flaring operations were conducted at any of the sites during this report period.

Samples of underground water sources were collected from well heads or

spring discharge points where possible. If pumps were not available, an electrical-mechanical water sampler capable of collecting a 3-liter sample at depths up to 6000 feet was used. Samples for ^{3}H analysis from each location were collected in two 16-ounce glass bottles each fitted with a poly-seal screw cap. The bottles were filled with unfiltered water, capped and then sealed with black plastic tape. Samples for radiochemical analysis from each location were collected in one gallon plastic cubitainers. The cubitainers were filled with filtered water (water passing a 0.45 μm filter) and the contents adjusted to pH 1 using concentrated nitric acid.

Most samples were analyzed for ^{3}H, gross alpha, and gross beta by radiochemistry techniques and for gamma-emitters by gamma spectroscopy; however, there were some wells and surface supplies for which only ^{3}H analysis was performed. Selected samples were also analyzed for $^{89-90}Sr$ and ^{226}Ra. A complete summary of analytical procedures and detection limits is shown in Table 3.

The analytical results of all water samples collected during 1972 are summarized in Table 10. For each concentration, the percent of the appropriate Concentration Guide as specified in the AEC Manual, Chapter 0524, was calculated and listed. As shown by the table, concentrations of radioactivity above the Concentration Guides were found in samples collected at the sites of Project Dribble and Gnome. Well HT-2M, which is located on the Project Dribble site, is approximately 200 feet from Well HT-2 in to which approximately 338,000 gallons of radioactive liquid waste were injected during 1965. As a consequence of this, high levels of ^{3}H were observed at most depths sampled in HT-2M. The maximum concentration observed was 6.7×10^{-5} μCi/ml in a sample collected from 2350 feet below the surface on October 14, 1972. This concentration was 2.2% of the Concentration Guide for ^{3}H as specified in the AEC Manual, Chapter 0524, for exposure to an individual. Although these contaminated wells are on private land, the wells are fenced, posted, and locked to prevent their use by unauthorized personnel.

USGS Wells Nos. 4 and 8 located on the Project Gnome site were used in a USGS radioactive tracer study during the first quarter of 1963. Cesium-137, ^{131}I, ^{90}Sr, and ^{3}H were injected into Well No. 8, and water was pumped from nearby Well No. 4. As a result of this study, high levels of ^{3}H and ^{90}Sr were observed in samples collected from both wells in 1972, while ^{137}Cs was observed only in the sample from Well No. 8. As indicated by Table 10, the highest concentration was for ^{90}Sr, which was 4.3 times its Concentration Guide. The concentrations of radioactivity in all the other wells sampled near the two contaminated wells were below the Concentration Guides and representative of normal background levels. These two contaminated wells, which are on federal land, are also fenced, locked, and posted to assure that they are not used by unauthorized personnel.

Gross beta levels above 30 pCi/l were also observed in samples collected from Flowing Well No. 2 ($3.8 \times 10^{-8}\mu Ci/ml$) near the Project Shoal site, and Lake La Jara ($3.6 \times 10^{-8}\mu Ci/ml$) and El Paso National Gas Well 10-36 ($4.7 \times 10^{-8}\mu Ci/ml$), both of which are near the Project Gasbuggy site. None of these sources of water are used for domestic purposes. Further analysis will be performed on these samples to identify the radionuclides contributing to the gross radioactivity.

REFERENCES

1. "Effluent and Environmental Monitoring and Reporting," U. S. Atomic Energy Commission Manual, Chapter 0513. U. S. Atomic Energy Commission, Washington, D.C.

2. Quiring, Ralph E., "Climatological Data, Nevada Test Site, Nuclear Rocket Development Station (NRDS)," ERLTM-ARL-7. ESSA Research Laboratories. August 1968.

3. "Environmental Statement, Underground Nuclear Testing Program, Nevada Test Site," WASH-1562 Draft Copy, U. S. Atomic Energy Commission. October 1972.

4. "Selected Census Information Around the Nevada Test Site," WERLV-639-8. Western Environmental Research Laboratory, U. S. Environmental Protection Agency, Las Vegas, Nevada, 1972.

5. "Interim Report of Off-Site Surveillance for the Nuclear Furnace-1 Test Series, May, June, and July 1972," National Environmental Research Center, Las Vegas, Nevada. November 1972.

6. "Standards for Radiation Protection," U. S. Atomic Energy Commission Manual, Chapter 0524. U. S. Atomic Energy Commission, Washington, D.C.

7. Stevenson, D.L. and Johns, F. B. Proceedings of "International Symposium on Rapid Methods for Measurement of Radioactivity in the Environment," July 5-9, 1971, Neuherberg, Federal Republic of Germany. International Atomic Energy Agency, STI/PUB/289, Vienna, 1971.

8. Johns, F. B. "Southwestern Radiological Health Laboratory Handbook of Radiochemical Analytical Methods," SWRHL-11. Southwestern Radiological Health Laboratory, U. S. Department of Health, Education and Welfare. Las Vegas, Nevada. March 1970.

9. Lem, P. N. and Snelling, R. N. "Southwestern Radiological Health Laboratory Data Analysis and Procedures Manual," SWRHL-21. Southwestern Radiological Health Laboratory, Environmental Protection Agency, Las Vegas, Nevada. March 1971.

10. Talvitie, N. A. "Electrodeposition of Actinides for Alpha Spectrometric Determination," Analytical Chemistry, February 1972, Vol. 44, p. 280.

11. Talvitie, N. A. "Radiochemical Determination of Plutonium of Environmental and Biological Samples by Ion Exchange," Analytical Chemistry, November 1971, Vol. 43, p. 1827.

12. "Surface Approximation and Contour Mapping Documentation," Application Consultants, Inc., 3431 W. Holcombe Blvd., Houston, Texas 77025.

13. Hardy, et al., "Plutonium Fallout in Utah," Fallout Program Quarterly Review HASL-257, Health and Safety Laboratory, U. S. Atomic Energy Commission, Washington, D.C., July 1, 1972, p. 95.

14. Connolly, John L. "The NERC-LV Burner--A Monitor for Radioactivity in Natural Gas," NERC-LV-539-7. U. S. Environmental Protection Agency, National Environmental Research Center, Las Vegas, Nevada. February 1973.

Table 2 Underground Testing Conducted Off the Nevada Test Site

Name of Test, Operation or Project	Date	Location	Yield[d]	Depth (ft)	Purpose of the Event[d,e]
Project Gnome/ Coach[a]	12/10/61	30 mi SE of Carlsbad, NM	3.1kt[f]	1184	Isotope recovery, neutron experiments, heat recovery studies, future design studies.
Project Shoal[b]	10/26/63	28 mi SE of Fallon, NV	12kt	1200	Nuclear test detection experiment.
Project Dribble[b] (Salmon Event)	10/22/64	21 mi SW of Hattiesburg, MI	5.3kt	2700	Nuclear test detection experiment.
Operation Longshot[b]	10/29/65	Amchitka Island, AK	~80kt	2350	Nuclear test detection experiment.
Project Dribble[b] (Sterling Event)	12/3/66	21 mi SW of Hattiesburg, MI	380t	2700	Nuclear test detection experiment.
Project Gasbuggy[a]	12/10/67	55 mi E of Farmington, NM	29kt	4240	Natural gas stimulation experiment.
Test Faultless[c]	1/19/68	Central Nevada Test Area 60 mi E of Tonopah, NV	200kt-1Mt	3000	Physical effects study for higher yield detonations. (Calibration test)
Project Miracle Play (Diode Tube)[b]	2/2/69	21 mi SW of Hattiesburg, MI	Non-nuclear explosion	2700	Detonated in Salmon/ Sterling cavity. Seismic studies.
Project Rulison[a]	9/10/69	12 mi SW of Rifle, CO	40kt	8425	Stimulation of natural gas production.
Operation Milrow[c]	10/2/69	Amchitka Island, AK	~1Mt	4000	Physical effects study for higher yield detontation. (Calibration test)
Project Miracle Play (Humid Water)[b]	4/19/70	21 mi SW of Hattiesburg, MI	Non-nuclear explosion	2700	Detonated in Salmon/ Sterling cavity. Seismic studies.

Table 2 Underground Testing Conducted Off the Nevada Test Site

Name of Test, Operation or Project	Date	Location	Yield[d]	Depth (ft)	Purpose of the Event[d,e]
Operation Cannikin[c]	11/6/71	Amchitka Island, AK	<5Mt	6000	Test of Spartan Missle warhead for the Safeguard System

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[a] = Plowshare events

[b] = Vela Uniform events

[c] = Weapons tests

[d] = Information from "Revised Nuclear Test Statistics," distributed on January 15, 1973, by Henry G. Vermillon, Director, Office of Information Services, U. S. Atomic Energy Commission, Las Vegas, Nevada.

[e] = News Release AL-62-50, AEC Albuquerque Operations Office, Albuquerque, New Mexico. December 1, 1961.

[f] = "The Effects of Nuclear Weapons" Rev.Ed. 1964.

Table 3 Summary of Analytical Procedures

Type of Analysis	Analytical Equipment	Counting Period (Min)	Analytical Procedures	Sample Size (Liter)	Detection Limit
Gamma Spectroscopy	Gamma spectrometer with 4-inch-thick by 4-inch diameter NaI (Tl-activated) crystal with input to 200 channels (0-2 MeV) of 400-channel, pulse-height analyzer.	40-100 for milk and water samples; 10 for air filters.	Radionuclide concentrations quantitated from gamma spectrometer data by computer using the matrix technique.	0.4-3.5 for milk and water samples; 350m^3 of air for filter samples.	For milk and water, generally $10x10^{-9}$ µCi/ml for most common fallout radionuclides in a simple spectrum. For air filters, $0.1x10^{-12}$µCi/ml.
^{89}Sr-^{90}Sr	Low-background-thin-window, gas-flow proportional counter with a 2.25" diameter window (80 µg/cm).	50	Chemical separation by ion exchange. Separated sample counted successively; activity calculated by simultaneous equations.	1.0	$^{89}Sr \simeq 5x10^{-9}$µCi/ml[a] $^{90}Sr \simeq 2x10^{-9}$µCi/ml[a]
^{3}H	Automatic liquid scintillation counter with output printer.	100	Sample prepared by distillation.	0.005	$\simeq 220x10^{-9}$µCi/ml[a]
^{238} ^{239}Pu, ^{234},^{235},^{238}U	Alpha spectrometer with 45 45 mm^2, 300 µm depletion depth silicon surface barrier detectors operated in vacuum chambers.	1000-1400	Sample is digested with acid, separated by ion exchange, electroplated on stainless steel planchet and counted by alpha spectrometer.	1	$^{238}Pu = 0.04 \times 10^{-9}$ µCi/ml[a] ^{239}Pu, ^{234}U, ^{235}U, $^{238}U = 0.02 \times 10^{-9}$ µCi/ml[a]

Table 3 Summary of Analytical Procedures
(Continued)

Type of Analysis	Analytical Equipment	Counting Period (Min)	Analytical Procedures	Sample Size (Liter)	Detection Limit
Gross alpha Gross beta in liquid samples	Low-level end window, gas flow proportional counter with a 2 1/4" diameter window. (80 $\mu g/cm^2$)	50	Sample evaporated; residue counted.	0.2	$\alpha \simeq 2 \times 10^{-9} \mu Ci/ml$[a] $\beta \simeq 2 \times 10^{-9} \mu Ci/ml$[a]
Gross beta on air filters	Low-level end window, gas flow proportional counter with a 5" diameter window (100 mg/cm^2)	5	Filters counted upon receipt and at 5 and 12 days after collection; last two counts used to extrapolate concentration to mid-collection time assuming $T^{-1.2}$ decay or using experimentally derived decay.	4" diameter glass fiber filter; sample collected from $\simeq 350 m^3$.	$0.06 \times 10^{-12} \mu Ci/ml$[b]
^{85}Kr Xe CH_3T	Automatic liquid scintillation counter with output printer.	50	Physical separation by gas chromatography; dissolved in toluene "cocktail" for counting.	400-1000	$^{85}Kr = 2 \times 10^{-12}$ $\mu Ci/ml$[a] Xe = 2×10^{-12} $\mu Ci/ml$[a] $CH_3T = 5 \times 10^{-12}$ $\mu Ci/ml$[a]

[a]The detection limit for a given sample is defined as that radioactivity which equals the 2-sigma counting error.

[b]Detection limit is defined as that concentration which produces a $\pm$25% counting deviation at the 95% confidence level.

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Kingman, AZ	364.4	gross β	34	<0.1	0.47
	8.0	^{95}Zr	1.1	0.1	0.014
	5.0	^{103}Ru	0.1	0.1	0.001
	3.0	^{131}I	0.4	0.2	0.002
	0.0	^{132}Te	ND	ND	ND
	5.0	^{140}Ba	0.4	0.1	0.004
	6.0	^{141}Ce	0.5	0.1	0.004
	6.0	^{239}Np	30	1.2	0.014
Phoenix, AZ	361.3	gross β	19	<0.1	0.48
	8.0	^{95}Zr	1.0	0.2	0.011
	3.0	^{103}Ru	0.2	0.1	0.001
	2.0	^{131}I	0.5	0.3	0.002
	1.0	^{132}Te	0.6	0.6	0.002
	3.0	^{140}Ba	0.5	0.1	0.002
	4.0	^{141}Ce	0.2	0.1	0.002
	6.0	^{239}Np	18	2.1	0.116
Seligman, AZ	360.0	gross β	83	<0.1	0.65
	3.0	^{95}Zr	1.3	0.2	0.007
	1.0	^{103}Ru	0.8	0.8	0.002
	1.0	^{131}I	1.3	1.3	0.004
	1.0	^{132}Te	1.0	1.0	0.003
	3.0	^{140}Ba	1.1	0.2	0.004
	1.0	^{141}Ce	0.3	0.3	0.001
	5.0	^{239}Np	81	0.8	0.262

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Winslow, AZ	364.7	gross β	32	<0.1	0.54
	4.0	^{95}Zr	0.8	0.2	0.005
	4.0	^{103}Ru	0.3	0.1	0.002
	2.0	^{131}I	0.6	0.2	0.002
	0.0	^{132}Te	ND	ND	ND
	2.0	^{140}Ba	0.6	0.2	0.002
	1.0	^{141}Ce	0.3	0.3	0.001
	6.0	^{239}Np	30	0.9	0.135
Little Rock, AR	277.9	gross β	1.8	<0.1	0.17
	1.0	^{95}Zr	0.7	0.7	0.002
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	1.0	^{141}Ce	0.4	0.4	0.001
	0.0	^{239}Np	ND	ND	ND
Baker, CA	363.0	gross β	10	<0.1	0.29
	3.1	^{95}Zr	0.2	0.2	0.002
	1.0	^{103}Ru	0.1	0.1	<0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	1.0	^{140}Ba	0.1	0.1	<0.001
	0.0	^{141}Ce	ND	ND	ND
	2.0	^{239}Np	9.6	7.0	0.046

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Barstow, CA	360.3	gross β	7.8	<0.1	0.34
	7.1	^{95}Zr	1.7	0.2	0.014
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	2.0	^{140}Ba	0.2	0.2	0.001
	3.0	^{141}Ce	0.6	0.2	0.003
	5.0	^{239}Np	7.2	0.8	0.037
Bishop, CA	362.4	gross β	43	<0.1	0.52
	2.0	^{95}Zr	2.1	0.2	0.006
	1.0	^{103}Ru	0.1	0.1	<0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	1.0	^{141}Ce	0.5	0.5	0.001
	2.0	^{239}Np	19	4.8	0.065
Death Valley Junction, CA	355.9	gross β	22	<0.1	0.43
	6.8	^{95}Zr	1.0	0.2	0.008
	2.1	^{103}Ru	0.2	0.1	0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	3.1	^{140}Ba	0.2	0.2	0.002
	2.8	^{141}Ce	0.3	0.2	0.002
	5.9	^{239}Np	9.9	1.7	0.083

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Furnace Creek, CA	357.5	gross β	110	<0.1	0.64
	4.0	^{95}Zr	1.5	0.1	0.008
	3.0	^{103}Ru	0.4	0.1	0.002
	2.0	^{131}I	0.8	0.2	0.003
	0.0	^{132}Te	ND	ND	ND
	3.0	^{140}Ba	0.6	0.1	0.002
	2.0	^{141}Ce	0.3	0.3	0.002
	4.0	^{239}Np	87	2.1	0.275
Indio, CA	361.1	gross β	110	<0.1	0.69
	3.0	^{95}Zr	2.4	0.3	0.011
	1.0	^{103}Ru	0.4	0.4	0.001
	2.0	^{131}I	1.0	0.2	0.003
	1.0	^{132}Te	0.4	0.4	0.001
	4.0	^{140}Ba	1.0	0.2	0.005
	1.0	^{141}Ce	0.4	0.4	0.001
	5.0	^{239}Np	120	1.8	0.392
Lone Pine, CA	357.2	gross β	45	<0.1	0.54
	4.0	^{95}Zr	0.8	0.5	0.008
	2.9	^{103}Ru	0.3	0.1	0.001
	2.9	^{131}I	0.5	0.1	0.002
	1.0	^{132}Te	0.6	0.6	0.002
	1.0	^{140}Ba	0.6	0.6	0.002
	0.0	^{141}Ce	ND	ND	ND
	7.9	^{239}Np	39	1.5	0.145

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Needles, CA	337.7	gross β	9.1	<0.1	0.42
	11.5	^{95}Zr	0.9	0.2	0.016
	9.9	^{103}Ru	0.1	0.08	0.003
	1.8	^{131}I	0.2	0.2	0.001
	0.0	^{132}Te	ND	ND	ND
	1.8	^{140}Ba	0.2	0.2	0.001
	9.7	^{141}Ce	0.3	0.1	0.004
	4.5	^{239}Np	8.5	1.0	0.056
Ridgecrest, CA	352.4	gross β	8.3	<0.1	0.31
	0.9	^{95}Zr	1.5	1.5	0.004
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	3.1	^{239}Np	6.5	2.6	0.37
Shoshone, CA	354.7	gross β	32	<0.1	0.41
	3.0	^{95}Zr	0.6	0.1	0.003
	1.0	^{103}Ru	0.2	0.2	0.001
	1.0	^{131}I	0.2	0.2	0.001
	1.0	^{132}Te	0.3	0.3	0.001
	1.0	^{140}Ba	0.2	0.2	0.001
	0.0	^{141}Ce	ND	ND	ND
	2.0	^{239}Np	9.4	4.6	0.038

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Denver, CO	365.0	gross β	42	<0.1	0.48
	4.0	^{95}Zr	1.6	0.6	0.009
	1.0	^{103}Ru	0.1	0.1	<0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	5.0	^{140}Ba	0.3	0.2	0.003
	4.0	^{141}Ce	0.7	0.2	0.004
	5.0	^{239}Np	6.2	3.9	0.064
Durango, CO	328.1	gross β	35	<0.1	0.52
	5.0	^{95}Zr	2.0	0.1	0.009
	1.0	^{103}Ru	0.1	0.1	<0.001
	1.0	^{131}I	0.2	0.2	0.001
	0.0	^{132}Te	ND	ND	ND
	2.0	^{140}Ba	0.2	0.2	0.001
	1.0	^{141}Ce	0.2	0.2	0.001
	4.0	^{239}Np	16	2.5	0.068
Boise, ID	364.7	gross β	17	<0.1	0.33
	2.0	^{95}Zr	0.3	0.2	0.001
	2.9	^{103}Ru	0.3	0.1	0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	1.0	^{140}Ba	0.4	0.4	0.001
	0.0	^{141}Ce	ND	ND	ND
	2.0	^{239}Np	12	6.6	0.050

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Idaho Falls, ID	353.1	gross β	10	<0.1	0.26
	6.3	^{95}Zr	1.1	0.1	0.011
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	5.3	^{141}Ce	0.2	0.1	0.002
	1.0	^{239}Np	9.1	9.1	0.025
Preston, ID	363.8	gross β	90	<0.1	0.54
	1.0	^{95}Zr	1.9	1.9	0.005
	2.0	^{103}Ru	0.1	0.1	0.001
	1.0	^{131}I	0.2	0.2	0.001
	1.0	^{132}Te	0.2	0.2	0.001
	1.0	^{140}Ba	0.3	0.3	0.001
	1.0	^{141}Ce	0.6	0.6	0.002
	3.0	^{239}Np	9.7	3.0	0.059
Twin Falls, ID	362.3	gross β	26	<0.1	0.36
	3.0	^{95}Zr	1.6	0.2	0.007
	1.0	^{103}Ru	0.3	0.3	0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	2.0	^{140}Ba	0.3	0.2	0.001
	1.0	^{141}Ce	0.5	0.5	0.001
	4.9	^{239}Np	8.6	2.6	0.061

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Iowa City, IA	348.8	gross β	2.2	<0.1	0.16
	0.0	^{95}Zr	ND	ND	ND
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND
Sioux City, IA	336.7	gross β	1.4	<0.1	0.17
	0.0	^{95}Zr	ND	ND	ND
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND
Dodge City, KS	365.1	gross β	3.1	<0.1	0.20
	0.0	^{95}Zr	ND	ND	ND
	1.3	^{103}Ru	0.1	0.1	<0.001
	1.3	^{131}I	0.1	0.1	<0.001
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	1.3	^{239}Np	3.0	3.0	0.010

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Lake Charles, LA	365.5	gross β	7.5	<0.1	0.23
	0.0	^{95}Zr	ND	ND	ND
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	3.0	^{140}Ba	0.06	0.06	<0.001
	0.0	^{141}Ce	ND	ND	ND
	3.0	^{239}Np	1.7	1.7	0.014
Monroe, LA	328.5	gross β	26	<0.1	0.24
	1.3	^{95}Zr	0.7	0.7	0.002
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	1.3	^{141}Ce	0.2	0.2	0.001
	1.3	^{239}Np	1.5	1.5	0.005
New Orleans, LA	360.5	gross β	4.5	<0.1	0.21
	1.0	^{95}Zr	0.5	0.5	0.001
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	1.0	^{141}Ce	0.3	0.3	0.001
	1.0	^{239}Np	0.5	0.5	0.001

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Minneapolis, MN	349.5	gross β	2.4	<0.1	0.15
	6.0	^{95}Zr	0.05	0.05	0.001
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND
Joplin, MO	356.2	gross β	5.7	<0.1	0.20
	1.0	^{95}Zr	1.4	1.4	0.004
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	1.0	^{141}Ce	0.1	0.1	<0.001
	0.0	^{239}Np	ND	ND	ND
St. Joseph, MO	366.0	gross β	2.4	<0.1	0.20
	3.0	^{95}Zr	1.0	0.2	0.004
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	1.0	^{140}Ba	0.2	0.2	0.001
	1.0	^{141}Ce	0.4	0.4	0.001
	2.0	^{239}Np	4.2	1.4	0.015

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
St. Louis, MO	358.1	gross β	2.7	<0.1	0.18
	0.9	^{95}Zr	1.5	1.5	0.004
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.9	^{141}Ce	0.3	0.3	0.001
	0.0	^{239}Np	ND	ND	ND
North Platte, NE	346.6	gross β	2.9	<0.1	0.21
	1.1	^{95}Zr	0.9	0.9	0.003
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	1.1	^{141}Ce	0.2	0.2	0.001
	3.0	^{239}Np	2.1	1.5	0.014
Alamo, NV	358.3	gross β	16	<0.1	0.35
	3.0	^{95}Zr	1.4	0.2	0.006
	0.0	^{103}Ru	ND	ND	ND
	1.0	^{131}I	0.2	0.2	0.001
	0.0	^{132}Te	ND	ND	ND
	1.0	^{140}Ba	0.3	0.3	0.001
	1.0	^{141}Ce	0.5	0.5	0.001
	4.1	^{239}Np	4.4	1.8	0.039

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Austin, NV	322.4	gross β	13	<0.1	0.29
	7.1	^{95}Zr	2.1	0.2	0.017
	4.1	^{103}Ru	0.2	0.1	0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	3.0	^{141}Ce	0.3	0.2	0.002
	2.0	^{239}Np	9.0	3.3	0.034
Battle Mountain, NV	361.7	gross β	11	<0.1	0.27
	0.8	^{95}Zr	0.3	0.3	0.001
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.8	^{141}Ce	0.2	0.2	<0.001
	0.0	^{239}Np	ND	ND	ND
Beatty, NV	361.5	gross β	13	<0.1	0.39
	3.0	^{95}Zr	0.5	0.1	0.002
	0.0	^{103}Ru	ND	ND	ND
	2.9	^{131}I	0.2	0.2	0.002
	2.0	^{132}Te	0.6	0.2	0.002
	3.0	^{140}Ba	0.2	0.2	0.002
	1.0	^{141}Ce	0.2	0.2	0.001
	5.0	^{239}Np	10	2.4	0.079

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Blue Jay, NV	363.6	gross β	19	<0.1	0.31
	3.0	^{95}Zr	1.4	0.3	0.005
	1.0	^{103}Ru	0.2	0.2	0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	1.0	^{140}Ba	0.2	0.2	0.001
	2.0	^{141}Ce	0.4	0.1	0.001
	2.0	^{239}Np	3.9	1.7	0.015
Caliente, NV	358.7	gross β	30	<0.1	0.41
	6.7	^{95}Zr	1.3	0.2	0.012
	3.8	^{103}Ru	0.2	0.1	0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	1.3	^{140}Ba	0.3	0.3	0.001
	4.8	^{141}Ce	0.6	0.2	0.004
	3.1	^{239}Np	5.0	2.2	0.032
	0.9	^{237}U	0.6	0.6	0.002
Currant, NV Blue Eagle Ranch	334.0	gross β	8.7	<0.1	0.32
	4.0	^{95}Zr	0.5	0.5	0.005
	4.0	^{103}Ru	0.1	0.1	0.001
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	4.0	^{141}Ce	0.1	0.1	0.001
	0.0	^{239}Np	ND	ND	ND

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Currant Ranch, NV	362.1	gross β	24	<0.1	0.35
	2.0	^{95}Zr	2.4	0.6	0.008
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	2.0	^{141}Ce	0.2	0.1	0.001
	1.0	^{239}Np	4.7	4.7	0.013
Currie, NV	346.6	gross β	22	<0.1	0.32
	3.0	^{95}Zr	1.2	0.1	0.005
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	2.0	^{141}Ce	0.1	0.1	0.001
	0.0	^{239}Np	ND	ND	ND
Diablo, NV	362.6	gross β	16	<0.1	0.32
	1.0	^{95}Zr	0.8	0.8	0.002
	0.0	^{103}Ru	ND	ND	ND
	1.0	^{131}I	0.1	0.1	<0.001
	0.0	^{132}Te	ND	ND	ND
	1.0	^{140}Ba	0.2	0.2	0.001
	1.0	^{141}Ce	0.3	0.3	0.001
	1.0	^{239}Np	0.9	0.9	0.002

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Duckwater, NV	334.4	gross β	14	<0.1	0.30
	3.5	^{95}Zr	0.5	0.2	0.004
	2.1	^{103}Ru	0.5	0.2	0.002
	2.1	^{131}I	1.3	0.4	0.005
	2.1	^{132}Te	2.9	0.7	0.010
	2.1	^{140}Ba	1.2	0.5	0.005
	0.0	^{141}Ce	ND	ND	ND
	1.4	^{239}Np	4.8	4.8	0.018
Elko, NV	352.0	gross β	8.3	<0.1	0.31
	7.3	^{95}Zr	2.8	0.1	0.016
	2.0	^{103}Ru	0.2	0.1	0.001
	3.2	^{131}I	0.7	0.2	0.003
	3.2	^{132}Te	1.1	0.4	0.005
	4.2	^{140}Ba	0.6	0.2	0.005
	2.0	^{141}Ce	0.9	0.8	0.005
	2.0	^{239}Np	6.2	1.9	0.022
Ely, NV	364.2	gross β	9.1	<0.1	0.26
	2.1	^{95}Zr	0.3	0.2	0.001
	2.1	^{103}Ru	0.4	0.3	0.002
	2.8	^{131}I	0.9	0.3	0.005
	2.1	^{132}Te	2.2	1.0	0.009
	2.1	^{140}Ba	1.0	0.4	0.004
	0.0	^{141}Ce	ND	ND	ND
	0.7	^{239}Np	2.1	2.1	0.004

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Eureka, NV	365.0	gross β	17	<0.1	0.34
	8.0	^{95}Zr	2.3	0.3	0.025
	2.0	^{103}Ru	0.1	0.1	0.001
	3.0	^{131}I	0.9	0.2	0.004
	3.0	^{132}Te	1.8	0.3	0.007
	5.0	^{140}Ba	1.0	0.2	0.005
	4.0	^{141}Ce	0.5	0.2	0.004
	4.0	^{239}Np	7.7	1.6	0.041
Fallon, NV	364.3	gross β	7.1	<0.1	0.28
	3.9	^{95}Zr	3.2	0.3	0.012
	2.0	^{103}Ru	0.2	0.1	0.001
	1.0	^{131}I	0.4	0.4	0.001
	3.0	^{132}Te	0.7	0.3	0.004
	1.9	^{140}Ba	0.5	0.3	0.002
	2.9	^{141}Ce	0.7	0.1	0.003
	1.0	^{239}Np	3.2	3.2	0.008
Frenchman Station, NV	339.0	gross β	9.2	<0.1	0.26
	3.9	^{95}Zr	1.2	0.1	0.005
	2.9	^{103}Ru	0.2	0.1	0.001
	2.8	^{131}I	0.5	0.1	0.003
	3.8	^{132}Te	1.1	0.2	0.007
	5.7	^{140}Ba	0.6	0.1	0.004
	1.0	^{141}Ce	0.4	0.4	0.001
	1.9	^{239}Np	3.6	1.2	0.013

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Geyser Maintenance Station, NV	338.2	gross β	12	<0.1	0.35
	6.3	^{95}Zr	1.5	0.2	0.009
	3.1	^{103}Ru	0.2	0.1	0.001
	3.1	^{131}I	0.7	0.2	0.004
	3.1	^{132}Te	1.6	0.2	0.008
	4.1	^{140}Ba	0.8	0.2	0.005
	2.2	^{141}Ce	0.4	0.2	0.002
	5.4	^{239}Np	16	1.5	0.084
Goldfield, NV	337.4	gross β	15	<0.1	0.31
	4.0	^{95}Zr	0.3	0.2	0.002
	1.0	^{103}Ru	0.3	0.3	0.001
	4.1	^{131}I	0.9	0.1	0.004
	2.0	^{132}Te	2.0	0.5	0.007
	3.0	^{140}Ba	1.3	0.2	0.005
	1.0	^{141}Ce	0.2	0.2	0.001
	3.0	^{239}Np	4.5	1.0	0.024
Groom Lake, NV	363.2	gross β	21	<0.1	0.38
	12.0	^{95}Zr	0.8	0.2	0.013
	4.0	^{103}Ru	0.2	0.1	0.002
	6.0	^{131}I	1.5	0.1	0.008
	6.0	^{132}Te	3.5	0.2	0.016
	9.9	^{140}Ba	2.0	0.1	0.011
	5.0	^{141}Ce	0.3	0.1	0.002
	7.0	^{239}Np	4.6	1.2	0.043

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Hiko, NV	332.4	gross β	18	<0.1	0.40
	9.0	^{95}Zr	1.0	0.1	0.010
	6.0	^{103}Ru	0.5	0.1	0.004
	7.0	^{131}I	1.2	0.2	0.007
	3.0	^{132}Te	2.3	0.2	0.008
	11.0	^{140}Ba	1.3	0.1	0.010
	2.0	^{141}Ce	0.4	0.2	0.002
	4.0	^{239}Np	11	2.4	0.055
Indian Springs, NV	351.2	gross β	25	<0.1	0.38
	9.0	^{95}Zr	1.5	0.1	0.012
	4.0	^{103}Ru	0.3	0.1	0.002
	7.0	^{131}I	1.4	0.1	0.007
	3.0	^{132}Te	3.6	0.5	0.013
	9.0	^{140}Ba	1.9	0.1	0.010
	2.0	^{141}Ce	0.6	0.2	0.002
	3.0	^{239}Np	14	3.2	0.083
	1.0	^{237}U	1.1	1.1	0.003
Las Vegas, NV	361.2	gross β	55	<0.1	0.52
	26.0	^{95}Zr	0.9	0.1	0.021
	20.9	^{103}Ru	0.5	0.05	0.007
	14.9	^{131}I	0.9	0.1	0.012
	7.0	^{132}Te	2.6	0.4	0.018
	15.9	^{140}Ba	1.1	0.1	0.012
	15.0	^{141}Ce	12	0.05	0.038
	10.0	^{239}Np	34	0.7	0.135

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Lathrop Wells, NV	359.6	gross β	27	<0.1	0.42
	9.0	^{95}Zr	2.0	0.1	0.013
	11.0	^{103}Ru	0.4	0.07	0.004
	14.0	^{131}I	1.9	0.1	0.011
	6.0	^{132}Te	4.6	0.1	0.016
	11.0	^{140}Ba	2.2	0.1	0.011
	4.0	^{141}Ce	0.4	0.07	0.003
	5.0	^{239}Np	9.0	1.2	0.057
Lida, NV	362.5	gross β	14	<0.1	0.43
	5.3	^{95}Zr	0.5	0.3	0.006
	4.3	^{103}Ru	0.4	0.1	0.003
	3.4	^{131}I	0.9	0.4	0.006
	3.4	^{132}Te	1.6	0.3	0.009
	3.4	^{140}Ba	0.9	0.3	0.006
	0.0	^{141}Ce	ND	ND	ND
	3.3	^{239}Np	26	2.5	0.116
Lovelock, NV	365.7	gross β	7.7	<0.1	0.30
	10.0	^{95}Zr	1.5	0.2	0.016
	4.0	^{103}Ru	0.2	0.1	0.002
	3.0	^{131}I	0.4	0.1	0.002
	3.0	^{132}Te	0.9	0.4	0.005
	6.0	^{140}Ba	0.6	0.2	0.005
	6.0	^{141}Ce	0.4	0.1	0.004
	3.0	^{239}Np	4.4	1.1	0.020

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Lund, NV	349.7	gross β	19	<0.1	0.35
	8.0	^{95}Zr	3.1	0.1	0.020
	6.0	^{103}Ru	0.3	0.1	0.002
	5.0	^{131}I	1.3	0.1	0.006
	3.0	^{132}Te	3.0	0.4	0.012
	6.1	^{140}Ba	1.5	0.1	0.009
	4.0	^{141}Ce	0.6	0.1	0.003
	2.0	^{239}Np	4.2	2.5	0.018
Mesquite, NV	364.7	gross β	8.4	<0.1	0.35
	12.0	^{95}Zr	0.6	0.1	0.009
	10.0	^{103}Ru	0.2	0.1	0.005
	9.0	^{131}I	0.4	0.2	0.006
	5.0	^{132}Te	1.1	0.3	0.009
	13.0	^{140}Ba	0.5	0.2	0.010
	5.0	^{141}Ce	0.3	0.2	0.003
	6.0	^{239}Np	7.7	2.1	0.068
Nyala, NV	347.7	gross β	22	<0.1	0.26
	1.0	^{95}Zr	0.8	0.8	0.002
	1.0	^{103}Ru	0.5	0.5	0.001
	3.0	^{131}I	1.5	0.2	0.005
	2.0	^{132}Te	2.9	0.4	0.009
	2.0	^{140}Ba	1.5	0.2	0.005
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Pahrump, NV	308.1	gross β	34	<0.1	0.38
	7.8	^{95}Zr	0.7	0.1	0.005
	13.0	^{103}Ru	0.6	0.06	0.005
	8.9	^{131}I	2.2	0.2	0.011
	7.0	^{132}Te	4.6	0.2	0.018
	11.7	^{140}Ba	2.7	0.1	0.014
	4.0	^{141}Ce	0.1	0.1	0.001
	9.1	^{239}Np	11	0.8	0.073
Pioche, NV	360.9	gross β	23	<0.1	0.38
	5.0	^{95}Zr	2.1	0.3	0.012
	3.0	^{103}Ru	0.3	0.1	0.001
	3.1	^{131}I	1.3	0.1	0.005
	3.1	^{132}Te	2.9	0.1	0.010
	5.2	^{140}Ba	1.7	0.1	0.007
	3.0	^{141}Ce	0.4	0.2	0.002
	9.0	^{239}Np	6.5	0.7	0.071
Reno, NV	364.8	gross β	6.2	<0.1	0.26
	3.0	^{95}Zr	0.2	0.1	0.001
	4.0	^{103}Ru	0.2	0.1	0.002
	3.9	^{131}I	0.3	0.1	0.002
	3.9	^{132}Te	0.8	0.3	0.005
	4.9	^{140}Ba	0.3	0.2	0.003
	0.0	^{141}Ce	ND	ND	ND
	1.0	^{239}Np	3.7	3.7	0.010

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Round Mountain, NV	360.5	gross β	41	<0.1	0.43
	5.2	^{95}Zr	1.3	0.5	0.012
	2.2	^{103}Ru	0.7	0.3	0.003
	2.2	^{131}I	2.0	1.3	0.010
	2.2	^{132}Te	5.0	2.7	0.022
	2.2	^{140}Ba	2.1	1.5	0.010
	3.0	^{141}Ce	0.4	0.2	0.002
	3.0	^{239}Np	6.5	1.0	0.030
Scotty's Junction, NV	359.3	gross β	13	<0.1	0.35
	4.0	^{95}Zr	0.4	0.2	0.003
	5.0	^{103}Ru	0.3	0.1	0.002
	5.0	^{131}I	0.9	0.2	0.006
	2.0	^{132}Te	1.7	1.1	0.008
	4.0	^{140}Ba	0.8	0.2	0.005
	2.0	^{141}Ce	0.1	0.1	0.001
	3.0	^{239}Np	4.9	3.2	0.035
Stone Cabin Ranch, NV	352.3	gross β	31	<0.1	0.34
	3.0	^{95}Zr	1.2	0.4	0.006
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	1.0	^{141}Ce	0.2	0.2	0.001
	1.0	^{239}Np	3.0	3.0	0.008

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Sunnyside, NV	357.9	gross β	10	<0.1	0.30
	5.4	^{95}Zr	0.6	0.1	0.004
	2.0	^{103}Ru	0.4	0.1	0.001
	4.4	^{131}I	0.6	0.2	0.004
	0.9	^{132}Te	1.4	1.4	0.004
	4.1	^{140}Ba	0.8	0.2	0.004
	0.0	^{141}Ce	ND	ND	ND
	3.4	^{239}Np	4.3	1.0	0.018
Tonopah, NV	365.0	gross β	13	<0.1	0.32
	3.0	^{95}Zr	0.5	0.3	0.003
	3.0	^{103}Ru	0.1	0.1	0.001
	4.0	^{131}I	0.8	0.2	0.004
	3.0	^{132}Te	1.7	0.2	0.008
	4.0	^{140}Ba	0.9	0.1	0.004
	1.0	^{141}Ce	0.2	0.2	0.001
	3.0	^{239}Np	4.6	1.5	0.028
Tonopah Test Range, NV	355.5	gross β	8.4	<0.1	0.29
	10.9	^{95}Zr	0.9	0.08	0.009
	6.0	^{103}Ru	0.2	0.1	0.002
	7.0	^{131}I	0.5	0.1	0.005
	2.0	^{132}Te	1.2	1.2	0.007
	4.1	^{140}Ba	0.7	0.1	0.004
	1.9	^{141}Ce	0.2	0.1	0.001
	2.9	^{239}Np	4.4	2.1	0.023

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Twin Springs Ranch (Fallini's), NV	347.2	gross β	16	<0.1	0.33
	4.0	^{95}Zr	0.4	0.2	0.004
	2.0	^{103}Ru	0.3	0.1	0.001
	4.0	^{131}I	1.1	0.2	0.006
	2.0	^{132}Te	2.5	0.6	0.009
	2.0	^{140}Ba	1.4	0.4	0.005
	1.0	^{141}Ce	0.3	0.3	0.001
	2.0	^{239}Np	3.5	1.8	0.014
Warm Springs, NV	181.1	gross β	0.9	<0.1	0.16[b]
	1.0	^{95}Zr	0.2	0.2	0.001[b]
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND
Warm Springs Ranch, NV	352.2	gross β	6.8	<0.1	0.32
	7.0	^{95}Zr	0.9	0.1	0.007
	5.0	^{103}Ru	0.3	0.1	0.003
	11.0	^{131}I	0.4	0.1	0.006
	4.0	^{132}Te	0.8	0.2	0.005
	11.0	^{140}Ba	0.4	0.1	0.007
	3.0	^{141}Ce	0.2	0.2	0.002
	5.0	^{239}Np	5.2	2.3	0.049

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Wells, NV	362.8	gross β	5.3	<0.1	0.27
	4.0	^{95}Zr	0.8	0.1	0.004
	1.0	^{103}Ru	0.2	0.2	0.001
	3.0	^{131}I	0.4	0.1	0.002
	3.0	^{132}Te	0.7	0.2	0.004
	3.0	^{140}Ba	0.4	0.3	0.003
	1.0	^{141}Ce	0.3	0.3	0.001
	0.0	^{239}Np	ND	ND	ND
Winnemucca, NV	365.6	gross β	6.6	<0.1	0.26
	5.0	^{95}Zr	0.8	0.1	0.007
	2.0	^{103}Ru	0.1	0.1	0.001
	2.0	^{131}I	0.4	0.2	0.002
	2.0	^{132}Te	0.7	0.5	0.003
	3.0	^{140}Ba	0.4	0.1	0.002
	2.0	^{141}Ce	0.2	0.2	0.001
	2.0	^{239}Np	2.5	0.8	0.009
Albuquerque, NM	351.9	gross β	47	<0.1	0.57
	17.9	^{95}Zr	1.6	0.09	0.031
	16.0	^{103}Ru	0.3	0.07	0.006
	9.0	^{131}I	3.1	0.1	0.014
	6.1	^{132}Te	6.5	0.2	0.025
	13.1	^{140}Ba	3.3	0.1	0.019
	9.9	^{141}Ce	0.5	0.1	0.008
	4.9	^{239}Np	22	2.2	0.095
	3.1	^{237}U	0.6	0.6	0.005

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Carlsbad, NM	360.9	gross β	21	<0.1	0.54
	12.0	^{95}Zr	1.8	0.2	0.019
	12.0	^{103}Ru	0.7	0.1	0.009
	10.0	^{131}I	0.9	0.1	0.012
	6.0	^{132}Te	2.2	0.3	0.018
	12.0	^{140}Ba	1.2	0.2	0.018
	4.0	^{141}Ce	0.6	0.2	0.005
	8.0	^{239}Np	26	0.9	0.246
Muskogee, OK	361.5	gross β	10	<0.1	0.20
	1.0	^{95}Zr	0.1	0.1	<0.001
	1.0	^{103}Ru	0.3	0.3	0.001
	3.0	^{131}I	0.8	0.1	0.003
	3.0	^{132}Te	1.6	0.2	0.006
	2.8	^{140}Ba	0.8	0.1	0.003
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND
Medford, OR	357.3	gross β	3.2	<0.1	0.16
	0.0	^{95}Zr	ND	ND	ND
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	2.1	^{239}Np	3.1	3.1	0.018

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Burns, OR	363.9	gross β	25	<0.1	0.29
	3.0	^{95}Zr	1.4	0.1	0.005
	2.0	^{103}Ru	0.2	0.2	0.001
	4.0	^{131}I	0.4	0.2	0.003
	2.0	^{132}Te	0.3	0.2	0.001
	5.0	^{140}Ba	0.4	0.2	0.004
	1.0	^{141}Ce	0.3	0.3	0.001
	2.0	^{239}Np	25	4.1	0.080
Aberdeen, SD	340.1	gross β	0.9	<0.1	0.15
	0.0	^{95}Zr	ND	ND	ND
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND
Rapid City, SD	365.0	gross β	1.5	<0.1	0.16
	0.0	^{95}Zr	ND	ND	ND
	0.0	^{103}Ru	ND	ND	ND
	0.0	^{131}I	ND	ND	ND
	0.0	^{132}Te	ND	ND	ND
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Abilene, TX	347.2	gross β	8.6	<0.1	0.31
	5.2	^{95}Zr	0.2	0.1	0.002
	5.1	^{103}Ru	0.3	0.1	0.003
	5.2	^{131}I	0.6	0.2	0.006
	1.2	^{132}Te	0.2	0.2	0.001
	7.1	^{140}Ba	0.8	0.2	0.008
	0.0	^{141}Ce	ND	ND	ND
	2.1	^{239}Np	7.2	6.9	0.041
Amarillo, TX	363.6	gross β	37	<0.1	0.37
	9.0	^{95}Zr	1.5	0.1	0.013
	6.0	^{103}Ru	0.9	0.1	0.005
	6.0	^{131}I	2.3	0.1	0.011
	6.0	^{132}Te	4.9	0.2	0.021
	9.0	^{140}Ba	2.6	0.1	0.015
	2.0	^{141}Ce	0.2	0.2	0.001
	5.0	^{239}Np	6.4	1.1	0.050
Austin, TX	329.6	gross β	23	<0.1	0.35
	12.0	^{95}Zr	0.7	0.1	0.010
	12.0	^{103}Ru	0.7	0.05	0.006
	4.0	^{131}I	1.3	0.7	0.010
	5.0	^{132}Te	3.2	0.3	0.022
	5.0	^{140}Ba	1.7	0.2	0.012
	4.0	^{141}Ce	0.08	0.08	0.001
	4.0	^{239}Np	0.8	0.8	0.009

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Ft Worth, TX	344.7	gross β	33	<0.1	0.32
	5.3	^{95}Zr	0.6	0.1	0.005
	2.1	^{103}Ru	0.6	0.1	0.002
	3.1	^{131}I	1.6	0.2	0.006
	4.2	^{132}Te	4.3	0.3	0.015
	4.2	^{140}Ba	2.0	0.2	0.008
	2.2	^{141}Ce	0.2	0.1	0.001
	1.0	^{239}Np	2.4	2.4	0.007
Bryce Canyon, UT	342.7	gross β	23	<0.1	0.42
	11.1	^{95}Zr	1.1	0.1	0.011
	6.1	^{103}Ru	0.7	0.08	0.003
	4.1	^{131}I	1.5	0.3	0.007
	4.1	^{132}Te	3.0	0.7	0.015
	4.1	^{140}Ba	1.6	0.3	0.007
	7.0	^{141}Ce	0.2	0.06	0.002
	3.2	^{239}Np	4.5	2.7	0.029
Cedar City, UT	363.6	gross β	11	<0.1	0.38
	6.8	^{95}Zr	0.5	0.1	0.005
	3.0	^{103}Ru	0.2	0.1	0.001
	6.0	^{131}I	1.3	0.2	0.007
	4.0	^{132}Te	1.5	0.1	0.009
	8.9	^{140}Ba	1.5	0.1	0.010
	1.9	^{141}Ce	0.2	0.1	0.001
	4.9	^{239}Np	10	1.2	0.057

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Delta, UT	362.9	gross β	16	<0.1	0.35
	6.2	^{95}Zr	1.9	0.2	0.014
	3.0	^{103}Ru	0.6	0.2	0.003
	4.0	^{131}I	0.9	0.2	0.006
	3.0	^{132}Te	2.5	0.2	0.011
	4.1	^{140}Ba	1.0	0.2	0.005
	2.1	^{141}Ce	0.5	0.4	0.003
	3.1	^{239}Np	6.2	2.2	0.007
Dugway, UT	362.6	gross β	17	<0.1	0.29
	2.7	^{95}Zr	0.2	0.2	0.001
	1.7	^{103}Ru	0.2	0.1	0.001
	3.7	^{131}I	0.8	0.2	0.004
	1.7	^{132}Te	2.4	0.3	0.005
	2.7	^{140}Ba	1.0	0.2	0.003
	0.0	^{141}Ce	ND	ND	ND
	1.0	^{239}Np	2.5	2.5	0.007
Enterprise, UT	363.2	gross β	13	<0.1	0.35
	10.2	^{95}Zr	1.0	0.1	0.010
	7.1	^{103}Ru	0.2	0.1	0.003
	7.1	^{131}I	0.6	0.1	0.005
	3.0	^{132}Te	1.5	0.2	0.006
	9.0	^{140}Ba	1.0	0.2	0.009
	4.1	^{141}Ce	0.2	0.1	0.002
	5.0	^{239}Np	11	1.2	0.053

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Garrison, UT	365.0	gross β	14	<0.1	0.32
	3.0	^{95}Zr	0.6	0.2	0.003
	2.0	^{103}Ru	0.3	0.2	0.001
	4.0	^{131}I	0.6	0.2	0.005
	3.0	^{132}Te	1.8	1.0	0.011
	4.0	^{140}Ba	1.0	0.3	0.007
	0.0	^{141}Ce	ND	ND	ND
	1.0	^{239}Np	3.3	3.3	0.009
Logan, UT	360.4	gross β	64	<0.1	0.46
	5.0	^{95}Zr	1.2	0.3	0.010
	1.0	^{103}Ru	1.4	1.4	0.004
	3.1	^{131}I	3.7	0.2	0.012
	3.1	^{132}Te	10	0.2	0.031
	5.1	^{140}Ba	4.2	0.1	0.015
	2.0	^{141}Ce	0.5	0.1	0.002
	3.0	^{239}Np	3.9	1.7	0.022
Milford, UT	359.0	gross β	12	<0.1	0.35
	7.1	^{95}Zr	2.0	0.2	0.011
	5.0	^{103}Ru	0.5	0.1	0.003
	5.0	^{131}I	0.8	0.2	0.005
	2.0	^{132}Te	1.8	0.7	0.007
	6.0	^{140}Ba	0.9	0.2	0.007
	2.0	^{141}Ce	0.4	0.3	0.002
	5.0	^{239}Np	10	1.1	0.048

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Monticello, UT	286.9	gross β	23	<0.1	0.47
	9.0	^{95}Zr	0.5	0.1	0.007
	8.0	^{103}Ru	0.5	0.1	0.004
	6.0	^{131}I	1.3	0.2	0.008
	6.0	^{132}Te	2.9	0.2	0.018
	9.0	^{140}Ba	1.3	0.2	0.011
	1.0	^{141}Ce	0.3	0.3	0.001
	6.1	^{239}Np	5.2	1.2	0.045
Parowan, UT	334.7	gross β	20	<0.1	0.40
	8.0	^{95}Zr	2.6	0.1	0.017
	6.0	^{103}Ru	0.5	0.1	0.004
	4.0	^{131}I	0.8	0.2	0.005
	2.0	^{132}Te	1.2	1.0	0.006
	7.0	^{140}Ba	1.0	0.2	0.007
	4.0	^{141}Ce	0.5	0.3	0.004
	6.0	^{239}Np	8.2	1.5	0.065
Provo, UT	359.6	gross β	49	<0.1	0.47
	5.9	^{95}Zr	0.8	0.2	0.007
	4.0	^{103}Ru	0.4	0.1	0.003
	6.0	^{131}I	2.7	1.0	0.031
	4.0	^{132}Te	7.7	0.3	0.027
	5.0	^{140}Ba	3.0	0.1	0.012
	1.0	^{141}Ce	0.2	0.2	0.001
	1.0	^{239}Np	3.9	3.9	0.011

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Roosevelt, UT	358.2	gross β	55	<0.1	0.43
	8.0	^{95}Zr	1.0	0.2	0.010
	5.0	^{103}Ru	0.9	0.1	0.004
	6.0	^{131}I	2.6	0.3	0.013
	6.0	^{132}Te	7.2	0.2	0.026
	6.0	^{140}Ba	3.1	0.2	0.013
	3.0	^{141}Ce	0.2	0.2	0.002
	2.0	^{239}Np	6.2	1.4	0.021
	1.0	^{237}U	0.5	0.5	0.001
St. George, UT	363.4	gross β	17	<0.1	0.39
	5.0	^{95}Zr	0.4	0.2	0.004
	3.9	^{103}Ru	0.3	0.2	0.002
	5.0	^{131}I	1.1	0.2	0.006
	3.0	^{132}Te	2.5	0.7	0.012
	8.8	^{140}Ba	1.2	0.02	0.009
	1.1	^{141}Ce	0.1	0.1	<0.001
	3.8	^{239}Np	4.7	1.9	0.037
Salt Lake City, UT	363.5	gross β	68	<0.1	0.47
	6.0	^{95}Zr	1.7	0.1	0.012
	3.9	^{103}Ru	1.2	0.1	0.004
	5.9	^{131}I	3.3	0.9	0.028
	4.9	^{132}Te	9.6	0.1	0.031
	4.9	^{140}Ba	4.4	0.1	0.016
	2.0	^{141}Ce	0.4	0.3	0.002
	1.0	^{239}Np	2.9	2.9	0.008

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12} uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Wendover, UT	338.8	gross β	15	<0.1	0.36
	9.0	^{95}Zr	1.3	0.1	0.011
	5.0	^{103}Ru	0.2	0.1	0.002
	6.0	^{131}I	0.6	0.2	0.006
	4.0	^{132}Te	1.8	0.4	0.011
	6.0	^{140}Ba	0.7	0.2	0.006
	2.0	^{141}Ce	0.4	0.2	0.002
	2.0	^{239}Np	3.8	3.7	0.020
Seattle, WA	364.3	gross β	22	<0.1	0.13
	0.0	^{95}Zr	ND	ND	ND
	0.0	^{103}Ru	ND	ND	ND
	1.0	^{131}I	0.2	0.2	0.001
	1.0	^{132}Te	0.2	0.2	0.001
	0.0	^{140}Ba	ND	ND	ND
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND
Spokane, WA	343.0	gross β	1.4	<0.1	0.08
	3.0	^{95}Zr	0.05	0.05	<0.001
	3.0	^{103}Ru	0.03	0.03	<0.001
	3.0	^{131}I	0.06	0.06	<0.001
	3.0	^{132}Te	0.09	0.09	0.001
	3.0	^{140}Ba	0.05	0.05	<0.001
	0.0	^{141}Ce	ND	ND	ND
	3.0	^{239}Np	1.0	1.0	0.008

Table 4 1972 Summary of Analytical Results for the Air Surveillance Network

Sampling Location	No. Days Sampled[a]	Type of Radioactivity	Radioactivity Concentration 10^{-12}uCi/ml or pCi/m^3 C_{max}	C_{min}	C_{avg}
Rock Springs, WY	360.6	gross β	91	<0.1	0.57
	4.0	^{95}Zr	1.0	0.2	0.006
	4.0	^{103}Ru	0.7	0.1	0.003
	6.0	^{131}I	3.0	0.3	0.018
	3.0	^{132}Te	11	0.7	0.036
	4.0	^{140}Ba	4.5	0.3	0.016
	1.0	^{141}Ce	0.2	0.2	0.001
	2.0	^{239}Np	13	3.5	0.045
Worland, WY	346.6	gross β	3.9	<0.1	0.20
	0.0	^{95}Zr	ND	ND	ND
	0.0	^{103}Ru	ND	ND	ND
	1.0	^{131}I	0.2	0.2	0.001
	1.0	^{132}Te	0.4	0.4	0.001
	1.0	^{140}Ba	0.1	0.1	<0.001
	0.0	^{141}Ce	ND	ND	ND
	0.0	^{239}Np	ND	ND	ND

[a] For gross beta, this number represents the number of days of the year that the sampler was operated. For radionuclides, this number represents the number of sampling days of the year during which the radionuclide was detected.

[b] Since station operated only during six months of the year, the average was computed over 181 days instead of 366 days.

Table 5 1972 Summary of Analytical Results

for the Noble Gas and Tritium Sampling Network

Sampling Location	No. Days Sampled	Type of Radio-activity	Units	Radioactivity Concentrations C_{max}	C_{min}	C_{avg}
Hiko, NV	189.9	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	19	12	15.7
	195.8	^{133}Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	570	< 2	<33.1
	153.0	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 5	< 5.00
	212.1	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	0.98	< 0.20	< 0.422
	205.0	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	13	< 1.0	< 4.42
	112.8	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	18	< 0.45	< 4.10
Las Vegas, NV NVOO	207.3	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	18	10	15.8
	234.5	Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 2	< 2	< 2.00
	201.7	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 5	< 5.00
	260.0	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	1.40	< 0.22	< 0.513
	260.0	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	12	< 0.33	< 4.66
	174.8	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	14	0.50	< 5.21
Tonopah, NV	234.9	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	21	12	16.0
	259.4	Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 2	< 2	< 2.00
	251.4	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 5	< 5.00
	252.6	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	1.1	< 0.20	< 0.503
	252.6	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	7	< 0.64	< 3.00
	162.2	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	11	0.46	< 4.01

Table 5 1972 Summary of Analytical Results

for the Noble Gas and Tritium Sampling Network

Sampling Location	No. Days Sampled	Type of Radio-activity	Units	Radioactivity Concentrations C_{max}	C_{min}	C_{avg}
Death Valley Jct., CA	208.7	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	25	10	15.6
	236.6	Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 2	< 2	< 2.00
	221.6	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 2	< 4.89
	238.7	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	0.94	0.21	< 0.472
	238.7	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	7.1	1.0	< 2.89
	170.6	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	11	1.4	< 4.49
Beatty, NV	190.7	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	22	12	16.0
	210.5	^{133}Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	17	< 2	< 2.57
	182.5	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 5	< 5.00
	231.7	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	1	0.24	< 0.570
	225.7	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	9.4	0.86	< 4.08
	100.0	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	8.6	1.3	< 4.04
Diablo, NV	210.3	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	22	12	16.3
	210.3	^{133}Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	33	< 2	< 2.86
	204.6	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 5	< 5.00
	233.7	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	0.96	< 0.25	< 0.52
	220.6	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	13	< 0.92	< 4.20
	105.6	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	16	0.65	< 5.31

Table 5 1972 Summary of Analytical Results

for the Noble Gas and Tritium Sampling Network

Sampling Location	No. Days Sampled	Type of Radio-activity	Units	Radioactivity Concentrations C_{max}	C_{min}	C_{avg}
NTS, NV Desert Rock	237.4	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	25	12	15.9
	250.5	^{133}Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	30	< 2	< 2.78
	223.6	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 5	< 5.00
	223.4	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	1.6	0.27	< 0.548
	223.4	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	15	0.71	< 3.83
	134.6	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	12	< 0.50	< 4.48
NTS, NV BJY	278.6	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	23	12	16.7
	291.7	^{133}Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	530	< 2	< 36.0
	237.8	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 5	< 5.00
	284.8	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	15	< 0.22	< 3.37
	284.8	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	75	< 0.26	< 20.1
	188.1	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	23	0.92	5.95
NTS, NV Gate 700	252.4	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	23	13	15.8
	246.4	Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 2	< 2	< 2.00
	217.7	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 5	< 5.00
	201.7	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	2.7	0.23	< 0.826
	201.7	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	15	< 0.83	< 5.20
	120.8	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	11.6	1.1	5.36

Table 5 1972 Summary of Analytical Results

for the Noble Gas and Tritium Sampling Network

Sampling Location	No. Days Sampled	Type of Radio-activity	Units	Radioactivity Concentrations C_{max}	C_{min}	C_{avg}
NTS, NV Area 12	244.4	^{85}Kr	$10^{-12}\mu Ci/ml$ or pCi/m^3	23	11	15.6
	270.4	^{133}Xe	$10^{-12}\mu Ci/ml$ or pCi/m^3	14	< 2	< 2.38
	217.4	CH_3T	$10^{-12}\mu Ci/ml$ or pCi/m^3	< 5	< 5	< 5.00
	257.0	^{3}H	10^{-6} $\mu Ci/ml$ or pCi/ml	130	3.4	30.3
	257.0	HTO	$10^{-12}\mu Ci/ml$ or pCi/m^3	910	18	221.
	167.6	HT	$10^{-12}\mu Ci/ml$ or pCi/m^3	20	2.5	6.77

Table 6 1972 Summary of Background Radiation Doses for the Dosimetry Network

Station Location	Map No.	Measurement Period	Background Dose Equivalent Rate (mrem/d) Max.	Min.	Avg.	Annual Adjusted Background Dose Equivalent (mrem/a)
Adaven, NV	1	1/10/72 - 1/17/73	0.7	0.4	0.54	200
Alamo, NV	2	1/10/72 - 1/8/73	0.5	0.3	0.38	140
Ash Meadows, NV	3	1/5/72 - 1/9/73	0.4	0.3	0.34	120
Austin, NV	4	1/12/72 - 1/16/73	0.8	0.4	0.56	200
Baker, CA	5	1/5/72 - 1/2/73	0.5	0.2	0.29	110
Barstow, CA	6	1/5/72 - 1/2/73	0.7	0.2	0.39	140
Beatty, NV	7	1/6/72 - 1/10/73	0.6	0.4	0.47	170
Beaver Dam Summit, UT	8	1/10/72 - 1/8/73	0.4	0.2	0.28	100
Big Pine, CA	9	1/6/72 - 1/3/73	0.6	0.2	0.38	140
Bishop, CA	10	1/6/72 - 1/3/73	0.6	0.3	0.41	150
Blue Eagle Ranch, NV	11	1/13/72 - 1/10/73	0.5	0.2	0.29	110
Blue Jay, NV	12	1/11/72 - 1/11/73	0.7	0.4	0.47	170
Sheri's Bar, NV	13	1/10/72 - 1/8/73	0.5	0.2	0.31	110
Cactus Springs, NV	14	1/6/72 - 1/10/73	0.4	0.2	0.28	100
Caliente, NV	15	1/11/72 - 1/10/73	0.7	0.3	0.45	160
Casey's Ranch, NV	16	1/11/72 - 1/16/73	0.5	0.3	0.34	120
Cedar City, UT	17	1/11/72 - 1/9/73	0.4	0.2	0.30	110
Clark Station, NV	18	1/11/72 - 1/10/73	0.5	0.3	0.46	170
Coyote Summit, NV	19	1/10/72 - 1/10/73	0.6	0.4	0.48	180
Currant, NV	20	1/13/72 - 1/10/73	0.6	0.3	0.37	140
Currant Maint. Sta., NV	21	1/13/72 - 1/10/73	0.6	0.3	0.38	140
Death Valley Jct., CA	22	1/5/72 - 1/4/73	0.5	0.3	0.35	130
Desert Game Range, NV	23	1/6/72 - 1/11/73	0.3	0.2	0.25	92
Diablo Maint. Sta., NV	24	1/10/72 - 1/10/73	0.6	0.4	0.53	190
Duckwater, NV	25	1/13/72 - 1/10/73	0.7	0.2	0.37	140
Elgin, NV	26	1/12/72 - 1/10/73	0.7	0.3	0.49	180
Ely, NV	27	1/11/72 - 1/9/73	0.9	0.3	0.50	180
Eureka Maint. Sta., NV	28	1/12/72 - 1/9/73	0.6	0.3	0.37	140
Furnace Creek, CA	29	1/6/72 - 1/4/73	0.6	0.2	0.32	120

Table 6 1972 Summary of Background Radiation Doses for the Dosimetry Network

Station Location	Map No.	Measurement Period	Background Dose Equivalent Rate (mrem/d) Max.	Min.	Avg.	Annual Adjusted Background Dose Equivalent (mrem/a)
Gardner Ranch, NV	30	1/13/72 - 1/10/73	0.6	0.4	0.45	160
Garrison, UT	31	1/12/72 - 1/12/73	0.7	0.3	0.36	130
Geyser Maint. Sta., NV	32	1/10/72 - 1/8/73	0.6	0.3	0.38	140
Goldfield, NV	33	1/11/72 - 1/15/73	0.6	0.3	0.38	140
Groom Lake, NV	34	1/10/72 - 1/10/73	0.6	0.2	0.31	110
Hancock Summit, NV	35	1/10/72 - 1/10/73	0.7	0.4	0.55	200
Hiko, NV	36	1/10/72 - 1/8/73	0.6	0.2	0.36	130
Hot Creek Ranch, NV	37	1/11/72 - 1/11/73	0.6	0.3	0.38	140
Independence, CA	38	1/6/72 - 1/3/73	0.6	0.3	0.38	140
Indian Springs, NV	39	1/6/72 - 1/11/73	0.8	0.2	0.34	120
Koynes, NV	40	1/10/72 - 1/10/73	0.5	0.3	0.35	130
Las Vegas (Placak), NV	41	1/12/72 - 1/12/73	0.4	0.2	0.23	84
Las Vegas (USDI), NV	42	1/7/72 - 1/12/73	0.5	0.2	0.25	92
Lathrop Wells, NV	43	1/5/72 - 1/9/73	0.6	0.4	0.45	160
Littlefield, AZ	44	1/10/72 - 1/8/73	0.4	0.2	0.33	120
Lockes Ranch, NV	45	1/13/72 - 1/10/73	0.6	0.3	0.39	140
Logandale, NV	46	1/10/72 - 1/8/73	0.4	0.3	0.33	120
Lone Pine, CA	47	1/6/72 - 1/3/73	0.6	0.2	0.38	140
Lida, NV	48	1/10/72 - 1/15/73	0.6	0.3	0.37	140
Lida Junction, NV	49	1/10/72 - 1/15/73	0.7	0.3	0.47	170
Lund, NV	50	1/11/72 - 1/11/73	0.6	0.2	0.32	120
Manhattan, NV	51	1/12/72 - 1/16/73	0.7	0.3	0.43	160
Mesquite, NV	52	1/10/72 - 1/8/73	0.4	0.2	0.28	100
Milford, UT	53	2/9/72 - 1/9/73	0.5	0.3	0.39	140
Modena, UT	54	1/11/72 - 1/9/73	0.7	0.4	0.53	190
Nevada Farms, NV	55	1/10/72 - 1/10/73	0.6	0.4	0.49	180
Newcastle, UT	56	1/11/72 - 1/9/73	0.6	0.4	0.43	160
Nuclear Eng. Co., NV	57	1/6/72 - 1/10/73	1.6	0.3	0.52	190
Nyala, NV	62	1/11/72 - 1/16/73	0.6	0.3	0.39	140

Table 6 1972 Summary of Background Radiation Doses for the Dosimetry Network

Station Location	Map No.	Measurement Period	Background Dose Equivalent Rate (mrem/d) Max.	Min.	Avg.	Annual Adjusted Background Dose Equivalent (mrem/a)
Olancha, CA	63	1/6/72 - 1/3/73	0.6	0.2	0.35	130
Pahrump, NV	64	1/4/72 - 1/8/73	0.5	0.2	0.33	120
Pine Creek Ranch, NV	65	1/10/72 - 1/17/73	0.6	0.4	0.53	190
Pioche, NV	66	1/11/72 - 1/9/73	0.6	0.3	0.39	140
Queen City Summit, NV	67	1/10/72 - 1/10/73	0.7	0.4	0.51	190
Randsburg, CA	68	1/6/72 - 1/3/73	0.6	0.2	0.33	120
Reed Ranch, NV	69	1/10/72 - 1/10/73	0.6	0.4	0.44	160
Ridgecrest, CA	70	1/6/72 - 1/3/73	0.6	0.2	0.32	120
Round Mountain, NV	71	1/12/72 - 1/16/73	0.9	0.3	0.49	180
St. George, UT	72	1/11/72 - 1/8/73	0.4	0.2	0.26	95
Scotty's Junction, NV	73	1/10/72 - 1/15/73	0.6	0.3	0.48	180
Selbach Ranch, NV	74	1/5/72 - 1/9/73	0.6	0.3	0.46	170
Shell Oil Site, NV	75	1/13/72 - 1/10/73	0.5	0.2	0.28	100
Shoshone, CA	76	1/4/72 - 1/2/73	0.7	0.4	0.46	170
Site C, NV	77	1/11/72 - 1/11/73	0.6	0.3	0.43	160
Springdale, NV	78	1/5/72 - 1/10/73	0.6	0.4	0.51	190
Spring Meadows, NV	79	1/5/72 - 1/9/73	0.4	0.3	0.34	120
Sunnyside, NV	80	1/11/72 - 1/11/73	0.6	0.3	0.36	130
Tempiute, NV	81	1/10/72 - 1/10/73	0.6	0.3	0.43	160
Tonopah, NV	82	1/11/72 - 1/17/73	0.8	0.3	0.48	180
Tonopah (Airport), NV	83	1/11/72 - 1/17/73	0.7	0.3	0.40	150
Tonopah Test Range, NV	84	1/11/72 - 1/17/73	0.6	0.3	0.36	130
Twin Springs Ranch, NV	85	1/10/72 - 1/11/73	0.6	0.3	0.43	160
Ursine, NV	86	1/11/72 - 1/9/73	0.7	0.4	0.47	170
Valley of Fire, NV	87	1/10/72 - 1/8/73	0.5	0.3	0.31	110
Warm Springs, NV	88	1/11/72 - 1/11/73	0.6	0.4	0.48	180
Warm Springs Ranch, NV	89	1/10/72 - 1/8/73	0.5	0.2	0.30	110
Mammoth Lake, CA	90	5/9/72 - 1/4/73	0.7	0.4	0.53	190

Table 6 1972 Summary of Background Radiation Doses for the Dosimetry Network

Station Location	Map No.	Measurement Period	Background Dose Equivalent Rate (mrem/d) Max.	Min.	Avg.	Annual Adjusted Background Dose Equivalent (mrem/a)
Montgomery Pass, NV	[a]	1/6/72 -4/5/72	0.5	0.5	0.48	180
Las Vegas (Airport), NV	[b]	1/25/72 - 11/14/72	0.4	0.2	0.23	84

[a] = Station was deleted in April due to frequent theft of TLD's.

[b] = Map reference not included until January 1973.

Table 7 Anomalous TLD Readings in 1972

Personnel TLD's

Personnel Location	Map No.	Measurement Period Issue Date	Collection Date	TLD Readings (mrem)
Beatty, NV	7	1/5/72	2/8/72	13,000
		3/8/72	4/12/72	70
Caliente, NV	15	1/11/72	2/10/72	57
		3/8/72	4/5/72	150
St. George, UT	72	3/14/72	4/5/72	48
Goldfield, NV	33	7/31/72	9/5/72	460

Station TLD's

Station Location	Map No.	Measurement Period Issue Date	Collection Date		TLD Readings (mrem)	
Lida Junction, NV	49	2/8/72	3/6/72	12	90[a]	14
Manhattan, NV	51	3/8/72	4/5/72	15	16	34[a]
Nuclear Eng. Co., NV	57	3/8/72	4/11/72	21	20	180[a]
		4/11/72	5/3/72	32	51[a]	25
		11/29/72	1/10/73	11	11	200[a]
Site C, NV	77	5/3/72	5/31/72	15	87[a]	1,300[a]
Scotty's Junction, NV	73	5/5/72	5/30/72	16	150[a]	16
Groom Lake, NV	34	7/5/72	7/31/72	7	230[a]	8
Modena, UT	54	9/6/72	10/3/72	13	13	87[a]
Garrison, UT	31	9/6/72	10/2/72	8	840[a]	1,100[a]
Furnace Creek, CA	29	9/8/72	10/13/72	10	10	63[a]
Shoshone, CA	76	9/8/72	10/13/72	14	15	54[a]

[a] = Anomalous values

Table 8 1972 Summary of Analytical Results for the Milk Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9}μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}
Bishop, CA Sierra Farms	5	11	12	^{137}Cs	<10	<10	<10
			12	^{89}Sr	<5	<2	<2.4
			12	^{90}Sr	4	<1	<2.2
			0	^{3}H	NA	NA	NA
Hinkley, CA Bill Nelson Dairy	13	12	12	^{137}Cs	<10	<10	<10
			12	^{89}Sr	2	<1	<1.8
			12	^{90}Sr	2	<1	<1.1
			0	^{3}H	NA	NA	NA
Independence, CA Smith Ranch	14	13	11	^{137}Cs	<100	<10	<30
			11	^{89}Sr	6	<2	<2.5
			11	^{90}Sr	4	<1	<2.0
			0	^{3}H	NA	NA	NA
Olancha, CA Hunter Ranch	30	13	8	^{137}Cs	<100	<10	<40
			8	^{89}Sr	<3	<2	<2.1
			8	^{90}Sr	4	<1	<2.3
			0	^{3}H	NA	NA	NA
Alamo, NV Williams Dairy	1	12	12	^{137}Cs	10	<10	<10
			12	^{89}Sr	4	<2	<2.3
			12	^{90}Sr	4	<1	<2.5
			0	^{3}H	NA	NA	NA
Austin, NV Young's Ranch	3	13	4	^{137}Cs	<10	<10	<10
			4	^{89}Sr	<3	<2	<2.3
			4	^{90}Sr	5	2	3.0
			0	^{3}H	NA	NA	NA

Table 8 1972 Summary of Analytical Results for the Milk Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9}μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}
Austin, NV Triple T Ranch	2	13	6	^{137}Cs	10	<10	<10
			6	^{89}Sr	6	<2	<2.7
			6	^{90}Sr	7	<1	<3.0
			6	^{3}H	850	350	600
Belmont, NV Pine Creek Ranch	4	13	6	^{137}Cs	<100	10	<30
			6	^{89}Sr	<6	<2	<3.7
			6	^{90}Sr	8	2	4.8
			0	^{3}H	NA	NA	NA
Caliente, NV Tennille Ranch	6	13	6	^{137}Cs	<10	<10	<10
			6	^{89}Sr	5	<2	<3.2
			6	^{90}Sr	4	1	<2.3
			0	^{3}H	NA	NA	NA
Currant, NV Blue Eagle Ranch	7	13	8	^{137}Cs	100	<10	<40
			8	^{89}Sr	3	<2	<2.4
			8	^{90}Sr	6	1	3.5
			0	^{3}H	NA	NA	NA
Duckwater, NV Halstead Ranch	8	13	8	^{137}Cs	<100	<10	<20
			8	^{89}Sr	6	<2	<2.6
			8	^{90}Sr	7	<1	<3.3
			0	^{3}H	NA	NA	NA
Eureka, NV Martin Ranch	10	13	12	^{137}Cs	<100	<10	<20
			12	^{89}Sr	7	<3	<4.3
			12	^{90}Sr	11	4	6.7
			0	^{3}H	NA	NA	NA

Table 8 1972 Summary of Analytical Results for the Milk Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. $10^{-9}\mu Ci/ml$ or pCi/l C_{max}	C_{min}	C_{avg}
Hiko, NV Schofield Dairy	12	12	12	^{137}Cs	10	<10	<10
			12	^{89}Sr	3	<2	<2.1
			12	^{90}Sr	5	<1	<2.4
			12	^{3}H	840	200	<290
Indian Springs, NV Cambern Ranch	16	13	2	^{137}Cs	<10	<10	<10
			2	^{89}Sr	1	<1	<1.0
			2	^{90}Sr	<1	<1	<1.0
			0	^{3}H	NA	NA	NA
Indian Springs, NV Indian Springs Rch	15	13	3	^{137}Cs	<10	<10	<10
			3	^{89}Sr	<2	1	<1.7
			3	^{90}Sr	4	<1	<2.0
			0	^{3}H	NA	NA	NA
Las Vegas, NV Anderson Dairy	17	11	11	^{137}Cs	<10	<10	<10
			11	^{89}Sr	2	<2	<2.0
			11	^{90}Sr	3	<1	<1.8
			0	^{3}H	NA	NA	NA
Las Vegas, NV Arden Dairy	18	11	11	^{137}Cs	<10	<10	<10
			10	^{89}Sr	2	<2	<2.0
			10	^{90}Sr	3	<1	<1.6
			0	^{3}H	NA	NA	NA
Las Vegas, NV LDS Dairy Farms	19	12	11	^{137}Cs	<10	<10	<10
			11	^{89}Sr	<2	<1	<1.9
			11	^{90}Sr	3	<1	<1.6
			11	^{3}H	<290	<190	<230

Table 8 1972 Summary of Analytical Results for the Milk Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. $10^{-9}\mu Ci/ml$ or pCi/l C_{max}	C_{min}	C_{avg}
Lathrop Wells, NV Mills Ranch	20	13	8	^{137}Cs	<100	<10	<20
			8	^{89}Sr	<3	<1	<1.9
			8	^{90}Sr	2	<1	<1.3
			0	^{3}H	NA	NA	NA
Lida, NV Lida Livestock Company	21	13	8	^{137}Cs	<10	<10	<10
			8	^{89}Sr	<2	<1	<1.9
			8	^{90}Sr	4	<1	<2.5
			0	^{3}H	NA	NA	NA
Logandale, NV Vegas Valley Dairy	22	12	12	^{137}Cs	<10	<10	<10
			10	^{89}Sr	4	1	<2.1
			10	^{90}Sr	3	<1	<1.5
			0	^{3}H	NA	NA	NA
Lund, NV McKenzie Dairy	23	12	11	^{137}Cs	10	<10	<10
			11	^{89}Sr	3	<2	<2.4
			11	^{90}Sr	6	<1	<2.8
			11	^{3}H	320	<190	<250
McGill, NV Larsen Ranch	24	13	8	^{137}Cs	<10	<10	<10
			8	^{89}Sr	7	<1	<2.4
			8	^{90}Sr	2	<1	<1.5
			0	^{3}H	NA	NA	NA
Mesquite, NV Hughes Bros. Dairy	25	12	12	^{137}Cs	<10	<10	<10
			12	^{89}Sr	<3	<1	<1.8
			12	^{90}Sr	2	<1	<1.4
			12	^{3}H	730	<200	<290

Table 8 1972 Summary of Analytical Results for the Milk Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9}μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}
Moapa, NV Searles Dairy	26	12	11	^{137}Cs	<100	<10	<20
			11	^{89}Sr	5	<2	<2.5
			11	^{90}Sr	5	<1	<2.1
			0	^{3}H	NA	NA	NA
Nyala, NV Sharp's Ranch	28	13	12	^{137}Cs	<100	<10	<20
			10	^{89}Sr	3	<2	<2.2
			10	^{90}Sr	5	<2	<3.1
			12	^{3}H	<290	<190	<220
Pahrump, NV Owens Ranch	31	13	12	^{137}Cs	<10	<10	<10
			11	^{89}Sr	<3	<1	<1.5
			11	^{90}Sr	2	1	<1.2
			0	^{3}H	NA	NA	NA
Panaca, NV Kenneth Lee Ranch	33	13	12	^{137}Cs	10	<10	<10
			12	^{89}Sr	5	<2	<2.5
			12	^{90}Sr	4	2	<2.8
			0	^{3}H	NA	NA	NA
Round Mt., NV Russell Berg Ranch	34	13	5	^{137}Cs	20	<10	<20
			5	^{89}Sr	<3	<2	<2.6
			5	^{90}Sr	9	3	5.8
			0	^{3}H	NA	NA	NA
Shoshone, NV Kirkeby Ranch	35	13	9	^{137}Cs	10	<10	<10
			9	^{89}Sr	3	<2	<2.4
			9	^{90}Sr	6	2	<3.9
			0	^{3}H	NA	NA	NA

Table 8 1972 Summary of Analytical Results for the Milk Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. $10^{-9}\mu Ci/ml$ or pCi/l C_{max}	C_{min}	C_{avg}
Springdale, NV[b] McCurdy Ranch	36	13	4	^{137}Cs	<100	<10	<30
			4	^{89}Sr	<2	<1	<1.8
			4	^{90}Sr	2	<1	<1.8
			0	^{3}H	NA	NA	NA
Springdale, NV Seidentopf Ranch	36	13	8	^{137}Cs	<100	<10	<20
			8	^{89}Sr	5	<2	<2.5
			8	^{90}Sr	3	<1	<1.6
			0	^{3}H	NA	NA	NA
Garrison, UT Gonders Ranch	11	13	11	^{137}Cs	<10	<10	<10
			11	^{89}Sr	<3	<2	<2.1
			11	^{90}Sr	3	<2	<2.2
			0	^{3}H	NA	NA	NA
Newcastle, UT Newcastle Dairy	27	12	11	^{137}Cs	10	<10	<10
			10	^{89}Sr	<4	<2	<2.2
			10	^{90}Sr	4	<1	<2.3
			0	^{3}H	NA	NA	NA
St. George, UT R. Cox Dairy	37	12	11	^{137}Cs	20	<10	<10
			11	^{89}Sr	3	<1	<1.9
			11	^{90}Sr	4	<1	<2.4
			0	^{3}H	NA	NA	NA

[a] 11 = Pasteurized Milk

12 = Raw Milk from Grade A Producer(s)

13 = Raw Milk from family cow(s)

[b] = Discontinued

NA = Not Analyzed

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Bishop, CA Fish & Game Office	9	23[d]	12	gross α	<3	<1	<1.9	<6
			12	gross β	10	3	<3.9	<13
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<3	<3.5	<0.12
			2	^{90}Sr	<1	<0.9	<0.95	<0.32
			2	^{226}Ra	0.2	0.1	0.15	0.50
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.30	0.30	0.30	<0.01
			1	^{235}U	<0.01	<0.01	<0.01	<0.01
			1	^{238}U	0.20	0.20	0.20	<0.01
Bishop, CA Owens River 3 Mi E	10	22	12	gross α	9	<3	<5.2	<17
			12	gross β	9	3	<5.1	<17
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.01	0.01	0.01	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Death Valley Jct, CA Lila's Cafe	21	23[d]	12	gross α	14	<5	<8.0	<27
			12	gross β	12	7	9.3	31
			12	^{3}H	<320	<200	<233	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.1	0.1	0.1	0.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.6	1.6	1.6	0.01
			1	^{235}U	0.06	0.06	0.06	<0.01
			1	^{238}U	1.5	1.5	1.5	0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Furnace Creek, CA Pond	28	21	12	gross α	8	<3	<5.5	<18
			12	gross β	14	6	10.0	33
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			1	^{226}Ra	0.1	0.1	0.1	0.33
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.02	0.02	0.02	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Furnace Creek, CA Visitor Center	29	27[d]	12	gross α	7	<3	<5.2	<17
			12	gross β	16	7	10.2	34
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.3	0.3	0.3	1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.0	1.0	1.0	<0.01
			1	^{235}U	0.04	0.04	0.04	<0.01
			1	^{238}U	1.0	1.0	1.0	<0.01
Hinkley, CA Bill Nelson Dairy	39	23[d]	12	gross α	27	<5	<10.3	<34
			12	gross β	17	6	8.6	29
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			5	^{226}Ra	0.5	0.12	0.34	1.15
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	5.1	5.1	5.1	0.02
			1	^{235}U	0.18	0.18	0.18	<0.01
			1	^{238}U	4.8	4.8	4.8	0.02

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Little Lake, CA Little Lake Rch	60	21	12	gross α	27	<5	<13.3	<44
			12	gross β	32	<4	<23.6	<79
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.01	0.01	0.01	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Lone Pine, CA Diaz Lake	61	21	12	gross α	33	13	22.2	74
			12	gross β	41	19	27.8	93
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			2	^{226}Ra	0.6	0.3	0.45	1.50
			1	^{238}Pu	<0.03	<0.03	<0.03	<0.01
			1	^{239}Pu	0.02	0.02	0.02	<0.01
			1	^{234}U	12	12	12.0	0.04
			1	^{235}U	0.45	0.45	0.45	<0.01
			1	^{238}U	12	12	12.0	0.06
Lone Pine, CA Forest Ser Rngr Sta	62	23[d]	12	gross α	6	<2	<2.6	<9
			12	gross β	7	<3	<3.6	<12
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<3	<3.5	<0.12
			2	^{90}Sr	<1	<1	<1	<0.33
			2	^{226}Ra	0.3	0.1	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.44	0.44	0.44	<0.01
			1	^{235}U	0.01	0.01	0.01	<0.01
			1	^{238}U	0.43	0.43	0.43	<0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Olancha, CA Haiwee Reservoir	73	21	12	gross α	29	3	<7.5	<25
			12	gross β	11	4	6.7	22
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.10	<0.10	<0.10	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Ridgecrest, CA City Hall	76	23[d]	12	gross α	7	<3	<4.4	<15
			12	gross β	9	3	<4.2	<14
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<5	<3	<4	<0.13
			2	^{90}Sr	<3	<1	<2.0	<0.50
			2	^{226}Ra	0.5	0.1	0.3	1
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			2	^{234}U	2.6	0.40	1.50	<0.01
			2	^{235}U	0.09	0.01	0.05	<0.01
			2	^{238}U	2.5	0.40	1.45	0.01
Shoshone, CA Chevron Ser Sta	79	27[d]	12	gross α	<8	<5	<6.3	<21
			12	gross β	23	15	18.5	62
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Adaven, NV Canfield Ranch	1	22[d]	12	gross α	10	<3	<5.0	<17
			12	gross β	8	<3	<4.3	<14
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Alamo, NV Pahranagat Lake	3	21	12	gross α	30	11	19.0	63
			12	gross β	37	14	25.7	86
			0	^{3}H	NA	NA	NA	-
			5	^{89}Sr	<5	<1	<2.8	<0.09
			5	^{90}Sr	1	<0.1	<0.82	<0.27
			3	^{226}Ra	0.5	0.3	0.43	1.42
			2	^{238}Pu	<0.03	<0.02	<0.03	<0.01
			2	^{239}Pu	0.03	<0.01	<0.02	<0.01
			1	^{234}U	6.8	6.8	6.8	0.02
			1	^{235}U	0.30	0.30	0.30	<0.01
			1	^{238}U	6.4	6.4	6.4	0.03
Alamo, NV Sheri's Bar	2	23[d]	12	gross α	6	<3	<4.0	<13
			12	gross β	7	3	<4.1	<14
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Alamo, NV Williams Dairy	4	23[d]	12	gross α	8	<3	<5.2	<17
			12	gross β	15	9	11.8	39
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<4	<4	<0.13
			2	^{90}Sr	<1	<1	<1	<0.33
			3	^{226}Ra	0.3	0.1	0.2	0.67
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.01	<0.01	<0.01	<0.01
			2	^{234}U	1.7	1.7	1.70	0.01
			2	^{235}U	0.09	0.08	0.08	<0.01
			2	^{238}U	1.6	1.6	1.60	0.01
Ash Meadows, NV Ash Meadows Lodge	5	23[d]	10	gross α	10	6	<8.5	<28
			10	gross β	19	12	16.2	54
			11	^{3}H	380	<200	<236	<0.01
			2	^{89}Sr	<5	<4	<4.5	<0.15
			2	^{90}Sr	<1	<1	<1	<0.33
			5	^{226}Ra	0.7	0.3	0.56	1.87
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.01	<0.01	<0.01	<0.01
			2	^{234}U	1.6	0.80	1.20	<0.01
			2	^{235}U	0.06	0.03	0.04	<0.01
			2	^{238}U	1.6	0.80	1.20	0.01
Ash Meadows, NV Ash Meadows Pond	6	21	10	gross α	19	<6	<11.4	<38
			11	gross β	27	15	20.6	69
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<3	<3.5	<0.12
			2	^{90}Sr	<1	<1	<1	<0.33
			4	^{226}Ra	0.6	0.1	0.3	1.00
			2	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			2	^{239}Pu	0.02	<0.01	<0.02	<0.01
			3	^{234}U	7.9	4.2	6.17	0.02
			3	^{235}U	0.21	0.17	0.19	<0.01
			3	^{238}U	7.5	3.9	5.83	0.03

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Austin, NV County Courthouse	7	27[d]	12	gross α	30	<3	<21.1	<70
			12	gross β	24	<3	<17.0	<57
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<4	<4	<0.13
			2	^{90}Sr	<1	<1	<1	<0.33
			8	^{226}Ra	<0.6	0.1	<0.33	<1.10
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.01	<0.01	<0.01	<0.01
			2	^{234}U	14	13	13.4	0.04
			2	^{235}U	0.50	0.37	0.44	<0.01
			2	^{238}U	13	12	12.5	0.06
Beatty, NV Richfield Ser Sta	8	23[d]	12	gross α	15	5	<10.1	<34
			12	gross β	16	7	10.0	33
			12	^{3}H	<310	<200	<231	<0.01
			2	^{89}Sr	<4	<4	<4	<0.13
			2	^{90}Sr	<1	<1	<1	<0.33
			6	^{226}Ra	0.47	0.1	0.28	0.93
			1	^{238}Pu	<0.03	<0.03	<0.03	<0.01
			1	^{239}Pu	<0.02	<0.02	<0.02	<0.01
			2	^{234}U	2.8	2.2	2.50	0.01
			2	^{235}U	0.09	0.07	0.08	<0.01
			2	^{238}U	2.8	2.1	2.45	0.01
Blue Diamond, NV Post Office	11	23[d]	12	gross α	9	<3	<4.8	<16
			12	gross β	13	3	<4.3	<14
			12	^{3}H	<320	<200	<241	<0.01
			1	^{89}Sr	<3	<3	<3	<0.10
			1	^{90}Sr	<0.8	<0.8	<0.8	<0.27
			2	^{226}Ra	2.7	1.2	1.95	6.50
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Blue Jay Hwy Maint Sta NV	12	23[d]	12	gross α	9	3	<5.1	<17
			12	gross β	9	<3	<5.7	<19
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<3	<3	<3	<0.10
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	<0.6	<0.6	<0.6	<2.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.3	1.3	1.3	<0.01
			1	^{235}U	0.04	0.04	0.04	<0.01
			1	^{238}U	1.2	1.2	1.2	0.01
Cactus Springs, NV Mobil Ser Sta	13	27[d]	11	gross α	4	<2	<3.2	<11
			11	gross β	4	<3	<3.3	<11
			11	^{3}H	360	200	<249	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.53	0.53	0.53	<0.01
			1	^{235}U	0.02	0.02	0.02	<0.01
			1	^{238}U	0.50	0.50	0.50	<0.01
Caliente, NV Agr Ext Station	14	23[d]	12	gross α	12	<3	<6.6	<22
			12	gross β	7	<4	<5.1	<17
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.1	0.1	0.1	0.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.8	1.8	1.8	0.01
			1	^{235}U	<0.01	<0.01	<0.01	<0.01
			1	^{238}U	1.7	1.7	1.7	0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Caliente, NV Meadow Valley Wash	15	22	12	gross α	14	5	<7.9	<26
			12	gross β	18	<4	<13.3	<44
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.01	<0.01	<0.01	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Clark Station, NV Five Mile Ranch	17	27[d]	11	gross α	5	<2	<3.5	<12
			11	gross β	10	<3	<5.9	<20
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<5	<3	<4	<0.13
			2	^{90}Sr	<1	<1	<1	<0.33
			2	^{226}Ra	0.6	<0.3	<0.45	<1.50
			1	^{238}Pu	<0.04	<0.04	<0.04	<0.01
			1	^{239}Pu	<0.02	<0.02	<0.02	<0.01
			2	^{234}U	0.30	0.20	0.25	<0.01
			2	^{235}U	0.02	0.02	0.02	<0.01
			2	^{238}U	0.20	0.20	0.20	<0.01
Coyote Summit, NV Sand Spg Well	18	23	9	gross α	41	<3	<23.5	<78
			9	gross β	26	5	17.0	57
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			3	^{226}Ra	<0.6	0.3	<0.42	<1.39
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.01	0.01	0.01	<0.01
			1	^{234}U	14	14	14.0	0.05
			1	^{235}U	0.48	0.48	0.48	<0.01
			1	^{238}U	13	13	13.0	0.06

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Currant, NV Currant Pond	19	21	11	gross α	13	<4	<7.8	<26
			11	gross β	11	<3	<6.1	<20
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.01	<0.01	<0.01	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Currant, NV Currant Ranch Cafe	20	27[d]	12	gross α	22	5	10.4	35
			12	gross β	28	<3	<7.8	<26
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			4	^{226}Ra	0.5	0.2	0.31	1.03
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	2.5	2.5	2.5	0.01
			1	^{235}U	0.08	0.08	0.08	<0.01
			1	^{238}U	2.4	2.4	2.4	0.01
Diablo Hwy Maint Sta NV	22	23[d]	12	gross α	5	<3	<3.8	<13
			12	gross β	10	<4	<7.1	<24
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<5	<5	<5	<0.17
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	<0.6	<0.6	<0.6	<2.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.72	0.72	0.72	<0.01
			1	^{235}U	0.03	0.03	0.04	<0.01
			1	^{238}U	0.67	0.67	0.67	<0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Diablo, NV Reed Ranch	23	21	12	gross α	35	<5	<22.2	<74
			12	gross β	44	8	24.2	81
			0	^{3}H	NA	NA	NA	-
			4	^{89}Sr	<4	<3	<3.3	<0.11
			4	^{90}Sr	3	<1	<1.5	<0.50
			3	^{226}Ra	0.2	0.2	0.2	0.67
			2	^{238}Pu	<0.04	<0.03	<0.04	<0.01
			2	^{239}Pu	0.02	<0.02	<0.02	<0.01
			1	^{234}U	3.0	3.0	3.0	0.01
			1	^{235}U	0.20	0.20	0.20	<0.01
			1	^{238}U	2.8	2.8	2.8	0.01
Elgin, NV Water Tower	24	23[d]	11	gross α	21	5	<9.2	<31
			11	gross β	13	5	9.9	33
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<2	<3	<0.10
			2	^{90}Sr	<1	<0.8	<0.9	<0.30
			3	^{226}Ra	0.4	0.2	0.27	0.89
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	2.4	2.4	2.4	0.01
			1	^{235}U	0.10	0.10	0.10	<0.01
			1	^{238}U	2.3	2.3	2.3	0.01
Ely, NV Chevron Ser Sta	25	24[d]	12	gross α	6	<2	<3.7	<12
			12	gross β	4	<3	<3.3	<11
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<3	<3	<3	<0.10
			1	^{90}Sr	<0.9	<0.9	<0.9	<0.30
			1	^{226}Ra	0.5	0.5	0.5	1.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.57	0.57	0.57	<0.01
			1	^{235}U	0.02	0.02	0.02	<0.01
			1	^{238}U	0.54	0.54	0.54	<0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Ely, NV Comins Lake	26	21	9	gross α	13	3	<9.1	<30
			9	gross β	59	5	35.7	119
			0	^{3}H	NA	NA	NA	-
			6	^{89}Sr	<4	<2	<3.2	<0.11
			6	^{90}Sr	2	<1	<1.3	<0.44
			1	^{226}Ra	0.3	0.3	0.3	1.00
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.01	0.01	0.01	<0.01
			2	^{234}U	4.5	3.0	3.75	0.01
			2	^{235}U	0.17	0.14	0.16	<0.01
			2	^{238}U	4.2	2.80	3.50	0.02
Eureka, NV Chevron Ser Sta	27	24[d]	12	gross α	7	<3	<4.3	<14
			12	gross β	9	3	<4.3	<14
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.1	0.1	0.1	0.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.62	0.62	0.62	<0.01
			1	^{235}U	0.02	0.02	0.02	<0.01
			1	^{238}U	0.59	0.59	0.59	<0.01
Glendale, NV Chevron Ser Sta	32	27[d]	12	gross α	10	<5	<6.8	<23
			12	gross β	17	7	11.5	38
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<0.9	<0.9	<0.9	<0.30
			1	^{226}Ra	0.6	0.6	0.6	2.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.3	1.3	1.3	<0.01
			1	^{235}U	0.05	0.05	0.05	<0.01
			1	^{238}U	1.2	1.2	1.2	0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Glendale, NV Muddy River	33	22	12	gross α	19	5	<8.4	<28
			12	gross β	25	8	15.2	51
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<2	<2	<2	<0.07
			2	^{90}Sr	<1	<0.7	<0.85	<0.28
			0	^{226}Ra	NA	NA	NA	-
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Goldfield, NV Alkali Springs	34	21	12	gross α	29	<4	<9.7	<32
			12	gross β	46	6	24.9	83
			0	^{3}H	NA	NA	NA	-
			5	^{89}Sr	<4	<2	<3.2	<0.11
			5	^{90}Sr	<1	<1	<1	<0.33
			2	^{226}Ra	<0.6	0.5	<0.55	<1.83
			2	^{238}Pu	<0.03	<0.03	<0.03	<0.01
			2	^{239}Pu	0.03	<0.01	<0.02	<0.01
			2	^{234}U	0.04	0.03	0.04	<0.01
			2	^{235}U	0.01	<0.01	<0.01	<0.01
			2	^{238}U	0.04	0.02	0.03	<0.01
Goldfield, NV Chevron Ser Sta	35	23[d]	12	gross α	<6	<4	<4.8	<16
			12	gross β	10	3	<4.2	<14
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.3	0.3	0.3	1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.12	0.12	0.12	<0.01
			1	^{235}U	<0.01	<0.01	<0.01	<0.01
			1	^{238}U	0.11	0.11	0.11	<0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Hawthorne, NV[c] Walker Lake	36	21	5	gross α	<39	<12	<26.6	<89
			5	gross β	390	<16	<195.0	<651
			1	^{3}H	420	420	420	0.01
			3	^{89}Sr	<3	<2	<2.3	<0.08
			3	^{90}Sr	2	<1	<1.7	<0.56
			2	^{226}Ra	0.4	0.2	0.3	1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	36	36	36	0.12
			1	^{235}U	1.1	1.1	1.1	<0.01
			1	^{238}U	33	33	33	0.16
Hiko, NV Crystal Springs	37	27[d]	12	gross α	14	4	<7.0	<23
			12	gross β	10	4	6.8	23
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<4	<4	<0.13
			2	^{90}Sr	<1	<1	<1	<0.33
			2	^{226}Ra	0.8	0.8	0.8	2.67
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.01	<0.01	<0.01	<0.01
			2	^{234}U	1.4	1.3	1.35	<0.01
			2	^{235}U	0.08	0.04	0.06	<0.01
			2	^{238}U	1.4	1.2	1.30	0.01
Hiko, NV Schofield Dairy	38	23[d]	12	gross α	38	19	27.7	92
			12	gross β	39	21	31.7	106
			0	^{3}H	NA	NA	NA	-
			7	^{89}Sr	<3	<2	<2.9	<0.10
			7	^{90}Sr	<3	<0.9	<1.3	<0.38
			7	^{226}Ra	0.7	0.2	0.4	1.32
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.01	<0.01	<0.01	<0.01
			2	^{234}U	9.6	9.5	9.55	0.03
			2	^{235}U	0.36	0.33	0.35	<0.01
			2	^{238}U	9.1	9.0	9.05	0.05

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Indian Springs, NV Chevron Ser Sta	40	23[d]	12	gross α	14	2	<5.0	<17
			12	gross β	5	<3	<3.5	<12
			12	^{3}H	<310	<200	<230	<0.01
			2	^{89}Sr	<4	<4	<4	<0.13
			2	^{90}Sr	<1	<1	<1	<0.33
			3	^{226}Ra	0.4	0.1	0.27	0.89
			1	^{238}Pu	<0.03	<0.03	<0.03	<0.01
			1	^{239}Pu	<0.02	<0.02	<0.02	<0.01
			2	^{234}U	0.64	0.60	0.62	<0.01
			2	^{235}U	0.03	0.03	0.03	<0.01
			2	^{238}U	0.60	0.50	0.55	<0.01
Las Vegas, NV Cal-Nev Jet Fuels	41	23[d]	11	gross α	5	<3	<3.9	<13
			11	gross β	10	3	<4.7	<16
			11	^{3}H	<290	<200	<233	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.7	0.7	0.7	2.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Las Vegas, NV Craig Rch Golf Course	42	23[d]	11	gross α	10	3	<5.9	<20
			11	gross β	10	5	5.7	19
			11	^{3}H	380	<200	<245	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	1.6	1.6	1.6	5.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.0	1.0	1.0	<0.01
			1	^{235}U	0.03	0.03	0.03	<0.01
			1	^{238}U	1.0	1.0	1.0	<0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Las Vegas, NV Cunningham Ranch	43	23[d]	11	gross α	10	<2	<4.0	<13
			11	gross β	11	<3	<5.0	<17
			11	^{3}H	320	<200	<237	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.3	0.3	0.3	1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.59	0.59	0.59	<0.01
			1	^{235}U	0.03	0.03	0.03	<0.01
			1	^{238}U	0.56	0.56	0.56	<0.01
Las Vegas, NV Desert Game Range	44	23[d]	12	gross α	22	<4	<7.7	<26
			12	gross β	14	<3	<5.8	<19
			12	^{3}H	400	<210	<253	<0.01
			2	^{89}Sr	<4	<4	<4	<0.13
			2	^{90}Sr	<1	<1	<1	<0.33
			2	^{226}Ra	0.3	0.2	0.25	0.83
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.02	<0.02	<0.02	<0.01
			2	^{234}U	1.3	0.87	1.09	<0.01
			2	^{235}U	<0.50	0.05	<0.27	<0.01
			2	^{238}U	1.2	0.81	1.01	0.01
Las Vegas, NV Desert Game Rng Pond	45	21	12	gross α	5	<3	<3.8	<13
			12	gross β	4	<3	<3.4	<11
			11	^{3}H	<310	<200	<234	<0.01
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.02	0.02	0.02	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Las Vegas, NV Francis Residence	46	23[d]	11	gross α	<7	<4	<5.6	<19
			11	gross β	5	<3	<3.7	<12
			11	^{3}H	<290	<190	<229	<0.01
			2	^{89}Sr	<4	<3	<3.5	<0.12
			2	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.3	0.3	0.3	1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.6	1.6	1.6	0.01
			1	^{235}U	0.08	0.08	0.08	<0.01
			1	^{238}U	1.4	1.4	1.4	0.01
Las Vegas, NV L V Water Dist Well 28	51	23[d]	11	gross α	13	<2	<4.4	<15
			11	gross β	5	3	<3.5	<12
			11	^{3}H	<290	<200	<234	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.29	0.29	0.29	<0.01
			1	^{235}U	0.01	0.01	0.01	<0.01
			1	^{238}U	0.28	0.28	0.28	<0.01
Las Vegas, NV Lab II NERC	47	24[d]	11	gross α	9	<5	<5.9	<20
			11	gross β	12	5	7.7	26
			11	^{3}H	1100	400	909	0.03
			1	^{89}Sr	<5	<5	<5	<0.17
			1	^{90}Sr	<2	<2	<2	0.67
			2	^{226}Ra	0.3	0.2	0.25	0.83
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.9	1.9	1.9	0.01
			1	^{235}U	0.06	0.06	0.06	<0.01
			1	^{238}U	1.8	1.8	1.8	0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Las Vegas, NV Lake Mead Vegas Wash	48	21	11	gross α	<7	<5	<5.8	<19
			11	gross β	11	5	7.8	26
			11	^{3}H	1400	760	948	0.03
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.01	0.01	0.01	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Las Vegas, NV LDS Dairy Farms	49	23[d]	11	gross α	14	<7	<10.1	<34
			11	gross β	18	<4	<12.2	<41
			11	^{3}H	<280	<200	<227	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			4	^{226}Ra	0.33	0.1	0.21	0.69
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.8	1.8	1.8	0.01
			1	^{235}U	0.07	0.07	0.07	<0.01
			1	^{238}U	1.7	1.7	1.7	0.01
Las Vegas, NV Lloyd Ranch	50	23[d]	11	gross α	11	<5	<6.7	<22
			11	gross β	9	<4	<6.5	<22
			11	^{3}H	360	<190	<235	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.6	1.6	1.6	0.01
			1	^{235}U	0.06	0.06	0.06	<0.01
			1	^{238}U	1.5	1.5	1.5	0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Las Vegas, NV Municipal Golf Course	52	23	11	gross α	5	<3	<3.8	<13
			11	gross β	11	<3	<4.8	<16
			11	^{3}H	<290	<210	<235	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			2	^{226}Ra	0.3	0.3	0.3	1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.65	0.65	0.65	<0.01
			1	^{235}U	0.02	0.02	0.02	<0.01
			1	^{238}U	0.62	0.62	0.62	<0.01
Las Vegas, NV Tule Springs	53	23[d]	12	gross α	10	<3	<4.2	<14
			12	gross β	9	<3	<3.9	<13
			12	^{3}H	<340	<200	<237	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			2	^{226}Ra	0.4	<0.1	<0.25	<0.83
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.67	0.67	0.67	<0.01
			1	^{235}U	0.03	0.03	0.03	<0.01
			1	^{238}U	0.62	0.62	0.62	<0.01
Las Vegas, NV Tule Springs Pond	54	21	12	gross α	13	<2	<5.1	<17
			12	gross β	6	<3	<4.4	<15
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.3	1.3	1.3	<0.01
			1	^{235}U	0.05	0.05	0.05	<0.01
			1	^{238}U	1.2	1.2	1.2	0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Las Vegas, NV Vegas Estates	55	23[d]	11	gross α	<8	<4	<6.2	<21
			11	gross β	13	7	10.8	36
			11	^{3}H	<290	<200	<230	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<0.9	<0.9	<0.9	<0.30
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.47	0.47	0.47	<0.01
			1	^{235}U	0.02	0.02	0.02	<0.01
			1	^{238}U	0.44	0.44	0.44	<0.01
Lathrop Wells, NV Texaco Ser Sta	56	23[d]	12	gross α	7	<3	<4.6	<15
			12	gross β	12	<3	<4.7	<16
			12	^{3}H	<320	<200	<233	<0.01
			2	^{89}Sr	<4	<2	<3	<0.10
			2	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.1	0.1	0.1	0.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.36	0.36	0.36	<0.01
			1	^{235}U	0.01	0.01	0.01	<0.01
			1	^{238}U	0.34	0.34	0.34	<0.01
Lida, NV Lida Livestock Company	58	27[d]	12	gross α	9	<3	<4.3	<14
			12	gross β	8	3	<3.7	<12
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.1	0.1	0.1	0.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.64	0.64	0.64	<0.01
			1	^{235}U	0.02	0.02	0.02	<0.01
			1	^{238}U	0.61	0.61	0.61	<0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Manhattan, NV Country Store	64	23[d]	12	gross α	26	10	16.9	56
			12	gross β	12	5	8.3	28
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<3	<3	<3	<0.10
			1	^{90}Sr	<1	<1	<1	<0.33
			9	^{226}Ra	0.7	0.2	<0.37	<1.22
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	4.0	4.0	4.0	0.01
			1	^{235}U	0.26	0.26	0.26	<0.01
			1	^{238}U	3.8	3.8	3.8	0.02
Manhattan, NV Seyler Reservoir	65	21	8	gross α	38	<3	<13.2	<44
			8	gross β	65	6	26.8	89
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<2	<3	<0.10
			2	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.3	0.3	0.3	1.00
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.02	0.02	0.02	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Mercury, NV Groom Lake	66	23[d]	12	gross α	7	<3	<4.2	<14
			12	gross β	7	<1	<4.7	<16
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<3	<3	<3	<0.10
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	<0.6	<0.6	<0.6	<2.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.88	0.88	0.88	<0.01
			1	^{235}U	0.04	0.04	0.04	<0.01
			1	^{238}U	0.83	0.83	0.83	<0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Lida, NV Pond at Storage Tank	59	21	12	gross α	14	<3	<4.9	<16
			12	gross β	6	3	<4.0	<13
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.01	0.01	0.01	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Lida Jct, NV Cottontail Ranch	57	23[d]	11	gross α	17	<3	<6.5	<22
			11	gross β	16	9	13.5	45
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<2	<3	<0.10
			2	^{90}Sr	<1	<1	<1	<0.33
			3	^{226}Ra	0.4	0.1	<0.3	<1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.3	1.3	1.3	<0.01
			1	^{235}U	0.06	0.06	0.06	<0.01
			1	^{238}U	1.2	1.2	1.2	0.01
Lund, NV Gardner Grocery	63	23[d]	12	gross α	15	<3	<5.5	<18
			12	gross β	12	<3	<5.4	<18
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.1	1.1	1.1	<0.01
			1	^{235}U	0.03	0.03	0.03	<0.01
			1	^{238}U	1.1	1.1	1.1	0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Moapa, NV Pedersen Valley View Rch	67	27[d]	12	gross α	8	<5	<6.7	<22
			12	gross β	16	5	10.4	35
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<3	<3.5	<0.12
			2	^{90}Sr	<1	<0.9	<0.95	<0.32
			1	^{226}Ra	1	1	1	3.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.3	1.3	1.3	<0.01
			1	^{235}U	0.05	0.05	0.05	<0.01
			1	^{238}U	1.2	1.2	1.2	0.01
Mt Charleston, NV[b] Kyle Canyon	68	27[d]	3	gross α	<3	<2	<2.4	<8
			3	gross β	<3	<3	<3.2	<11
			3	^{3}H	380	280	327	0.01
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Mt Charleston, NV Kyle Canyon Fire Sta	68	27[d]	7	gross α	<4	<2	<3.4	<11
			7	gross β	<4	<3	<3.3	<11
			7	^{3}H	420	<210	<267	<0.01
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Mt Charleston, NV Kyle Canyon Pond	69	21	6	gross α	5	<3	<3.2	<11
			6	gross β	11	<3	<8.4	<28
			1	^{3}H	280	280	280	0.01
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.03	<0.03	<0.03	<0.01
			1	^{239}Pu	<0.01	<0.01	<0.01	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Nyala, NV Sharp's Ranch	72	23[d]	12	gross α	4	<3	<3.2	<11
			12	gross β	5	3	<3.7	<12
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<5	<5	<5	<0.17
			1	^{90}Sr	<2	<2	<2	0.67
			1	^{226}Ra	<0.6	<0.6	<0.6	<2.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.72	0.72	0.72	<0.01
			1	^{235}U	0.02	0.02	0.02	<0.01
			1	^{238}U	0.68	0.68	0.68	<0.01
Pahrump, NV Texaco Ser Sta	74	23[d]	12	gross α	6	<2	<3.8	<13
			12	gross β	5	<3	<3.5	<12
			1	^{3}H	<210	<210	<210	<0.01
			1	^{89}Sr	<5	<5	<5	<0.17
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.70	0.70	0.70	<0.01
			1	^{235}U	0.03	0.03	0.03	<0.01
			0	^{238}U	NA	NA	NA	-

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Pioche, NV County Courthouse	75	24[d]	12	gross α	4	<2	<3.3	<11
			12	gross β	11	<3	<6.1	<20
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<4	<2	<3	<0.10
			2	^{90}Sr	<1	<0.8	<0.9	<0.30
			2	^{226}Ra	0.5	0.1	0.3	1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.70	0.70	0.70	<0.01
			1	^{235}U	0.03	0.03	0.03	<0.01
			1	^{238}U	0.66	0.66	0.66	<0.01
Round Mt, NV Mobil Ser Sta	77	27[d]	12	gross α	14	<2	<3.9	<13
			12	gross β	5	<3	<3.6	<12
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.74	0.74	0.74	<0.01
			1	^{235}U	0.03	0.03	0.03	<0.01
			1	^{238}U	0.70	0.70	0.70	<0.01
Scotty's Jct, NV Chevron Ser Sta	78	23[d]	11	gross α	<7	<4	<5.9	<20
			11	gross β	13	5	10.4	35
			11	^{3}H	<290	<200	<221	<0.01
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.3	0.3	0.3	1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.9	1.9	1.9	0.01
			1	^{235}U	0.08	0.08	0.08	<0.01
			1	^{238}U	1.8	1.8	1.8	0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Springdale, NV Peacock Ranch	80	27[d]	12	gross α	<7	<3	<4.8	<16
			12	gross β	11	5	8.0	27
			12	^{3}H	<310	<200	<231	<0.01
			2	^{89}Sr	<3	<2	<2.5	<0.08
			2	^{90}Sr	<1	<0.9	<0.95	<0.32
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1	1	1	<0.01
			1	^{235}U	0.03	0.03	0.03	<0.01
			1	^{238}U	0.90	0.90	0.90	<0.01
Springdale, NV Pond	81	21	12	gross α	8	4	<5.6	<19
			12	gross β	14	4	10.3	34
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	<0.01	<0.01	<0.01	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Sunnyside, NV Adam McGill Reservoir	83	21	12	gross α	15	<4	<8.1	<27
			12	gross β	16	4	8.1	27
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Sunnyside, NV Wildlife Mgt Hdqts	82	27[d]	12	gross α	5	<2	<3.3	<11
			12	gross β	10	<3	<4.3	<14
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.1	0.1	0.1	0.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.48	0.48	0.48	<0.01
			1	^{235}U	0.02	0.02	0.02	<0.01
			1	^{238}U	0.45	0.45	0.45	<0.01
Tonopah, NV Jerry's Chevron Sta	85	23[d]	12	gross α	6	<3	<4.3	<14
			11	gross β	13	<4	<7.6	<25
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-
Tonopah, NV Tonopah Test Range CP-1	86	23[d]	12	gross α	10	<4	<6.0	<20
			12	gross β	10	4	6.8	23
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			2	^{226}Ra	0.1	0.1	0.1	0.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.7	1.7	1.7	0.01
			1	^{235}U	0.06	0.06	0.06	<0.01
			1	^{238}U	1.6	1.6	1.6	0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radioactivity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Warm Springs, NV Twin Springs Ranch	90	23[d]	12	gross α	19	<3	<8.3	<28
			12	gross β	16	<3	<10.1	<34
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<3	<3	<3	<0.10
			1	^{90}Sr	<1	<1	<1	<0.33
			3	^{226}Ra	0.4	<0.1	<0.23	<0.78
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.4	1.4	1.4	<0.01
			1	^{235}U	0.05	0.05	0.05	<0.01
			1	^{238}U	1.3	1.3	1.3	0.01
Cedar City, UT M. D. Baldwin Residence	16	24[d]	12	gross α	15	2	<4.0	<13
			12	gross β	13	<3	<4.8	<16
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			3	^{226}Ra	0.3	<0.1	<0.2	<0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.40	0.40	0.40	<0.01
			1	^{235}U	0.02	0.02	0.02	<0.01
			1	^{238}U	0.40	0.40	0.40	<0.01
Garrison, UT[c] Pruess Reservoir	30	21	3	gross α	21	11	15.7	52
			3	gross β	16	14	15.0	50
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Warm Springs, NV Fallini's Pond	87	21	10	gross α	42	12	24.1	80
			10	gross β	100	40	68.8	229
			0	^{3}H	NA	NA	NA	-
			8	^{89}Sr	<7	<2	<3.4	<0.11
			8	^{90}Sr	4	<1	<1.6	<0.52
			4	^{226}Ra	1.3	0.6	1.1	3.67
			1	^{238}Pu	<0.03	<0.03	<0.03	<0.01
			1	^{239}Pu	0.09	0.09	0.09	<0.01
			2	^{234}U	5.0	2.6	3.80	0.01
			2	^{235}U	0.19	0.14	0.17	<0.01
			2	^{238}U	4.8	2.4	3.60	0.02
Warm Springs, NV Hot Creek Ranch	88	27[d]	12	gross α	<8	<4	<5.5	<18
			12	gross β	20	9	12.5	42
			0	^{3}H	NA	NA	NA	-
			2	^{89}Sr	<3	<2	<2.5	<0.08
			2	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	<0.4	<0.4	<0.4	<1.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.85	0.85	0.85	<0.01
			1	^{235}U	0.04	0.04	0.04	<0.01
			1	^{238}U	0.80	0.80	0.80	<0.01
Warm Springs, NV Ser Sta & Cafe	89	27[d]	11	gross α	57	9	25.2	84
			11	gross β	58	21	30.3	101
			0	^{3}H	NA	NA	NA	-
			4	^{89}Sr	<3	<2	<2.3	<0.07
			4	^{90}Sr	<2	<1	<1.3	<0.60
			8	^{226}Ra	11	6.9	9.2	30.50
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.28	0.28	0.28	<0.01
			1	^{235}U	0.01	0.01	0.01	<0.01
			1	^{238}U	0.26	0.26	0.26	<0.01

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9} μCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
Garrison, UT Rowley Grocery	31	23[d]	12	gross α	6	<2	<4.0	<13
			12	gross β	9	3	<4.3	<14
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.2	0.2	0.2	0.67
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.3	1.3	1.3	<0.01
			1	^{235}U	0.05	0.05	0.05	<0.01
			1	^{238}U	1.3	1.3	1.3	0.01
Newcastle, UT Newcastle Dairy	71	24[d]	12	gross α	7	3	<5.0	<17
			12	gross β	18	<4	<7.2	<24
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<4	<4	<4	<0.13
			1	^{90}Sr	<1	<1	<1	<0.33
			1	^{226}Ra	0.4	0.4	0.4	1.33
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	1.2	1.2	1.2	<0.01
			1	^{235}U	0.05	0.05	0.05	<0.01
			1	^{238}U	1.1	1.1	1.1	0.01
Newcastle, UT Municipal Reservoir	70	21	12	gross α	21	<2	<8.4	<28
			12	gross β	20	<3	<8.6	<29
			0	^{3}H	NA	NA	NA	-
			0	^{89}Sr	NA	NA	NA	-
			0	^{90}Sr	NA	NA	NA	-
			0	^{226}Ra	NA	NA	NA	-
			1	^{238}Pu	<0.02	<0.02	<0.02	<0.01
			1	^{239}Pu	0.02	0.02	0.02	<0.01
			0	^{234}U	NA	NA	NA	-
			0	^{235}U	NA	NA	NA	-
			0	^{238}U	NA	NA	NA	-

Table 9 1972 Summary of Analytical Results for the Water Surveillance Network

Sampling Location	Map No.	Sample Type[a]	No. of Samples	Type of Radio-activity	Radioactivity Conc. 10^{-9} µCi/ml or pCi/l C_{max}	C_{min}	C_{avg}	% of Conc. Guide
St George, UT R. Cox Dairy	82	24[d]	12	gross α	8	<2	<3.5	<12
			12	gross β	8	<3	<4.1	<14
			0	^{3}H	NA	NA	NA	-
			1	^{89}Sr	<3	<3	<3	<0.10
			1	^{90}Sr	<0.8	<0.8	<0.8	<0.27
			2	^{226}Ra	0.4	0.2	0.3	1.00
			0	^{238}Pu	NA	NA	NA	-
			0	^{239}Pu	NA	NA	NA	-
			1	^{234}U	0.98	0.98	0.98	<0.01
			1	^{235}U	0.04	0.04	0.04	<0.01
			1	^{238}U	0.92	0.92	0.92	<0.01

[a]
21 = Pond, Lake, Reservoir, Stock Tank, Stock Pond
22 = Stream, River, Creek
23 = Well
24 = Multiple Supply - Mixed (A water sample consisting of mixed or multiple sources of water, such as well and spring.)
27 = Spring

[b] = Discontinued.

[c] = Sampled quarterly.

[d] = Drinking water.

NA = Not Analyzed.

Table 10 1972 Summary of Analytical Results

for Off-NTS Long-Term Hydrologic Monitoring Program

Sampling Location	Date	Sample Type[a]	Depth Feet[b]	Type of Radio-activity	Radioactivity Conc. 10^{-9}μCi/ml or pCi/l	% of Conc. Guide
			PROJECT RULISON			
Anvil Points, Colo.	9/16	27		gross α	<6.0	<20
Bernklau Ranch				gross β	<3.2	<11
				^{3}H	250	<0.01
Grand Valley, Colo.	9/18	23		gross α	<4.4	<15
Albert Gardner Ranch				gross β	<4.0	<13
				^{3}H	780	0.03
Grand Valley, Colo.	9/16	27		gross α	6	20
City Water				gross β	4	13
				^{3}H	270	<0.01
Grand Valley, Colo.	9/17	27		gross α	<4.4	<15
300 Yds. N.W. of G.Z.				gross β	<4.0	<13
				^{3}H	510	0.02
Grand Valley, Colo.	9/17	22		gross α	<2.2	<7.3
Battlement Creek				gross β	<3.2	<11
				^{3}H	860	0.03
Grand Valley, Colo.	9/18	23	45.2	gross α	<2.3	<7.7
CER Water Well				gross β	<3.2	<11
				^{3}H	780	0.03
Rulison, Colo.	9/18	23		gross α	<5.9	<20
Lee L. Hayward Ranch				gross β	7	23
				^{3}H	370	0.01
Rulison, Colo.	9/17	23		gross α	<3.3	<11
Ernest R. Schwab				gross β	<3.1	<10
Residence				^{3}H	730	0.02
Rulison, Colo.	9/16	23		gross α	<3.6	<12
R. Bingman Sr. Ranch				gross β	<4.0	<13
				^{3}H	230	<0.01
Rulison, Colo.	9/18	27		gross α	8	27
Potter Ranch				gross β	7	23
				^{3}H	570	0.02
				^{226}Ra	0.2	0.67

Table 10 1972 Summary of Analytical Results
for Off-NTS Long-Term Hydrologic Monitoring Program

Sampling Location	Date	Sample Type[a]	Depth Feet[b]	Type of Radio-activity	Radioactivity Conc. 10^{-9}μCi/ml or pCi/l	% of Conc. Guide
			PROJECT DRIBBLE			
Baxterville, Miss. City Water	4/21	23		gross α	<1.5	<5
				gross β	<3.4	<11
				^{3}H	<210	<0.01
Baxterville, Miss. Lower Little Creek	4/24	22		gross α	<1.1	<3.7
				gross β	<3.4	<11
				^{3}H	<200	<0.01
Tatum Salt Dome, Miss. Pond West of G.Z.	10/15	21		^{3}H	<230	<0.01
Tatum Salt Dome, Miss. Shell Well No. 1	10/15	23		^{3}H	<230	<0.01
Tatum Salt Dome, Miss. HT-1	9/3	23	1,308	gross α	<4.9	<16
				gross β	<3.4	<11
				^{3}H	<230	<0.01
	10/13	23	1,433	gross α	<4.7	<16
				gross β	6.5	22
				^{3}H	<230	<0.01
				^{89}Sr	<2	<0.01
				^{90}Sr	<1	<0.33
	10/19	23	1,308	gross α	<5.3	<18
				gross β	6	20
				^{3}H	<190	<0.01
				^{89}Sr	<2	<0.01
				^{90}Sr	<1	<0.33
	10/19	23	1,500	gross α	<4.7	<16
				gross β	<3.5	<12
				^{3}H	310	0.01
				^{89}Sr	<2	<0.01
				^{90}Sr	<1	<0.33

Table 10 1972 Summary of Analytical Results
for Off-NTS Long-Term Hydrologic Monitoring Program

Sampling Location	Date	Sample Type[a]	Depth Feet[b]	Type of Radio-activity	Radioactivity Conc. 10^{-9}µCi/ml or pCi/l	% of Conc. Guide
Tatum Salt Dome, Miss. HT-2C	9/3	23	355	gross α	<2.6	<8.7
				gross β	<3.3	<11
				^{3}H	<230	<0.01
	10/13	23	355	gross α	<2.4	<8
				gross β	<3.6	<12
				^{3}H	<230	<0.01
				^{89}Sr	<3	<0.01
				^{90}Sr	<1	<0.33
Tatum Salt Dome, Miss. HT-2M	9/3	23	100	^{3}H	430	0.01
	9/3	23	600	^{3}H	300	0.01
	9/3	23	1,100	^{3}H	1,200	0.04
	9/3	23	1,600	^{3}H	15,000	0.50
	9/3	23	2,100	^{3}H	10,000	0.63
	9/3	23	2,350	gross α	<45	<150
				gross β	<20	<67
				^{3}H	31,000	1
				^{226}Ra	5.2	0.7
				^{89}Sr	<8	<0.03
				^{90}Sr	6	2
	10/14	23	600	gross α	<4.3	<14
				gross β	<3.4	<11
				^{3}H	<230	<0.01
				^{89}Sr	<3	<0.01
				^{90}Sr	<1	<0.33
	10/14	23	1,600	gross α	<40	<133
				gross β	<19	<63
				^{3}H	10,000	0.33
				^{89}Sr	<4	<0.01
				^{90}Sr	<2	<0.67

Table 10 1972 Summary of Analytical Results
for Off-NTS Long-Term Hydrologic Monitoring Program

Sampling Location	Date	Sample Type[a]	Depth Feet[b]	Type of Radioactivity	Radioactivity Conc. 10^{-9}μCi/ml or pCi/l	% of Conc. Guide
HT-2M (Continued)	10/14	23	2,350	gross α	7.7	26
				gross β	4.1	14
				^{3}H	67,000	2.2
				^{89}Sr	<4	<0.01
				^{90}Sr	<2	<0.67
	10/14	23	2,600	^{3}H	8,100	0.27
Tatum Salt Dome, Miss. HT-4	9/3	23	400	gross α	<3.3	<11
				gross β	<3.3	<11
				^{3}H	<230	<0.01
	10/13	23	400	gross α	<3.0	<10
				gross β	<3.6	<12
				^{3}H	<230	<0.01
				^{89}Sr	<3	<0.01
				^{90}Sr	<1	<0.33
Tatum Salt Dome, Miss. HT-5	5/1	23	600	gross α	<2.8	<9.3
				gross β	24	80
				^{3}H	<200	<0.01
	10/12	23	600	gross α	<2.0	<6.7
				gross β	<3.6	<12
				^{3}H	<230	<0.01
				^{89}Sr	<3	<0.01
				^{90}Sr	2	0.67
Tatum Salt Dome, Miss. E-7	5/1	23	924	gross α	<4.0	<13
				gross β	<3.6	<12
				^{3}H	<200	<0.01
Baxterville, Miss. Half Moon Creek	4/24	22		gross α	<1.1	<3.7
				gross β	<3.4	<11
				^{3}H	<200	<0.01
	10/15	22		^{3}H	<230	<0.01
Half Moon Creek (Overflow)	10/15	22		^{3}H	430	0.01

Table 10 1972 Summary of Analytical Results

for Off-NTS Long-Term Hydrologic Monitoring Program

Sampling Location	Date	Sample Type[a]	Depth Feet[b]	Type of Radio-activity	Radioactivity Conc. 10^{-9}μCi/ml or pCi/l	% of Conc. Guide
Baxterville, Miss. T. Speichts Residence	4/26	23		gross α	<2.2	<7.3
				gross β	<3.4	<11
				^{3}H	210	<0.01
Baxterville, Miss. R. L. Anderson Residence	4/26	23		gross α	<1.9	<6.3
				gross β	5	17
				^{3}H	340	0.01
Baxterville, Miss. M. Lowe Residence	4/26	23		gross α	<2.6	<8.7
				gross β	<3.4	<11
				^{3}H	<200	<0.01
Baxterville, Miss. R. Ready Residence	4/26	23		gross α	<1.3	<4.3
				gross β	<3.1	<10
				^{3}H	<270	<0.01
Baxterville, Miss. W. Daniels, Jr. Residence	4/26	23		gross α	<1.1	<3.7
				gross β	3	10
				^{3}H	220	<0.01
Columbia, Miss. City Water Well No. 64B	4/24	23		gross α	2	6.7
				gross β	<3.1	<10
				^{3}H	<210	<0.01
Lumberton, Miss. City Water Well No. 2	4/18	23		gross α	<2.8	<9.3
				gross β	<3.2	<10.7
				^{3}H	<210	<0.01
Purvis, Miss. City Water	4/21	23		gross α	<2.1	<7.0
				gross β	<3.2	<11
				^{3}H	<210	<0.01
FAULTLESS EVENT						
Blue Jay, Nev. Highway Maintenance Station	1/13	23		gross α	5	17
				gross β	11	37
				^{3}H	210	<0.01
Blue Jay, Nev. Blue Jay Spring	1/13	27		gross α	8	27
				gross β	15	50
				^{3}H	<200	<0.01

Table 10 1972 Summary of Analytical Results
for Off-NTS Long-Term Hydrologic Monitoring Program

Sampling Location	Date	Sample Type[a]	Depth Feet[b]	Type of Radio-activity	Radioactivity Conc. 10^{-9}µCi/ml or pCi/l	% of Conc. Guide
Blue Jay, Nev. Six Mile Well	1/13	23		gross α	5	17
				gross β	8	27
				^{3}H	260	<0.01
Site C, Nev. HTH-1	3/2	23	850	gross α	3	10
				gross β	6	20
				^{3}H	<200	<0.01
Site C, Nev. HTH-2	3/2	23	600	gross α	<5	<17
				gross β	4	13
				^{3}H	<200	<0.01
Warm Springs, Nev. Hot Creek Ranch	1/12	27		gross α	<5	<17
				gross β	13	43
				^{3}H	340	0.01
PROJECT SHOAL						
Frenchman, Nev. Frenchman Station	11/29	23		gross α	7.2	24
				gross β	6.1	20
				^{3}H	<220	<0.01
				^{226}Ra	0.17	0.57
Frenchman, Nev. HS-1	11/29	23		gross α	7.3	24
				gross β	4.1	14
				^{3}H	<210	<0.01
				^{226}Ra	0.42	1.4
Frenchman, Nev. H-3	11/28	23	375	gross α	<4.8	<16
				gross β	16	53
				^{3}H	<210	<0.01
				^{89}Sr	<2	<0.01
				^{90}Sr	<0.8	<0.27
Frenchman, Nev. Flowing Well No. 2	11/29	23		gross α	<12	<40
				gross β	38	127
				^{3}H	<220	<0.01
				^{226}Ra	0.28	0.93
				^{89}Sr	<2	<0.01
				^{90}Sr	<1.1	<0.04

Table 10 1972 Summary of Analytical Results
for Off-NTS Long-Term Hydrologic Monitoring Program

Sampling Location	Date	Sample Type[a]	Depth Feet[b]	Type of Radioactivity	Radioactivity Conc. $10^{-9}\mu Ci/ml$ or pCi/l	% of Conc. Guide
Frenchman, Nev. Hunt's Station	11/28	23		gross α	<2.5	<8.3
				gross β	6.1	20
				^{3}H	<210	<0.01
PROJECT GASBUGGY						
Blanco, N.M. San Juan River	9/13	22		gross α	<3.6	<12
				gross β	<3.8	<13
				^{3}H	840	0.03
Dulce, N.M. City Water	9/8	21		gross α	<2.8	<9.3
				gross β	<3.5	<12
				^{3}H	<220	<0.01
Dulce, N.M. La Jara Lake	9/13	21		gross α	<9.8	<33
				gross β	36	120
				^{3}H	740	0.03
				^{89}Sr	<10	<0.03
				^{90}Sr	11	3.7
Jicarilla Apache Reservation, N.M. North	9/13	23		gross α	<9.3	<31
				gross β	<3.4	<11
				^{3}H	350	0.01
Jicarilla Apache Reservation, N.M. South	9/13	23		gross α	16	53
				gross β	5	17
				^{3}H	<210	<0.01
				^{226}Ra	2.9	9.7
Gobernador, N.M. Arnold Ranch	9/10	27		gross α	<11	<37
				gross β	4.6	15
				^{3}H	210	<0.01
Gobernador, N.M. Lower Burro Canyon	9/10	23		gross α	<11	<37
				gross β	<4.4	<15
				^{3}H	<210	<0.01
Gobernador, N.M. Bixler Ranch	9/13	23		gross α	<6.4	<21
				gross β	<4.2	<14
				^{3}H	<210	<0.01

Table 10 1972 Summary of Analytical Results
for Off-NTS Long-Term Hydrologic Monitoring Program

Sampling Location	Date	Sample Type[a]	Depth Feet[b]	Type of Radio-activity	Radioactivity Conc. 10^{-9}µCi/ml or pCi/l	% of Conc. Guide
Gobernador, N.M. Cave Springs	9/10	27		gross α	4	13
				gross β	<3.6	<12
				^{3}H	<210	<0.01
Gobernador, N.M. Bubbling Spring	9/8	27		gross α	<6.2	<21
				gross β	<4.1	<14
				^{3}H	310	0.01
Gobernador, N.M. EPNG Well 10-36	9/13	23	3,600	gross α	<21	<70
				gross β	47	157
				^{3}H	<210	<0.01
				^{89}Sr	<3	<0.01
				^{90}Sr	<1	<0.33
PROJECT GNOME						
Carlsbad, N.M. City Well No. 7	3/17	23		gross α	<4.3	<14
				gross β	<3.4	<11
				^{3}H	<220	<0.01
Loving, N.M. City Well No. 2	3/21	23		gross α	<4.8	<16
				gross β	9	30
				^{3}H	<220	<0.01
Malaga, N.M. USGS Well No. 1	3/15	23	528	gross α	<6.2	<21
				gross β	6	20
				^{3}H	<220	<0.01
Malaga, N.M. USGS Well No. 4	3/15	23	486	gross α	<12	<40
				gross β	24,000	80,000
				^{3}H	1,300,000	43
				^{89}Sr	<2,300	<7.7
				^{90}Sr	13,000	433
Malaga, N.M. USGS Well No. 8	3/15	23	473	^{137}Cs	80	0.4
				gross α	<10	<33
				gross β	26,000	87,000
				^{3}H	1,500,000	50
				^{89}Sr	<1,800	<6
				^{90}Sr	12,000	400

Table 10 1972 Summary of Analytical Results
for Off-NTS Long-Term Hydrologic Monitoring Program

Sampling Location	Date	Sample Type[a]	Depth Feet[b]	Type of Radio-activity	Radioactivity Conc. $10^{-9}\mu Ci/ml$ or pCi/l	% of Conc. Guide
Malaga, N.M. PHS Well No. 6	3/16	23		gross α	<3.1	<10
				gross β	10	33
				^{3}H	450	0.02
Malaga, N.M. PHS Well No. 8	3/16	23		gross α	<11	<37
				gross β	<6.7	<22
				^{3}H	<220	<0.01
Malaga, N.M. PHS Well No. 9	3/16	23		gross α	<3.8	<13
				gross β	<3.4	<11
				^{3}H	<210	<0.01
Malaga, N.M. PHS Well No. 10	3/16	23		gross α	<7	<23
				gross β	15	50
				^{3}H	<210	<0.01
Malaga, N.M. City Tap Water	3/20	24		gross α	3	10
				gross β	<3.3	<11
				^{3}H	<220	<0.01
Malaga, N.M. Pecos River Pumping Station	3/18	23		gross α	<8.3	<28
				gross β	7	23
				^{3}H	<220	<0.01

[a] 21 - Pond, Lake, Reservoir, Stock Tank, Stock Pond
22 - Stream, River, Creek
23 - Well
24 - Multiple Supply - Mixed (A water sample consisting of mixed or multiple sources of water, such as well and spring.)
27 - Spring

[b] If depth is not shown, water was collected at surface. All depths are below surface level.

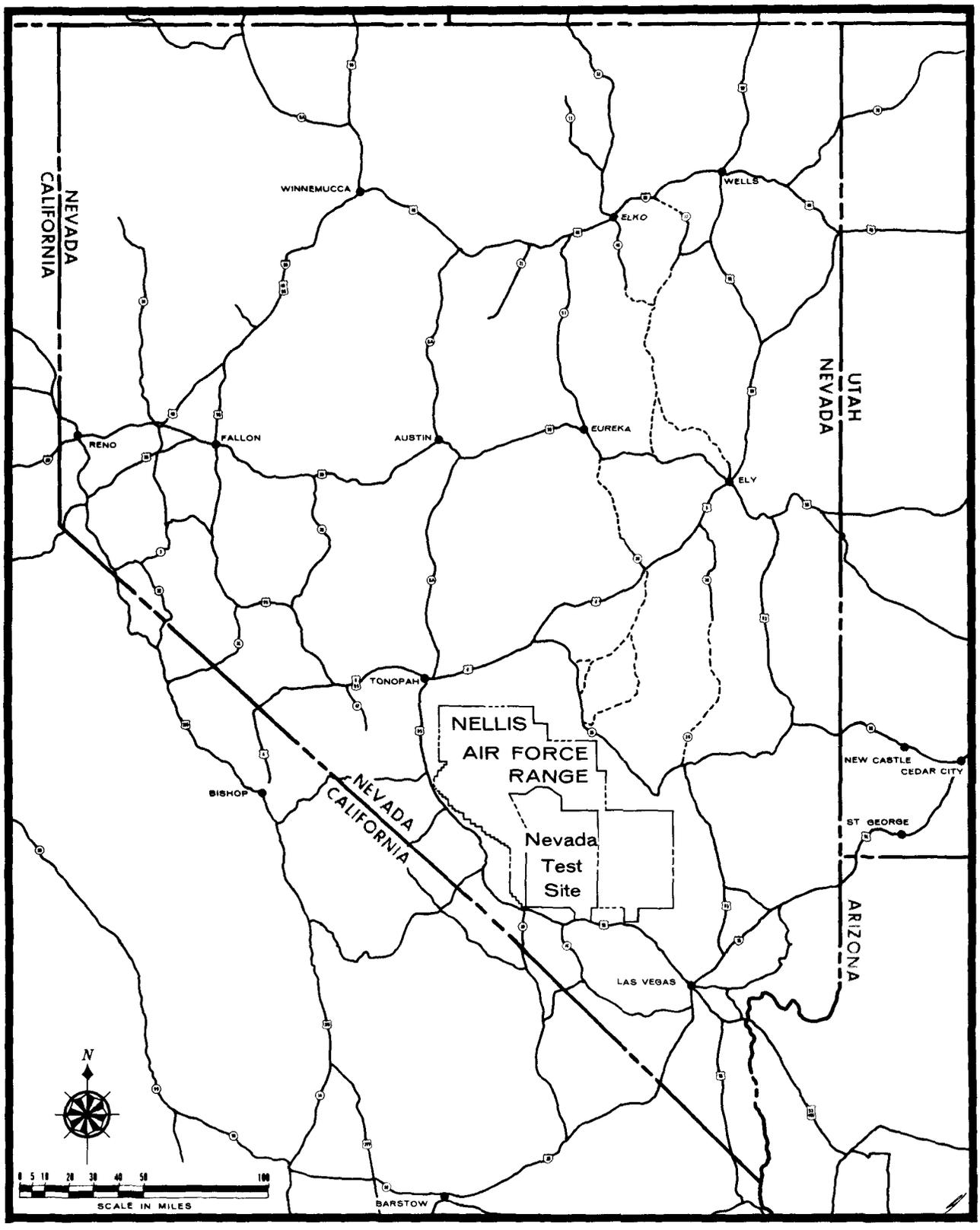

Figure 1. Nevada Test Site Location

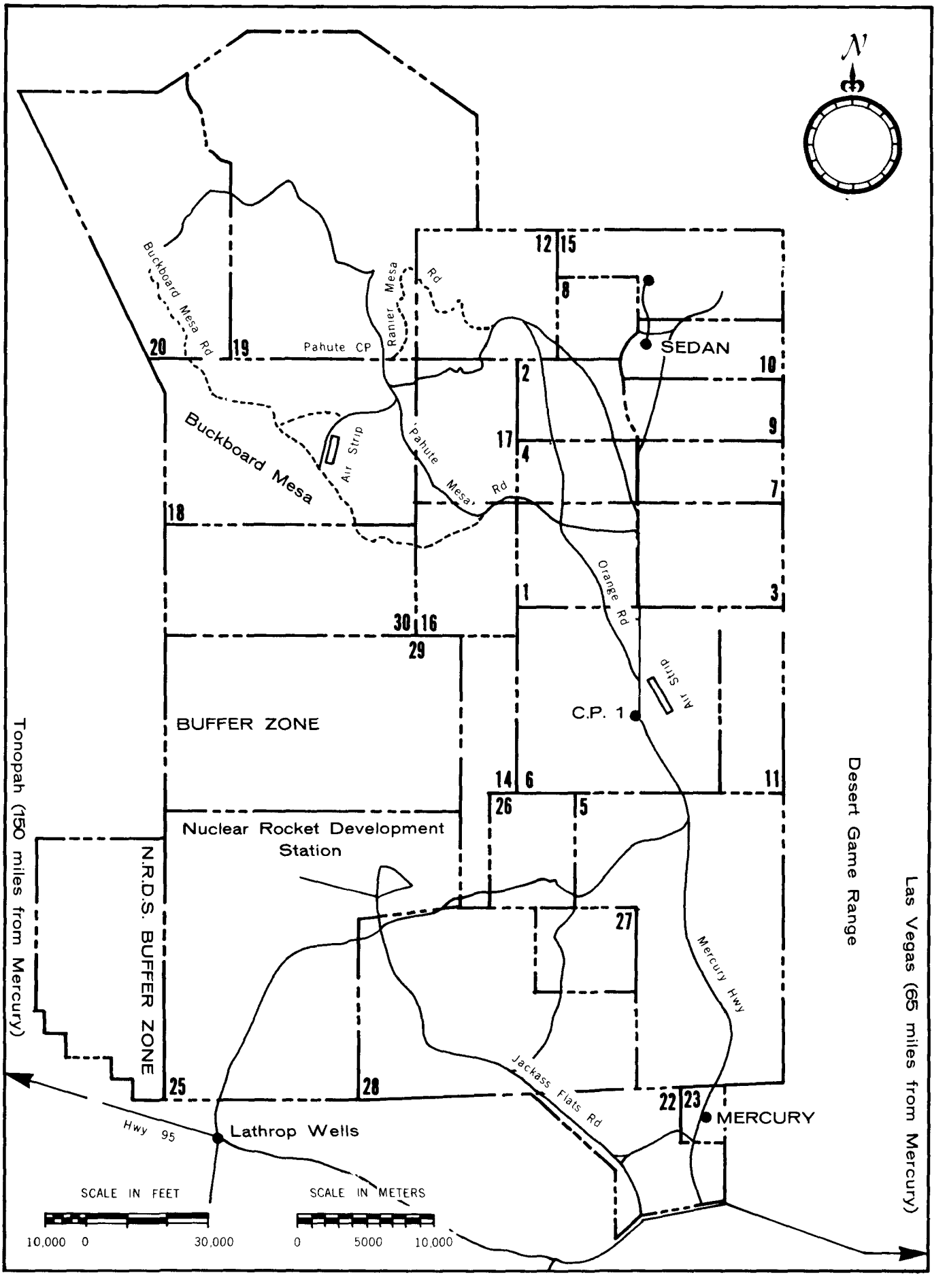

Figure 2. Nevada Test Site Road and Facility Map

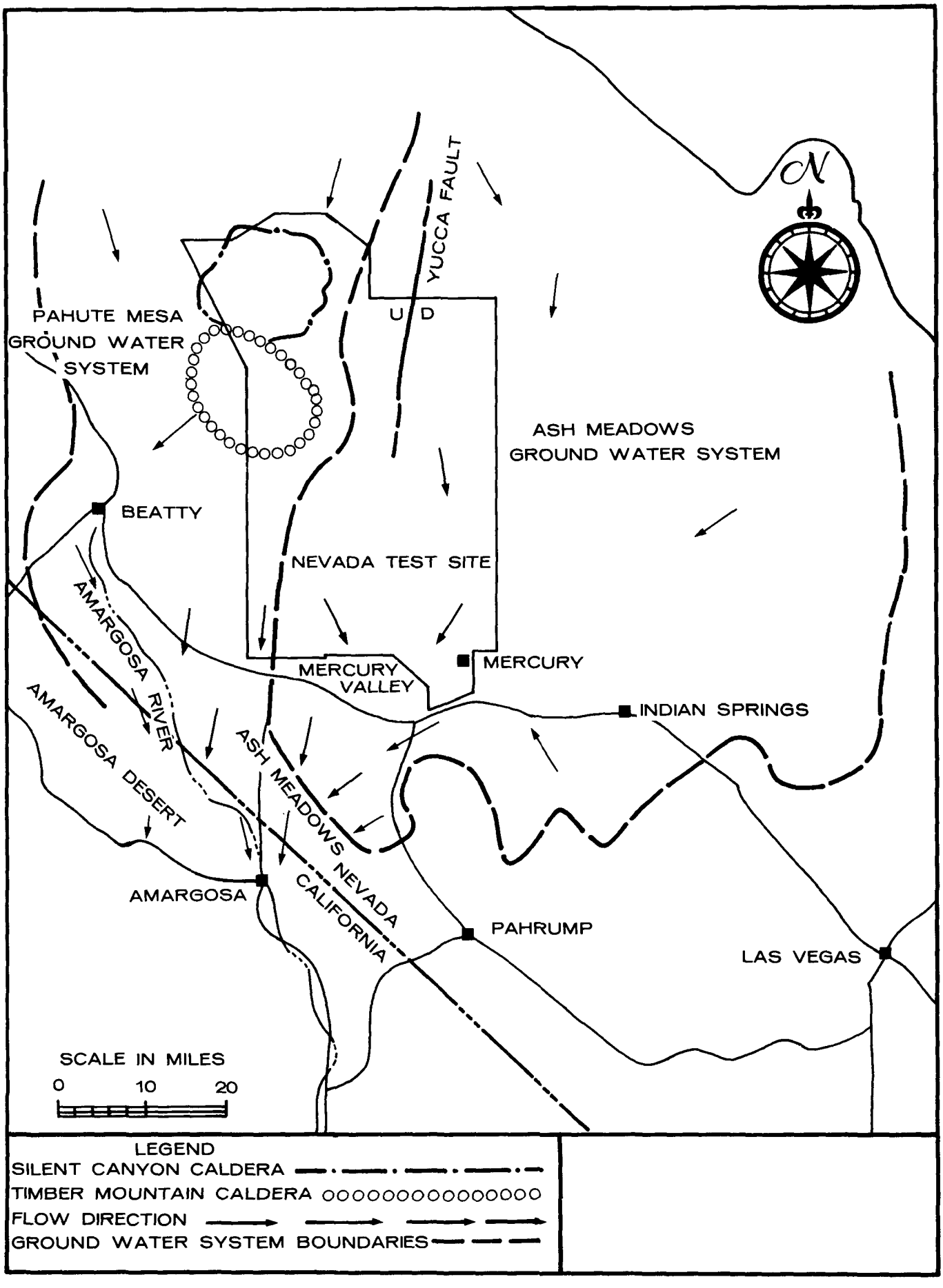

Figure 3. Ground Water Flow Systems - NTS

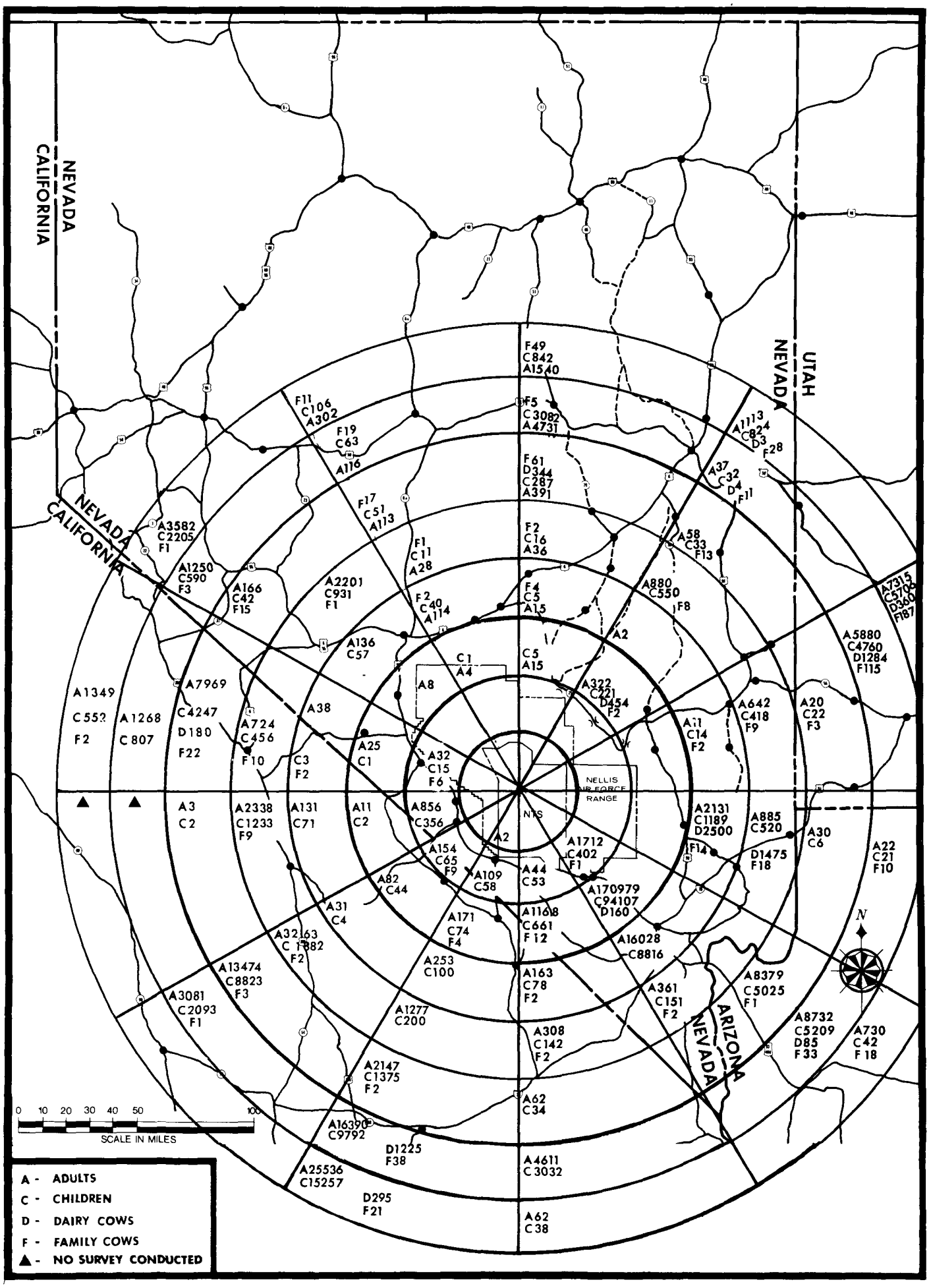

Figure 4 Population Distribution by Azimuth/Distance

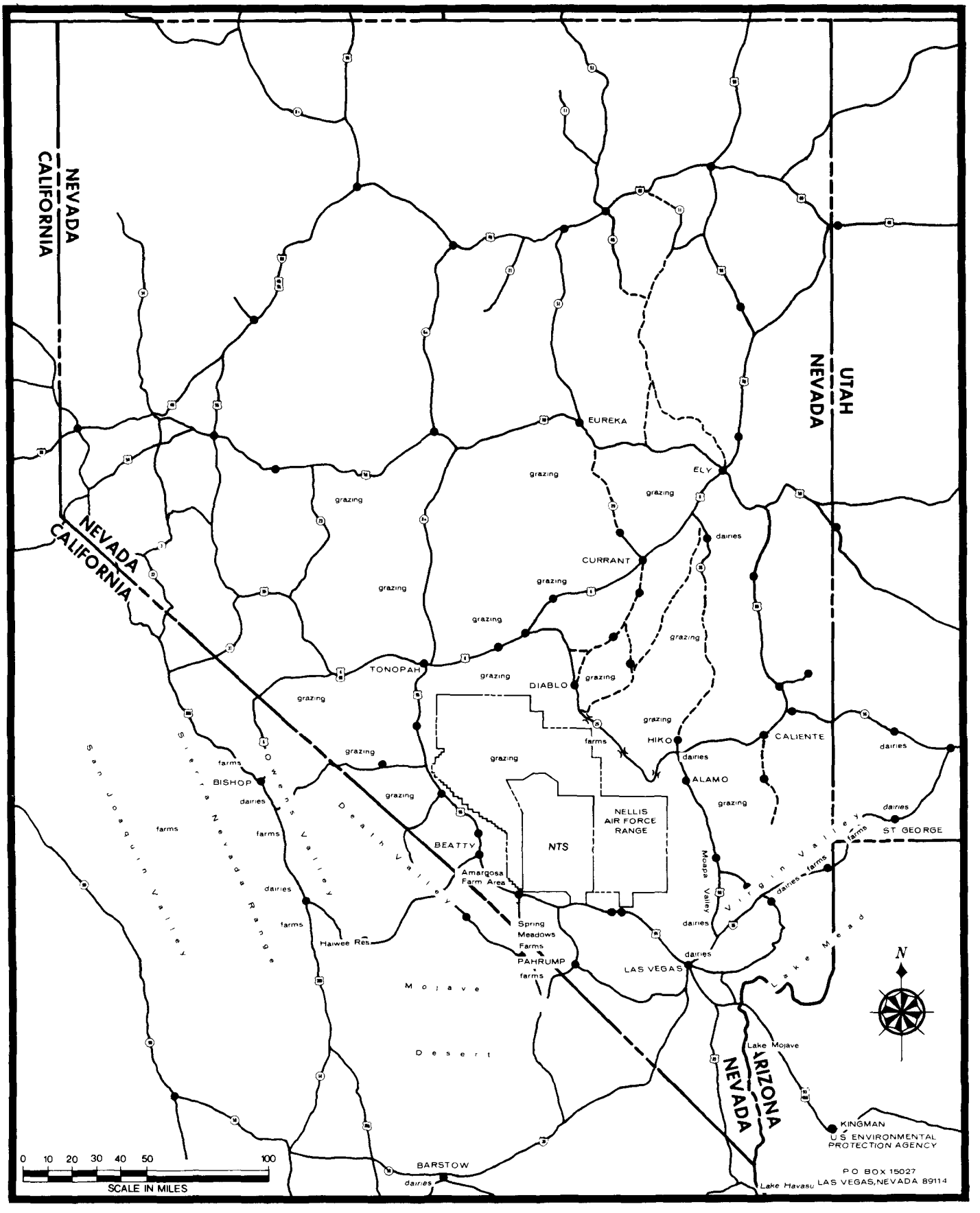

Figure 5. General Land Use, Nevada Test Site Vicinity

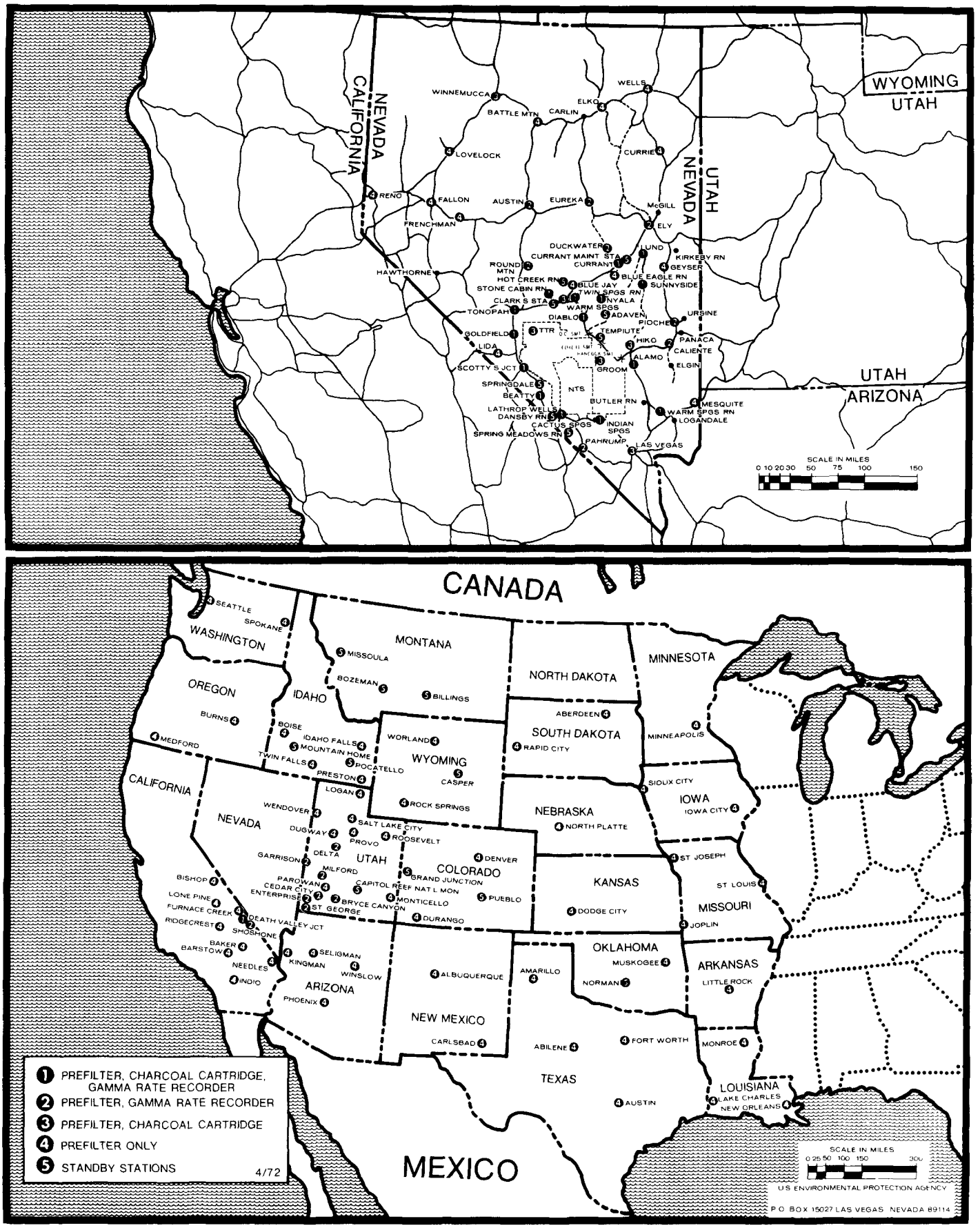

Figure 6. Air Surveillance Network

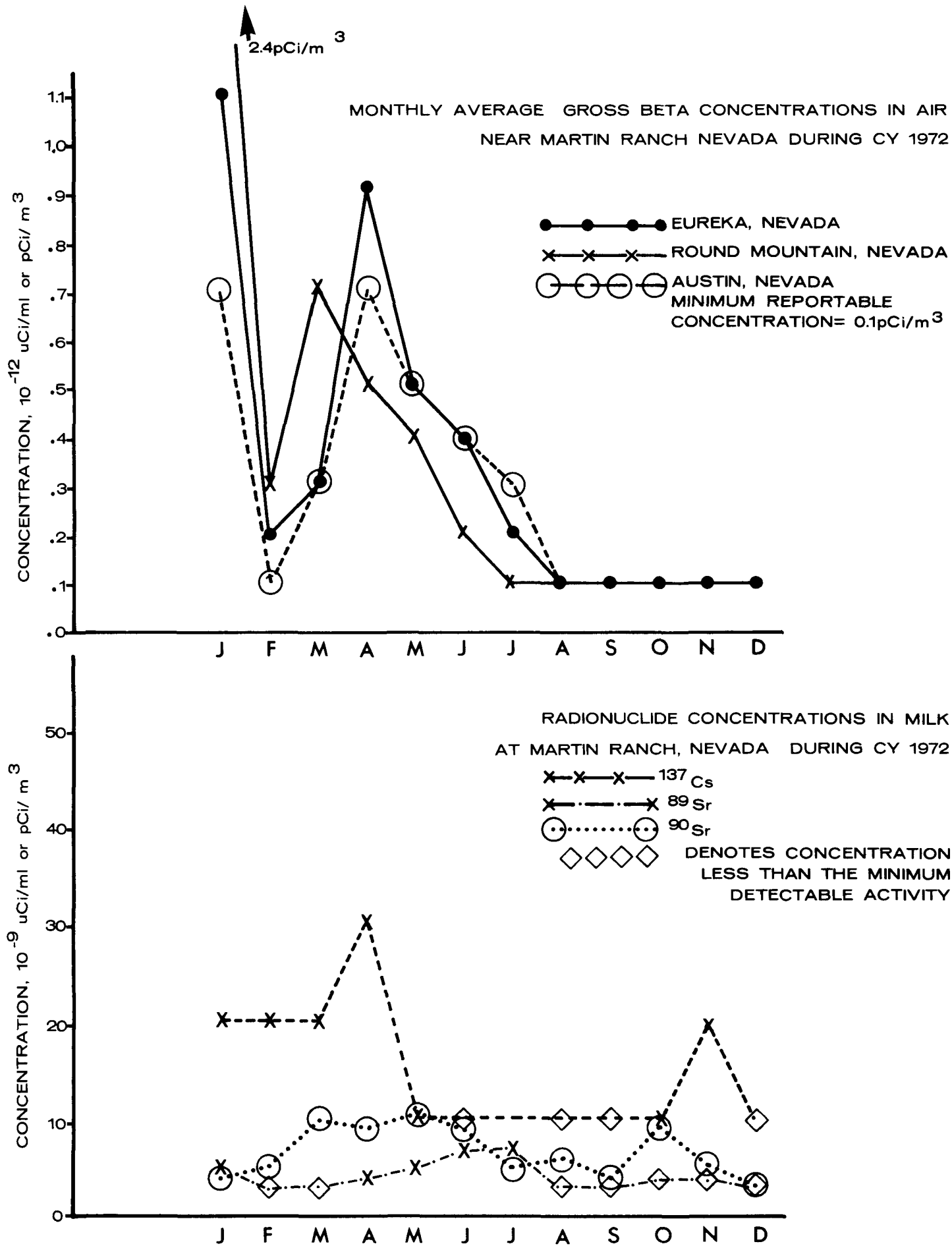

Figure 7. Radioactivity Trends in Air and Milk Samples Collected Near Martin Ranch, Nevada, During CY 1972

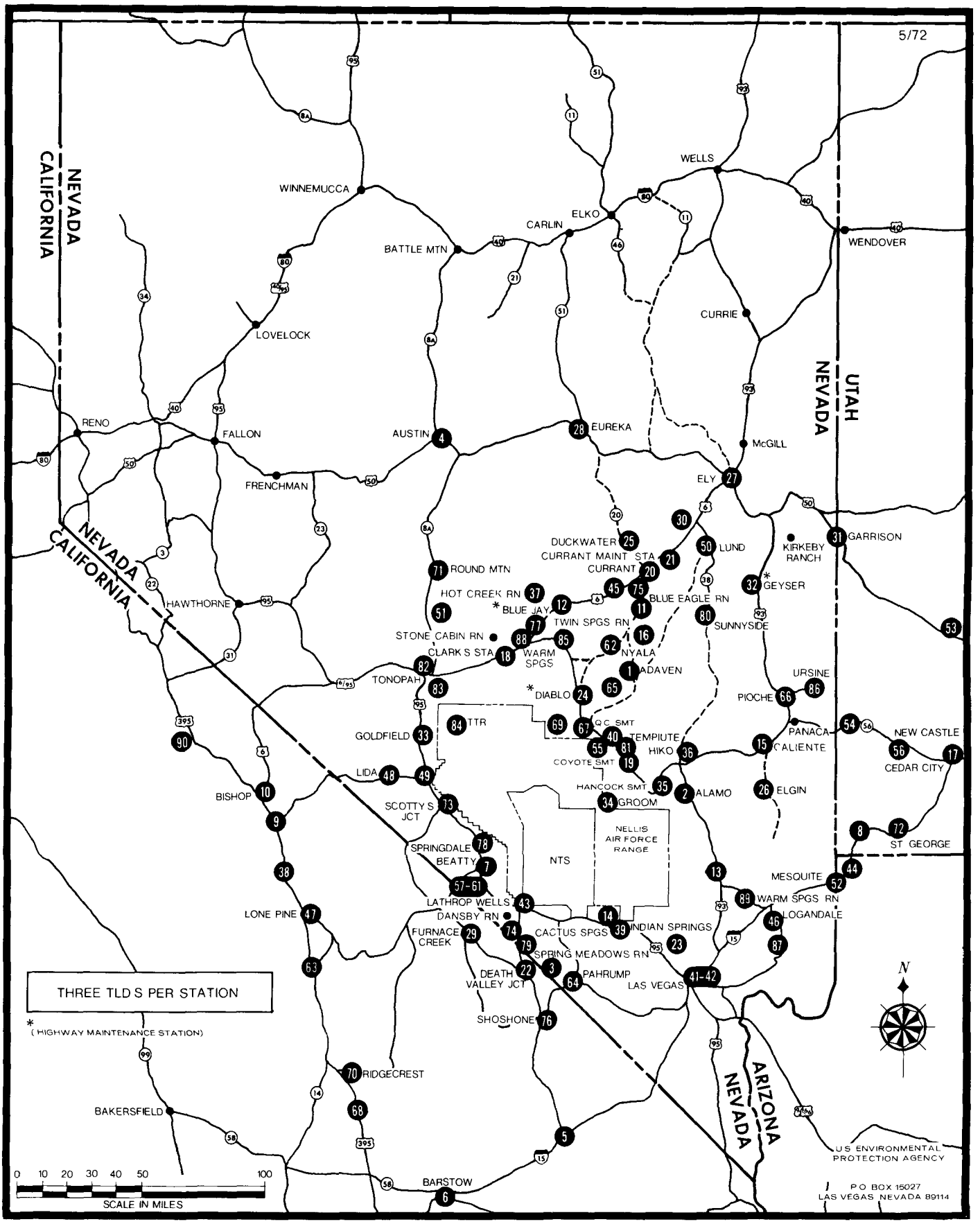

Figure 8. Dosimetry Network

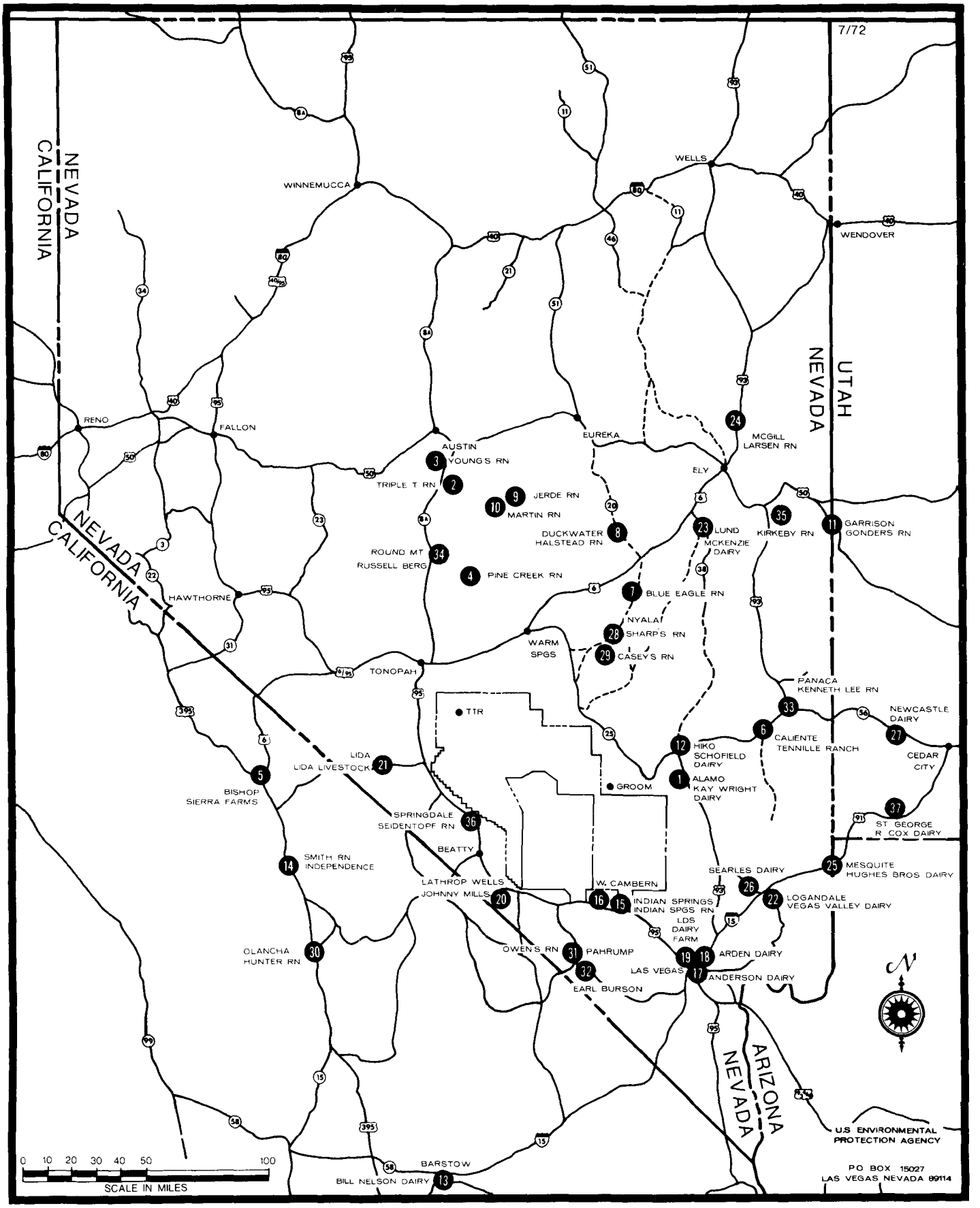

Figure 9. Milk Surveillance Network

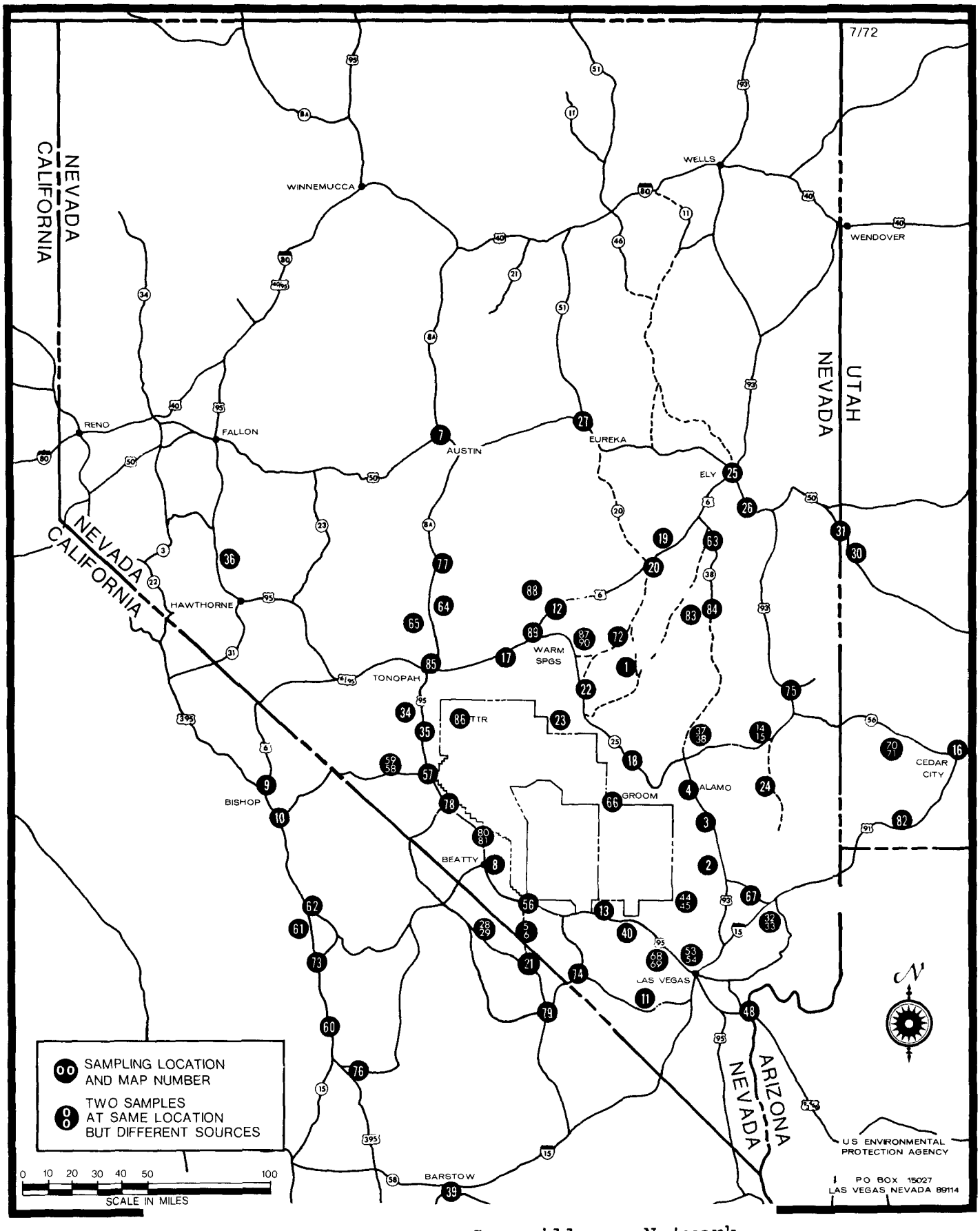

Figure 10. Water Surveillance Network

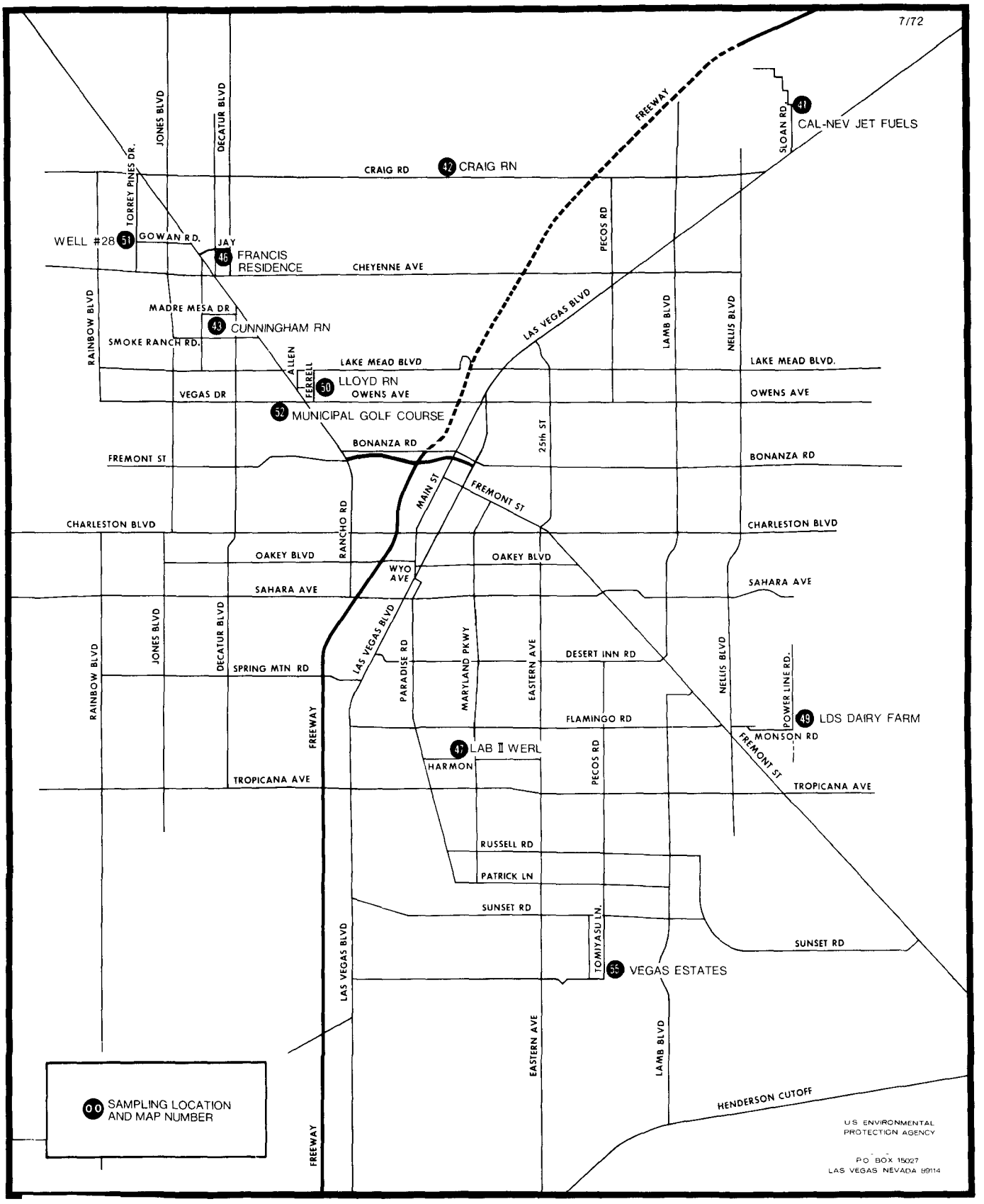

Figure 11. Water Surveillance Network, Las Vegas Valley

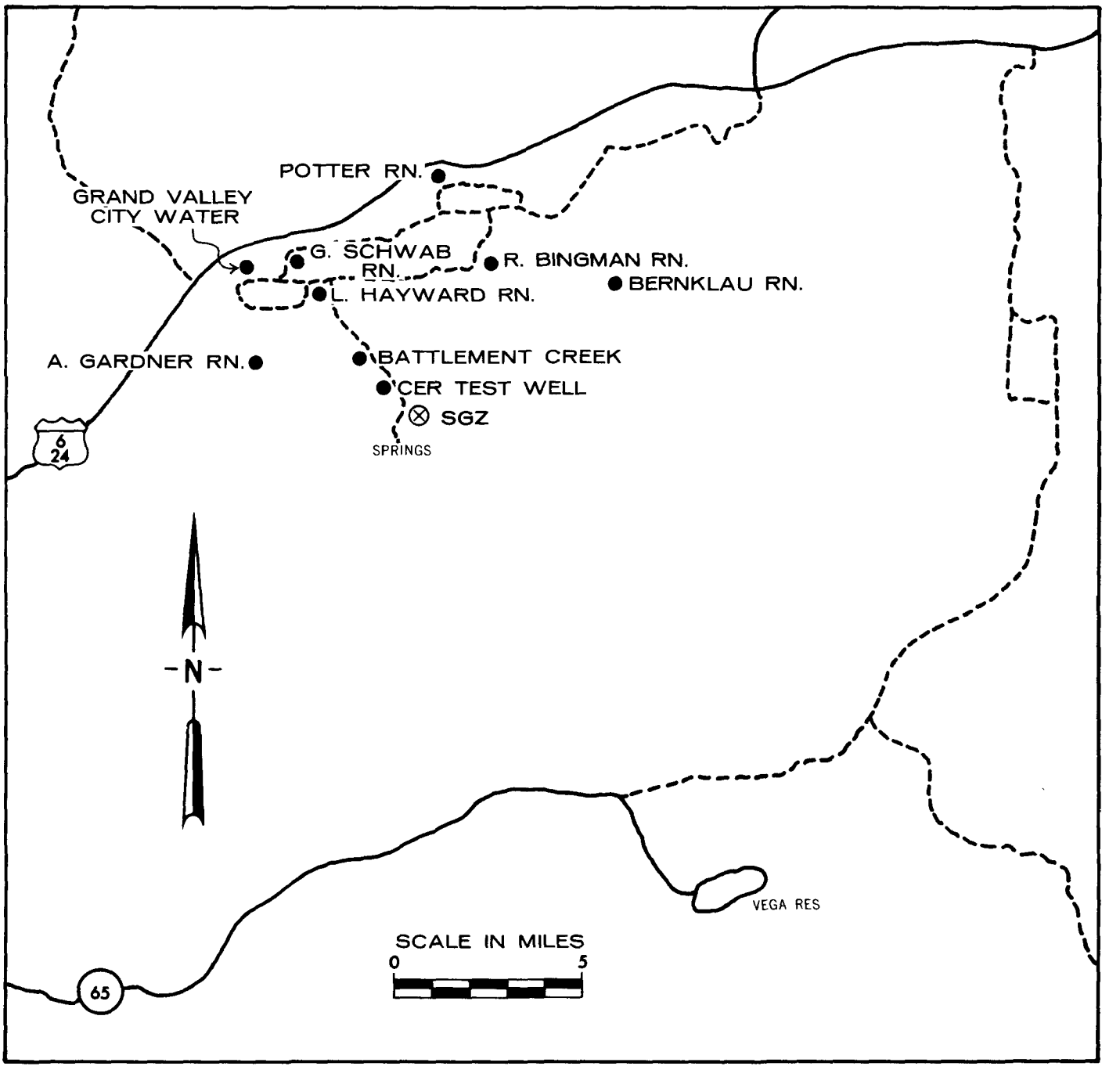

Figure 12. Long-Term Hydrologic Monitoring Locations, Rulison, Colorado, Project Rulison

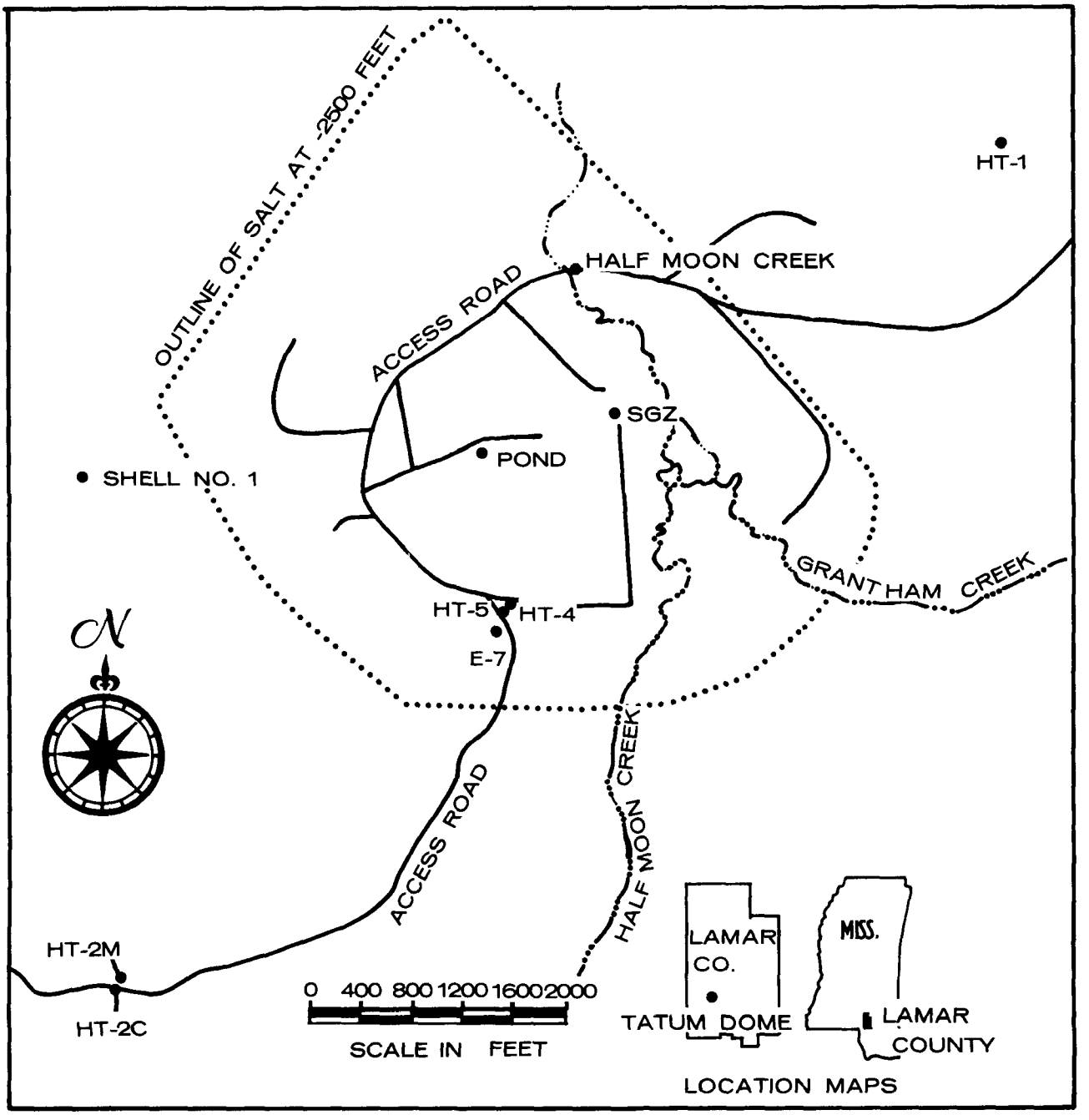

Figure 13. Long-Term Hydrologic Monitoring Locations, Tatum Dome, Mississippi, Project Gnome/Miracle Play

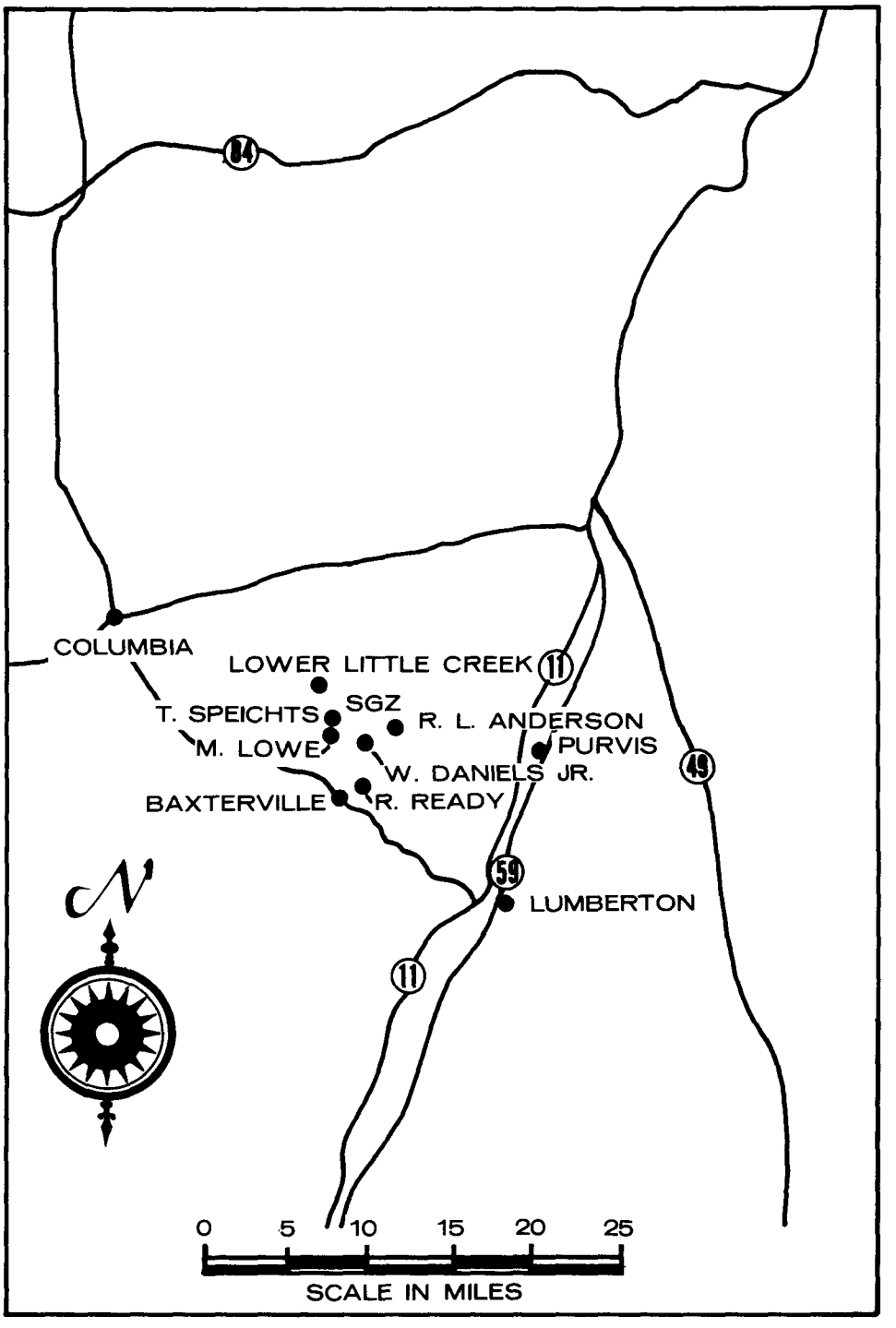

Figure 14. Long-Term Hydrologic Monitoring Locations, Tatum Dome, Mississippi, Project Gnome/Miracle Play

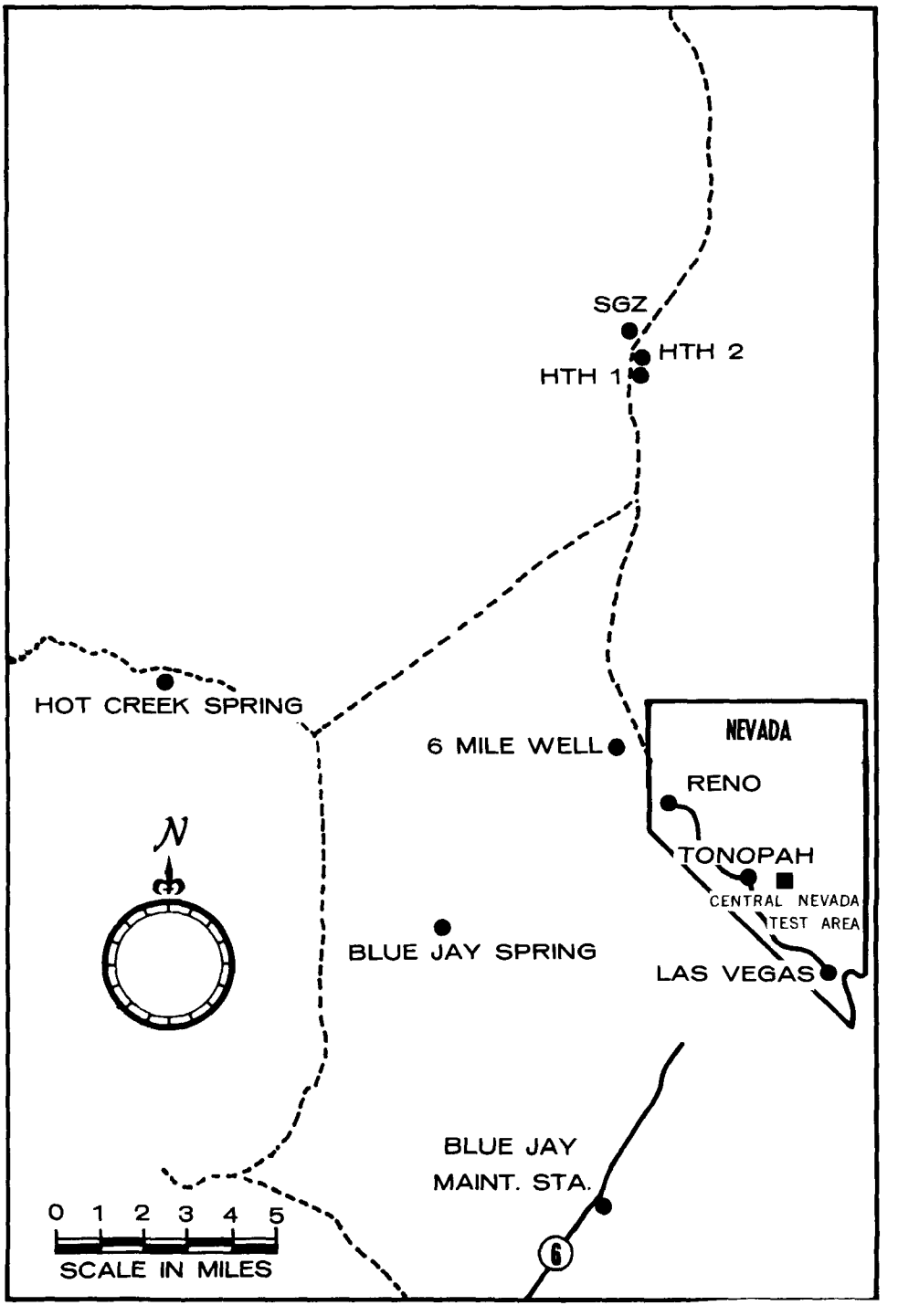

Figure 15. Long-Term Hydrologic Monitoring Locations, Central Nevada Test Area, Faultless Event

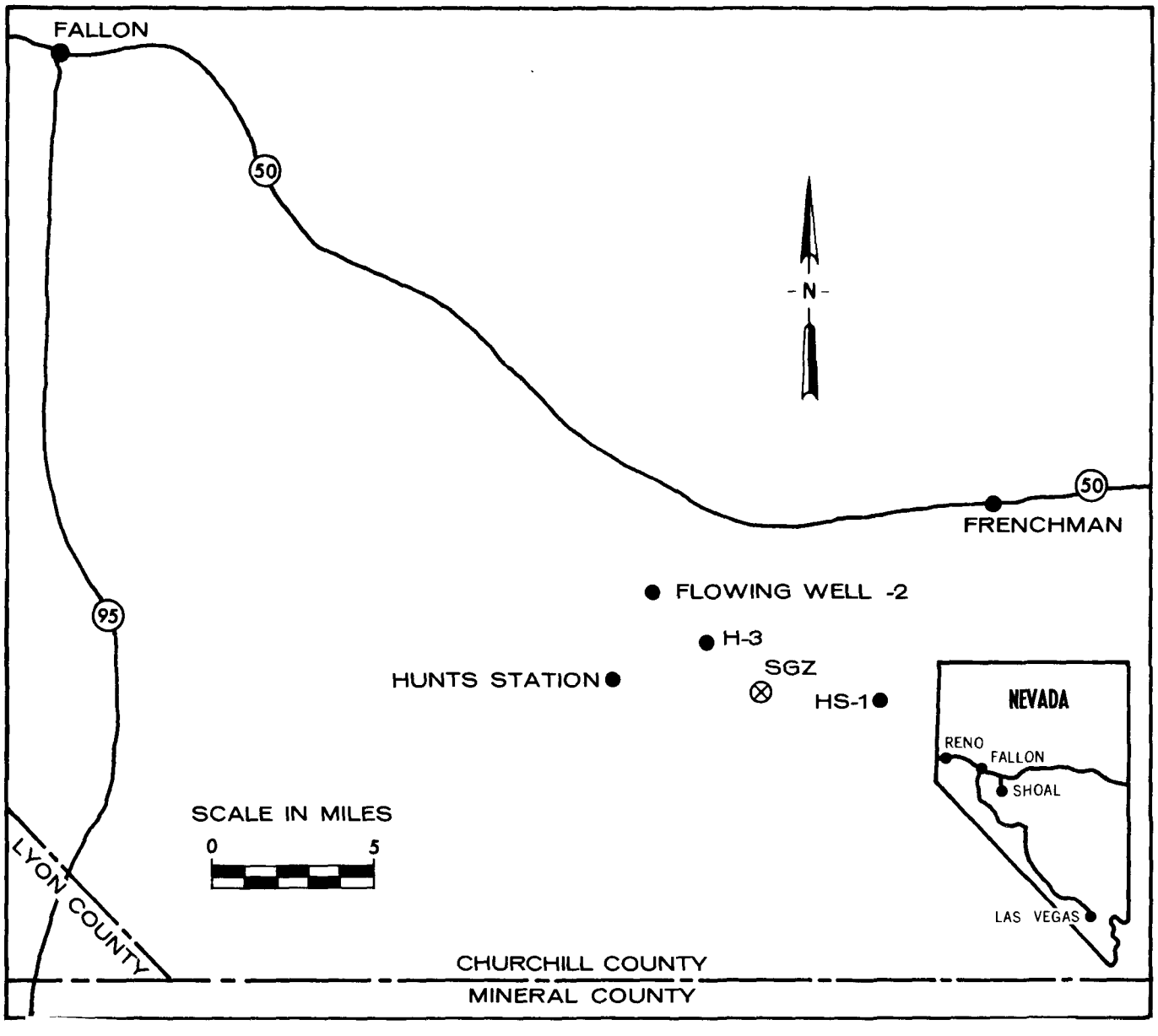

Figure 16. Long-Term Hydrologic Monitoring Locations, Fallon, Nevada, Project Shoal

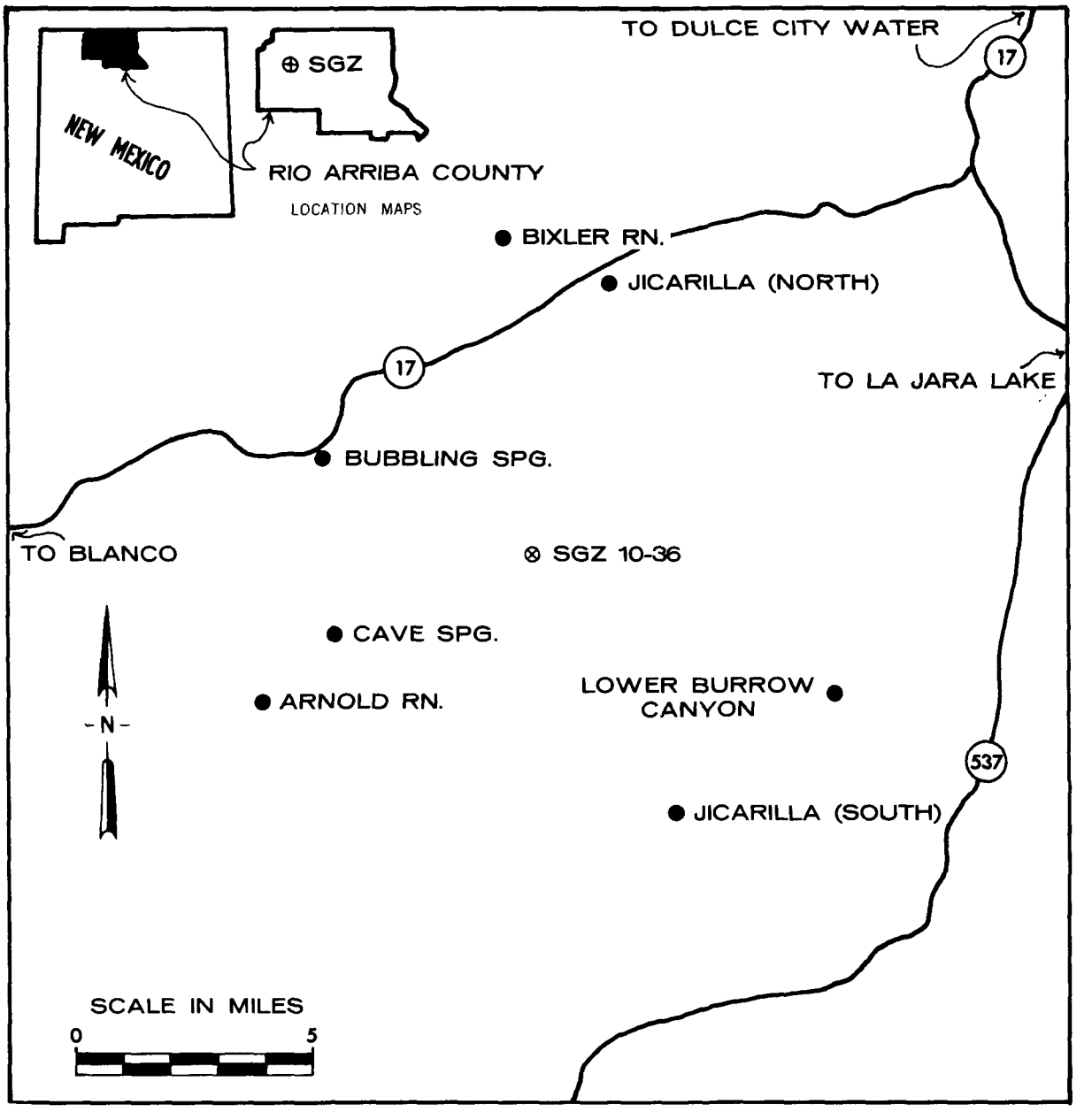

Figure 17. Long-Term Hydrologic Monitoring Locations, Rio Arriba County, New Mexico, Project Gasbuggy

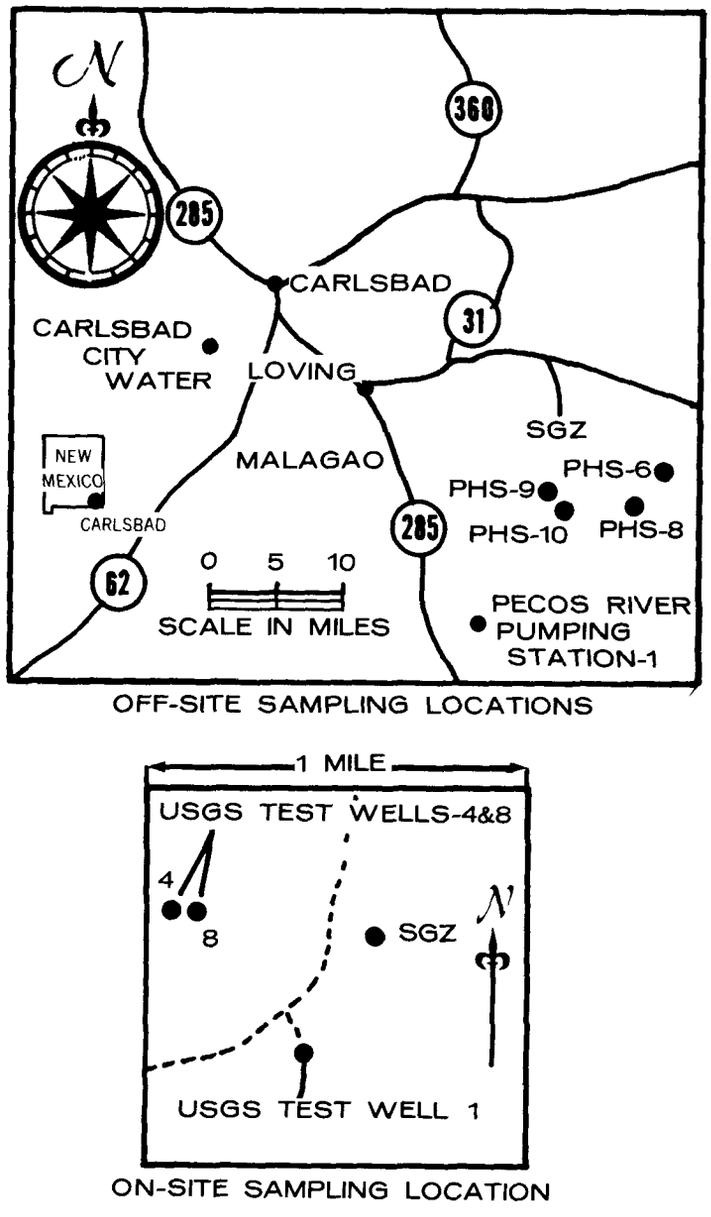

Figure 18. Long-Term Hydrologic Monitoring Locations, Carlsbad, New Mexico, Project Gnome/Coach

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