DOE/NV/11718-063
UC-600

U.S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE
ENVIRONMENTAL MONITORING PROGRAM
SUMMARY DATA REPORT
SECOND CALENDAR QUARTER
1996

February 1997

Work Performed Under
Contract No. DE-AC08-96NV11718

Prepared for the:

U.S. Department of Energy
Nevada Operations Office

Prepared by:

Bechtel Nevada
Post Office Box 98521
Las Vegas, Nevada 89193-8521

ERRATA SHEET

The following applies to data in the First Calendar Quarter 1996 Report, DOE/NV/11719-046.

In Table 6.0 of the subject report, the $^{239+240}Pu$ data for the water sample collected from the Area 23 (Mercury) sewage pond was reported as 7.2×10^{-10} µCi/mL (0.72 pCi/L). This concentration was greater than the MDC for the analysis, but the value was reported pending reanalysis of another aliquot from the sample. The reanalysis also indicated a detectable amount of plutonium in the sample. Samples from the influent to this pond, before and after this one, have always been below the MDC. Investigation of this anomalous concentration is continuing.

DISCLAIMER

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The word processing and desktop publishing support provided by Angela L. McCurdy were crucial to the production of this report. Frank R. Grossman and Bennie S. Hooda compiled and verified radiological onsite data; Orin Haworth provided the non-radiological data; Brian Dozier provided radiological waste management site (RWMS) data; and Cathy Wills provided information on ecological studies. R. R. Kinnison provided the statistical analyses necessary for this report.

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CX	Categorical Exclusion
DAF	Device Assembly Facility
DCG	Derived Concentration Guides
DOE	U.S. Department of Energy
DOE/NV	DOE Nevada Operations Office
EA	Environmental Assessment
EDE	Effective Dose Equivalent
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
HAZMAT	Hazardous Materials
HTO	tritiated water
LANL	Los Alamos National Laboratory
LGFSTF	Liquefied Gaseous Fuels Spill Test Facility
LLNL	Lawrence Livermore National Laboratory
LLW	Low-Level Waste
MDC	Minimum Detectable Concentration
NEPA	National Environmental Policy Act
NTS	Nevada Test Site
RWMS-3	Radioactive Waste Management Site, Area 3
RWMS-5	Radioactive Waste Management Site, Area 5
SDWA	Safe Drinking Water Act
TLD	thermoluminescent dosimeter
TTR	Tonopah Test Range
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

The Nevada Test Site (NTS), located in southern Nevada, has been the primary location for testing of nuclear explosives in the continental U.S. Testing began in 1951 and continued until the moratorium in 1992. Historically, nuclear testing has included: atmospheric testing in the 1950s and early 1960s; underground testing in drilled, vertical holes and horizontal tunnels; earth-cratering experiments; and open-air nuclear reactor and engine testing. No nuclear explosives tests have been conducted in 1996. Non-nuclear testing includes controlled spills of hazardous material and tests of an incinerator device at the Liquefied Gaseous Fuels Spill Test Facility (LGFSTF) (now called the Hazardous Materials [HAZMAT] Spill Center). Low-level radioactive and mixed waste disposal and storage facilities for defense waste are also operated on the NTS. At the Explosive Ordnance Disposal, explosive materials are destroyed, generally by detonation, with the amounts destroyed being limited to maintain downwind air concentrations within state limits.

Waste storage and disposal facilities for defense radioactive and mixed waste are located in Areas 3 and 5. At the Area 5 Radioactive Waste Management Site (RWMS-5), low-level wastes (LLW) from U.S. Department of Energy (DOE) affiliated onsite and offsite generators are disposed of using standard shallow land disposal techniques. Transuranic wastes are retrievably stored at the RWMS-5 in containers on a surface pad, pending shipment to the Waste Isolation Pilot Plant facility in New Mexico. Nonradioactive hazardous wastes are accumulated at a special site before shipment to a licensed offsite disposal facility. Non-standard packages of LLW are buried in subsidence craters in the Area 3 RWMS (RWMS-3).

This report describes these activities on and around the NTS and includes a listing of the results obtained from environmental surveillance activities during the second calendar quarter of 1996.

2.0 RADIOLOGICAL ENVIRONMENTAL SURVEILLANCE

2.1 INTRODUCTION

The continuing moratorium on the testing of nuclear explosive devices, the possibility of alternate uses for the NTS, and a reduced budget have led to significant changes in the extent of environmental radiological surveillance activities on and around the NTS. Not only have the number of monitored locations been reduced, but also the frequency and types of analyses have been changed. The present onsite radiological surveillance program is outlined in Table 1.0.

During the second calendar quarter of 1996, air samples were collected and analyzed from 45 air particulate/halogen sampling stations, 3 noble gas sampling stations, and 15 tritiated water (HTO) vapor sampling stations. Surface water samples were collected and analyzed from 1 tunnel water containment pond, and 9 sewage lagoons. Groundwater samples were obtained from 10 potable and 2 non-potable supply wells and from 7 drinking water end points, called faucet samples. Ambient radiation levels were measured by use of thermoluminescent dosimeters (TLDs) placed at 168 locations on the NTS. The sampling station locations are shown in Figures 1.0, 2.0, and 3.0. These activities were conducted in accordance with the schedule set forth in Table 1.0.

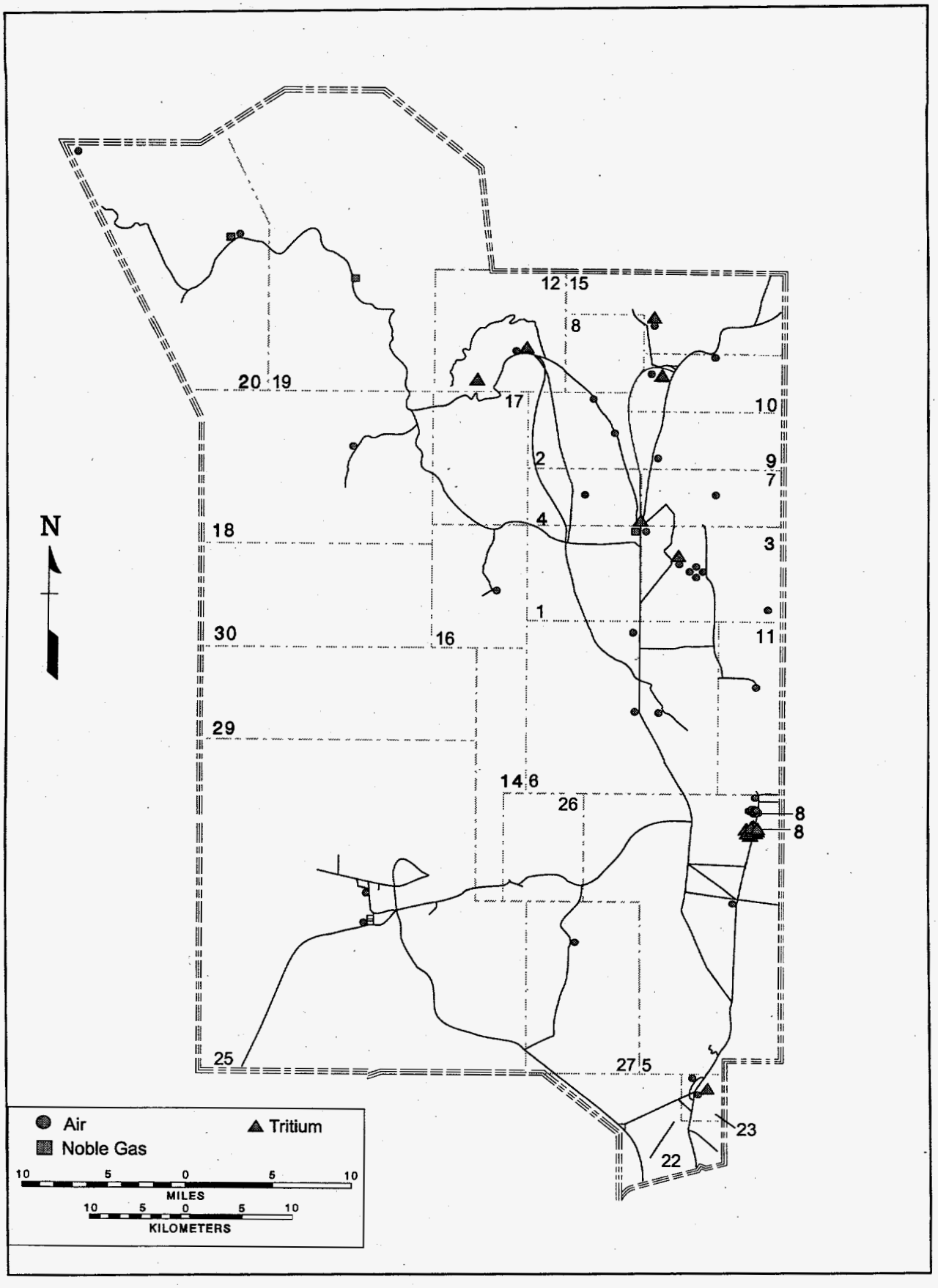

Figure 1.0 Location of NTS Air Sampling Stations, 1996

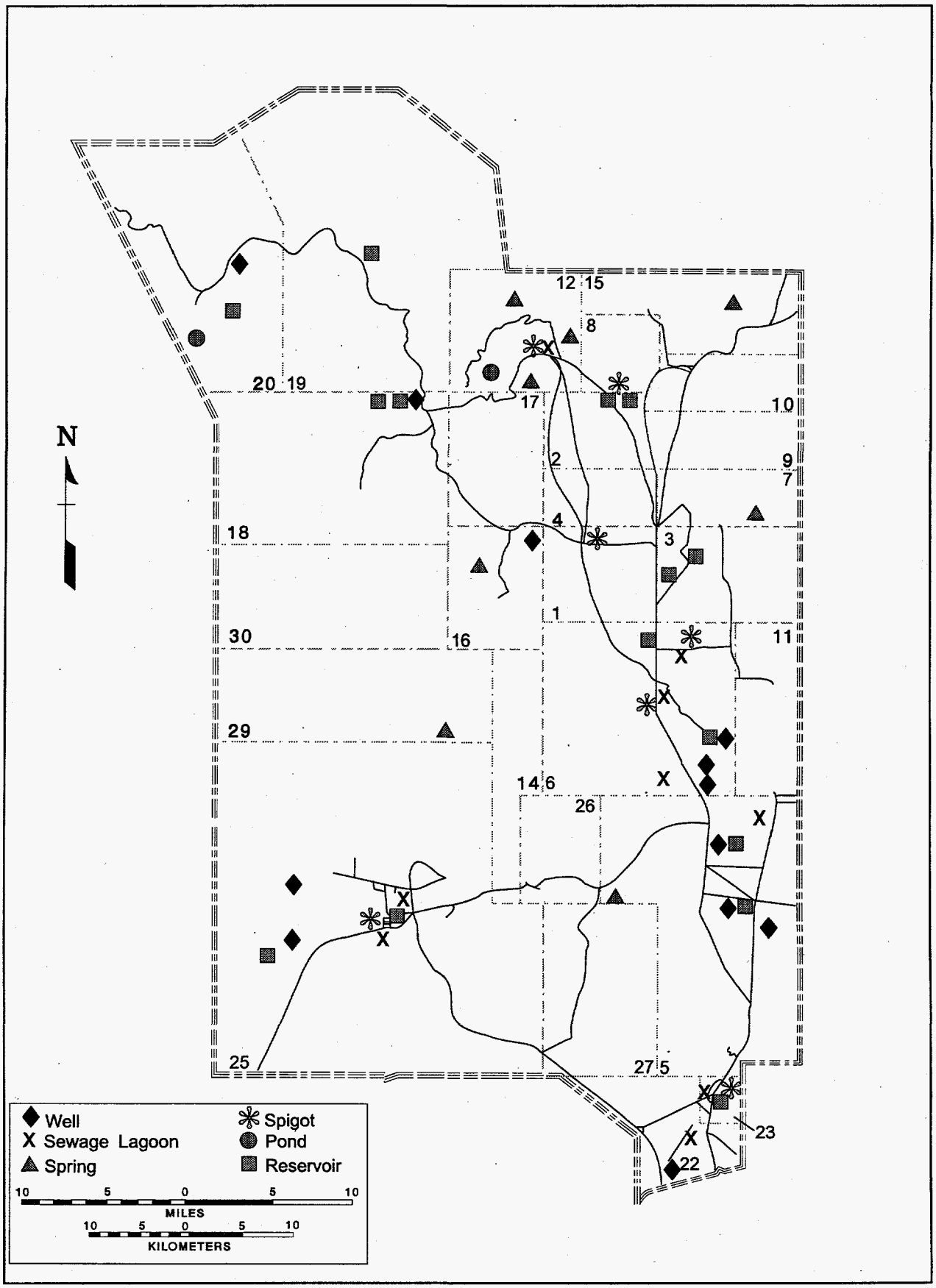

Figure 2.0 Location of NTS Water Sampling Stations, 1996

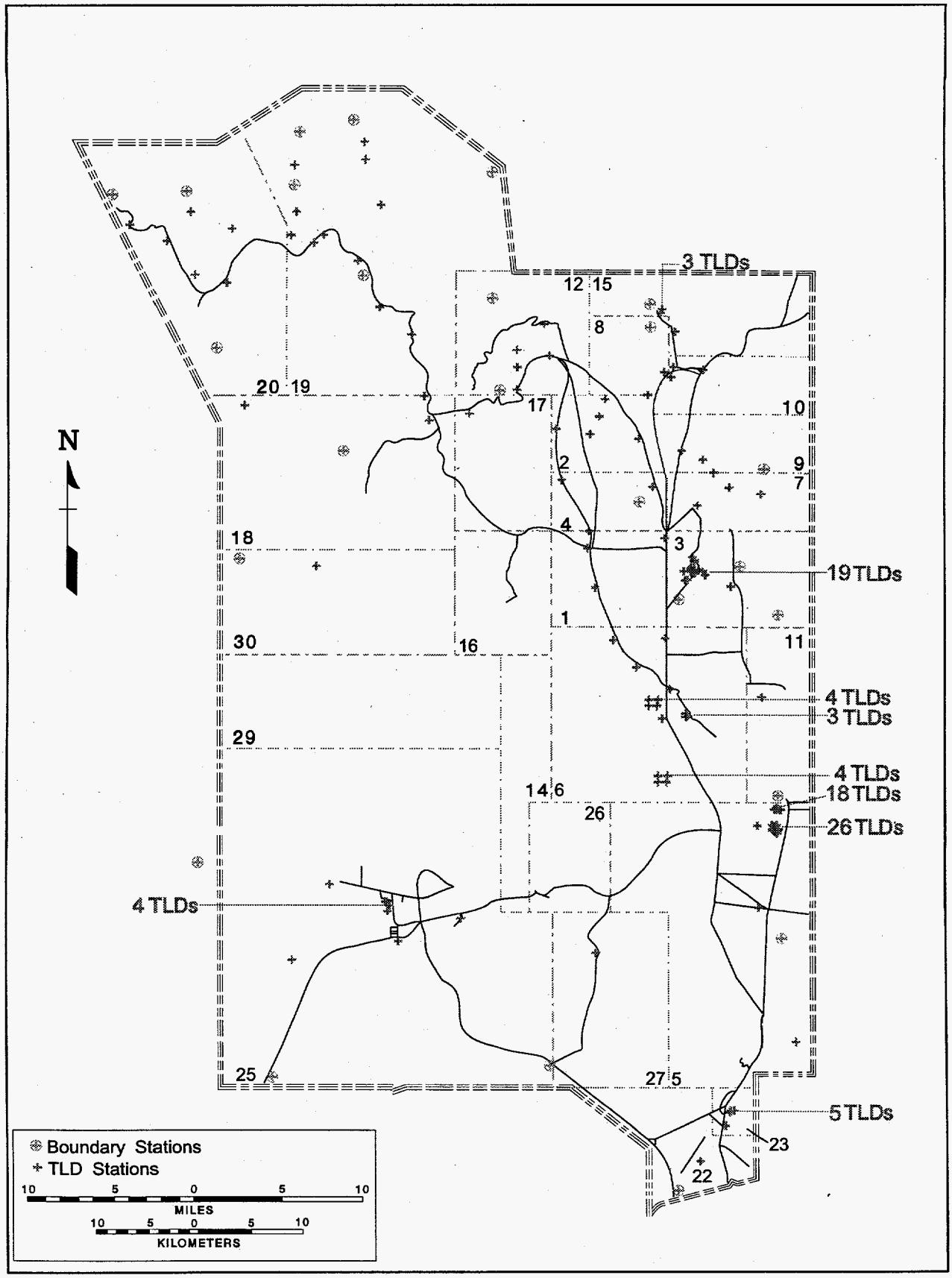

Figure 3.0 TLD Locations on the NTS, 1996

2.2 RADIOACTIVITY IN AIR

The 45 air particulate/halogen sampling stations were operated continuously. Samples were collected weekly on glass fiber filters (for particulates) and charcoal cartridges (for halogens). The filters were counted for gamma and gross beta activity, composited either monthly or quarterly, and then analyzed for ^{238}Pu and $^{239+240}Pu$. Unless indicated by radioactivity detected on the glass fiber filters, the charcoal cartridges were not analyzed.

Samples for the noble gas ^{85}Kr were collected weekly at three fixed locations by pumping air into pressure bottles. A cryogenic distillation process separated the krypton gas from the air sample. The krypton was then dissolved in a scintillation cocktail and measured by use of liquid-scintillation counting.

Tritiated water vapor was continuously collected on silica gel at 15 locations. The silica gel was exchanged every two weeks and the collected sample then heated to extract the water which was analyzed for ^{3}H by use of liquid-scintillation counting.

Measured quantities of radioactivity were compared to the Derived Concentration Guides (DCGs) found in DOE Order 5400.5. DCGs are used to compare the radiation exposure of the general public to regulatory limits. The values used are listed in Table 2.0. In making these comparisons, the following assumptions were made:

- The chemical species of the radionuclides were unknown so the most restrictive DCG values were used. These DCG values were also adjusted in order to demonstrate compliance with requirements of 40 CFR 61, National Emission Standards for Hazardous Air Pollutants, and 40 CFR 141, Safe Drinking Water Act.

- For air sampling results, all of the gross beta activity detected was assumed to be ^{90}Sr.

2.2.1 AIR PARTICULATE/HALOGEN SAMPLING RESULTS

Some of the locations that were necessary for an effective monitoring design were in sites where commercial electric power was unavailable so solar-powered stations were used. These have been installed at Well ER-3-1, Bunker T-4, SEDAN Crater, Well UE-18t, and the SCHOONER site and also at offsite locations in the Nellis Range Complex, namely, the Area 13 site, the DOUBLE TRACKS site, and the CLEAN SLATES site.

2.2.1.1 GROSS ALPHA, GROSS BETA, AND GAMMA SPECTRAL ANALYSES

Many of the particulate samples were analyzed for gross alpha radioactivity. This has not been done for several years but may be useful as an early indicator since this analysis can be completed in a week or two versus a month or two for plutonium analysis. The network mean was 2.6×10^{-15} µCi/mL (96 µBq/L). Air particulate samples were held for 5 to 7 days prior to gross beta counting and gamma spectral analysis to allow for the decay of radon progeny. Summary data for gross beta results are shown in Table 3.0. Results exceeded their applicable minimum detectable concentration (MDC). Mean station concentrations ranged from 1.27 to 3.24×10^{-14} µCi/mL (0.47 to 1.2 mBq/m^3). The network mean gross beta concentration was 1.71×10^{-14} µCi/mL (0.63 mBq/m^3). This concentration is 1.9 percent of the DCG for ^{90}Sr in DOE Order 5400.5 adjusted to an annual Effective Dose Equivalent (EDE) of 10 mrem (0.1 mSv) in accordance with the requirements of 40 CFR 61. The network mean is slightly lower than the values observed during the past 7 years (1989 - 1995).

Glass fiber filters used to collect particulates were analyzed by gamma spectroscopy. Charcoal cartridges, collected concurrently with the filters, were only analyzed if the result of fiber filter analysis indicated the potential for halogens. No such results were observed for the second quarter of 1996. Radionuclides detected were naturally occurring in the environment (^{40}K, ^{7}Be, and members of the uranium and thorium series), except for near MDC concentrations of ^{137}Cs detected in one sample each in Areas 9 and 27. The ^{7}Be results are also shown in Table 3.0 and are similar to the results for 1993, 1994, and 1995.

2.2.1.2 NELLIS RANGE COMPLEX SAMPLES

The samples collected from the Area 13, the DOUBLE TRACKS, and the CLEAN SLATE sites were analyzed for gross beta and gamma activity (see Table 4.0). The gross beta average of 1.55×10^{-14} µCi/mL (0.57 mBq/m^3) is similar to the onsite average data as is the ^{7}Be result of 2.97×10^{-13} µCi/mL (11 mBq/m^3) from gamma analysis of the filters.

2.2.1.3 PLUTONIUM ANALYSES

Filters from each particulate sampling station, located on the boundary of the RWMS-5 (eight stations) and RWMS-3 (four stations) were composited monthly and analyzed for ^{238}Pu and $^{239+240}Pu$. Filters from all other particulate sampling stations were composited quarterly and analyzed for plutonium isotopes.

These analyses have not been completed for all stations for the second quarter of 1996 and the results validated. However, air monitoring results for ^{238}Pu and $^{239+240}Pu$ for the first quarter are now available. The results are summarized in Table 5.0 and are consistent with previous data.

2.2.2 NOBLE GAS (^{85}Kr) SAMPLING RESULTS

Noble gas analyses for the second quarter of 1996 have been completed and the results validated. The network average for the three stations sampled this quarter is 41 pCi/m^3 (1.5 Bq/m^3) of ^{85}Kr, which is higher than the annual average for the past several years of about 26 pCi/m^3. Xenon-133 analyses have been discontinued because of the moratorium on nuclear tests. Table 4.0 contains the available results.

2.2.3 TRITIATED WATER VAPOR

Summary data for HTO vapor sampling are shown in Table 6.0. Mean station concentrations ranged from 0.42 to 10×10^{-12} µCi/mL (16 to 370 mBq/m^3). The network mean concentration was 3.0×10^{-12} µCi/mL (110 mBq/m^3). This network mean is similar to other quarterly means. The highest mean value was measured at the E Tunnel Pond station but was only 0.1 percent of the DCG for tritium adjusted for an annual EDE of 10 mrem.

2.3 RADIOACTIVITY IN SURFACE WATER

Annual samples are taken at all open reservoirs and natural springs. Quarterly samples are taken at any active containment ponds. Samples are analyzed for gross beta activity and for tritium, ^{238}Pu, $^{239+240}Pu$, ^{90}Sr, and gamma-emitting radionuclides.

Samples were not collected at any of the reservoirs or springs during this quarter. Sampling was limited to Area 12 E Tunnel effluent and E Tunnel pond No. 1. Samples were collected from 7 sewage lagoons as indicated in Table 7.0.

2.3.1 CONTAINMENT PONDS

At the Area 12 E Tunnel complex, grab samples were taken from containment pond No. 1 and at the effluent discharge point. The results of analyses for these two samples are given in Table 7.0. These results for E Tunnel samples are slightly less than the results observed in the third quarter of 1995.

2.3.2 SEWAGE LAGOONS

Each of the lagoons is part of a closed system used for evaporative treatment of sanitary waste. The lagoons are located in Areas 5, 6, 11, 12, 22, 23, and 25. Quarterly samples were taken and analyzed for gross beta activity and for tritium, ^{238}Pu, $^{239+240}Pu$, and gamma-emitting radionuclides. Summary data for sewage lagoons are shown in Table 7.0.

The gross beta concentrations in the lagoons ranged from 12 to 45 x 10^{-9} µCi/mL (0.44 to 1.7 Bq/L) with a network mean of 30 x 10^{-9} µCi/mL (1.1 Bq/L). Results were above their detection limits. The maximum station mean was at Area 6 Device Assembly Facility (DAF) Pond. These results are consistent with previous data.

The tritium concentrations in the lagoon samples ranged from 22 to 340 x 10^{-9} µCi/mL (0.8 to 13 Bq/L). Results were less than their individual detection limits.

Station ^{238}Pu and $^{239+240}Pu$ maximum concentrations were 0.0002 x 10^{-9} µCi/mL (7.4 µBq/L) for both isotopes. The network means for ^{238}Pu and $^{239+240}Pu$ were both -0.005 x 10^{-9} µCi/mL (-18 mBq/L). ^{238}Pu and $^{239+240}Pu$ values were less than their applicable detection limits.

Analyses are performed annually for ^{90}Sr in sewage lagoons but were not done this quarter.

Water samples were analyzed by gamma spectroscopy. Rradionuclides detected were naturally occurring in the environment (^{40}K, ^{7}Be, and members of the uranium and thorium series). No nuclear event related radioactivity was detected by the gamma spectroscopy analyses.

The results for sewage lagoons discussed above are comparable with past results, and the network means are within the ranges measured during the past 7 years.

2.4 RADIOACTIVITY IN GROUNDWATER

The NTS groundwater system is partially monitored by 12 water supply wells, 10 of which supply potable water to onsite distribution systems that are sampled monthly. Two supply wells, Area 5 Well UE-5c and Area 20 Well U-20 supply water for industrial purposes. Another set of wells, sampled less frequently by the Environmental Protection Agency (EPA) Radiation Sciences Laboratory supplies additional information on groundwater.

2.4.1 SUPPLY WELL WATER

The potable wells are sampled quarterly and analyzed for gross alpha/beta activity, tritium (using enrichment procedure), ^{238}Pu, $^{239+240}Pu$, ^{90}Sr, $^{226\&228}Ra$, and gamma-emitting radionuclides. The pump for Area 6 Well C was broken last year and this potable supply well has not been sampled since then. The non-potable wells are also sampled quarterly and receive the same analyses, except for tritium (standard liquid-scintillation analysis) and $^{226\&}$ ^{228}Ra (none). Summary data for these supply wells are given in Table 7.0. Results greater than their detection limits for potable wells are compared to the DCGs in DOE 5400.5, as adjusted to meet federal Safe Drinking Water Act (SDWA) regulations or SDWA screening levels.

2.4.1.1 GROSS BETA RESULTS

The station values for gross beta for potable supply wells ranged from 1.2 to 9.2 x 10^{-9} µCi/mL (0.04 to 0.34 Bq/L) with a network mean of 7.2 x 10^{-9} µCi/mL (0.27 Bq/L). The station value for gross beta for the non-potable supply well was 7.3 x 10^{-9} µCi/mL (0.23 Bq/L). Results were above their detection limits. The maximum potable station value was at Area 5 Well 5C and was 31 percent of the SDWA compliance limit for ^{40}K.

2.4.1.2 TRITIUM RESULTS

The station values for tritium for potable supply wells ranged from -0.77 to 4.8 x 10^{-9} µCi/mL (-0.028 to 0.18 Bq/L) with a network mean of 1.7 x 10^{-9} µCi/mL (0.06 Bq/L). The station value for tritium for the non-potable supply well was 0.4 x 10^{-9} µCi/mL (0.015 Bq/L). Results were less than their detection limits. The maximum tritium value was at Well HTH 8 and was 0.02 percent of the SDWA compliance limit.

2.4.1.3 PLUTONIUM RESULTS

The network mean value for ^{238}Pu for potable supply wells was 0.005 x 10^{-9} µCi/mL (0.2 mBq/L). The network mean value for $^{239+240}Pu$ for potable supply wells was 0.006 x 10^{-9} µCi/mL (0.22 mBq/L). The station values for ^{238}Pu and $^{239+240}Pu$ for the non-potable supply well were 0.0082 and 0.0085 x 10^{-9} µCi/mL (0.31 and 0.33 mBq/L), respectively. Both values were below the mean sample detection limits.

2.4.1.4 GROSS ALPHA AND RADIUM RESULTS

The station values for gross alpha for potable supply wells ranged from 0.92 to 9.6 x 10^{-9} µCi/mL (34 to 360 mBq/L) with a network mean of 7.3 x 10^{-9} µCi/mL (270 mBq/L). The gross alpha value for the non-potable supply well was 9.2 x 10^{-9} µCi/mL (0.34 Bq/L). Results were above their detection limits. Several potable supply well results exceeded the SDWA screening level of 5 pCi/L for gross alpha.

The potable water well station values for ^{226}Ra ranged up to 2.9 x 10^{-9} µCi/mL (0.11 Bq/L) with a network mean of 1.1 x 10^{-9} µCi/mL (41 mBq/L). The potable station means for ^{228}Ra were less than the MDC with a network mean of 0.43 x 10^{-9} µCi/mL (16 mBq/L). Most of the ^{226}Ra results were also less than their detection limits. The highest result was at Well C-1 and was 58 percent of the applicable adjusted DCG.

2.4.1.5 STRONTIUM RESULTS

The maximum station value for potable supply wells for ^{90}Sr was 0.16 x 10^{-9} µCi/mL (5.9 mBq/L) with a network mean of 0.06 x 10^{-9} µCi/mL (2.2 mBq/L). The value for the non-potable supply well was 0.059 x 10^{-9} µCi/mL (2.2 mBq/L). Station values were below their detection limits.

2.4.1.6 GAMMA SPECTROSCOPY RESULTS

Water samples were analyzed by gamma spectroscopy, but the only radionuclides detected were naturally occurring in the environment (^{40}K, ^{7}Be, and members of the uranium and thorium series). No nuclear event-related radioactivity was detected by the gamma spectroscopy analyses.

The results for supply wells discussed above are generally comparable with past results. Network means were within the range of means measured during the past six years, except for the ^{90}Sr concentrations which are slightly lower than has been observed previously.

2.4.2 RADIOACTIVITY IN DRINKING WATER

As a check on any effect the water distribution system might have on water quality, samples were collected from water faucets at seven locations. These are at the end-points of the NTS drinking water supply systems.

Samples are collected from these faucets quarterly and analyzed for gross alpha and gross beta activity, tritium, ^{238}Pu, $^{239+240}Pu$, and gamma-emitting radionuclides. Summary data for the samples are given in Table 8.0. Results greater than the sample detection limits are compared to the DCGs in DOE 5400.5 as adjusted to meet federal SDWA regulations, or SDWA compliance or screening levels.

2.4.2.1 GROSS BETA RESULTS

The station values for gross beta ranged from 3.9 to 10.2 x 10^{-9} µCi/mL (0.1 to 0.38 Bq/L) with a network mean of 6.5 x 10^{-9} µCi/mL (0.24 Bq/L). All of these values were above their detection limits. The maximum station value was at Mercury (Cafeteria) and was 20 percent of the SDWA compliance limit.

2.4.2.2 TRITIUM RESULTS

The station values for tritium ranged from -140 to 340 x 10^{-9} µCi/mL (-5.2 to 13 Bq/L) with a network mean of 77 x 10^{-9} µCi/mL (2.8 Bq/L). Values were less than the sample detection limits.

2.4.2.3 PLUTONIUM RESULTS

The station values for both ^{238}Pu and $^{239+240}Pu$ ranged up to -0.002 x 10^{-9} µCi/mL (-0.11 mBq/L) with a network mean of -0.006 x 10^{-9} µCi/mL (-0.22 mBq/L). Station values for both ^{238}Pu and $^{239+240}Pu$ were below their detection limits.

2.4.2.4 GROSS ALPHA RESULTS

The station values for gross alpha ranged from 0.9 to 9.8 x 10^{-9} µCi/mL (0.033 to 0.36 Bq/L) with a network mean of 4.6 x 10^{-9} µCi/mL (0.17 Bq/L). Results were above their detection limits, except for the Building 12-23 sample. Four results exceeded the SDWA screening level for gross alpha.

2.4.2.5 STRONTIUM RESULTS

Analyses are performed annually for ^{90}Sr in faucet samples but were not done this quarter.

2.4.2.6 GAMMA SPECTROSCOPY RESULTS

Water samples were analyzed by gamma spectroscopy. The only radionuclides detected were naturally occurring in the environment (^{40}K, ^{7}Be, and members of the uranium and thorium series). No nuclear event-related radioactivity was detected by the gamma spectroscopy analyses.

The results for the faucet samples discussed above are generally comparable with past results. All network means are within the range of means measured during the past few years.

2.5 EXTERNAL GAMMA EXPOSURE MEASUREMENT

External gamma exposure on the NTS is measured by use of TLDs. There are 168 TLDs placed at locations on the NTS to measure background radiation, radiation from contaminated areas, and radiation from various facilities. The background measurements are made at 26 locations, 9 control sites on the NTS, and 17 that are near the site boundary. The results of the background measurements are shown in Table 9.0; they are consistent with previous measurements.

2.6 RADIOACTIVE WASTE DISPOSAL

During the first calendar quarter of 1996, LLW amounting to 2.45 curies (614 packages weighing 232.5 metric tons, occupying 372 m^3) was accepted at the RWMS-3 and RWMS-5 facilities for disposal. A larger amount was accepted for disposal at the two facilities during the second quarter, namely, 3172 Ci in 1890 metric tons of waste occupying 3550 m^3, shipped in 984 packages.

No mixed waste was accepted for disposal at the RWMS-5 permitted site.

2.6.1 SOIL MOISTURE STUDY

In one of the greater confinement disposal holes at RWMS-5, samples of soil gas were taken at various depths and the tritium (as HTO) concentration measured. The results are shown in Table 10.0 and displayed graphically in Figure 4.0. Apparently the HTO released from LLW packages, although continued for almost 5 years, is confined to a layer of soil extending from 70 to 110 ft below ground surface.

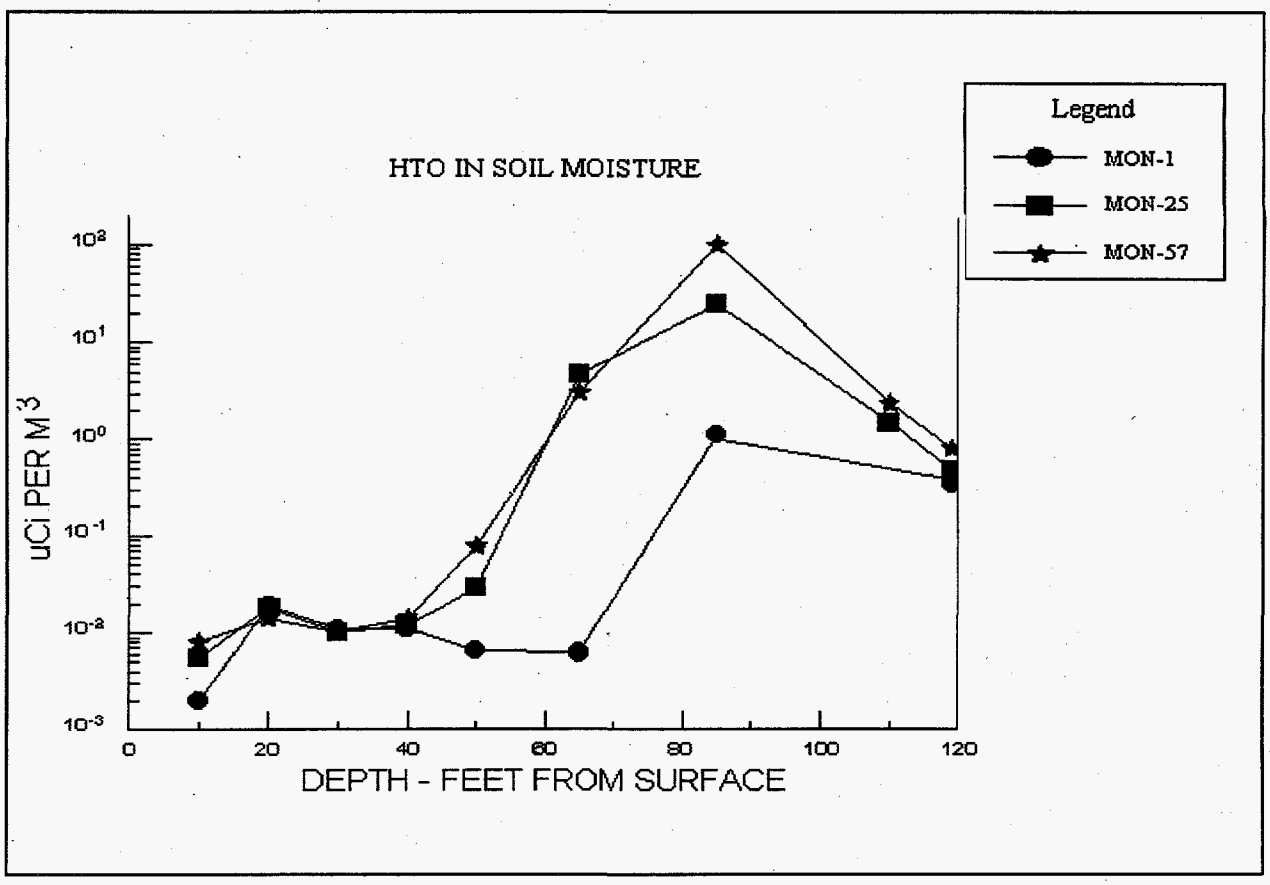

Figure 4.0 Tritium in Soil Moisture at RWMS-5 (MON-57 = month 57)

2.6.2 FAUNA STUDY

In October 1994, 18 kangaroo rats and 3 antelope ground squirrels were trapped near RWMS-5 and blood samples taken. The samples were analyzed for HTO and for gamma emitters. The average HTO concentration in 17 rats was 3.8 nCi/mL and in 3 squirrels 0.88 nCi/mL. The kangaroo rat with the maximum blood concentration of tritium would have received a dose equivalent of 1.3 rem per year.

3.0 NON-RADIOLOGICAL EFFLUENT MONITORING

3.1 DRINKING WATER SYSTEMS

Water sampling was conducted for analysis of bacteria in the water as required by the federal SDWA and state of Nevada regulations. Samples were taken at various locations throughout all drinking water distribution systems on the NTS. Common sampling points were restroom and cafeteria sinks. Samples were also collected this quarter for inorganic and organic analyses. Analyses were performed in accordance with Nevada Administrative Code 445 and 40 CFR Part 141.

3.1.1 BACTERIOLOGICAL SAMPLING

Water systems were tested once a month, with the number of people being served determining the number of samples collected. Samples were analyzed for the presence of coliform bacteria. Residual chlorine analyses are no longer required by the state.

No coliform bacteria were detected in any samples collected during the first quarter of 1996.

3.1.2 CHEMICAL ANALYSIS

During the second quarter, all systems were sampled and analyzed for organics, including synthetic organics, nitrites, nitrates, and fluoride. Sample results were below the maximum concentration levels.

3.2 SEWAGE LAGOONS

During the second quarter of 1996, sampling was conducted for sewage lagoon systems at the NTS in accordance with state of Nevada General Permit, GNEV93001. Water parameters monitored included water depth in infiltration basins, monitoring of influent quality, and organic loading rates in sewage lagoons. The results for water depth measurements are shown in Table 11.0; influent quality data are shown in Table 12.0; and the results of organic loading rates are shown in Table 13.0. The results and data in these three tables are within permit limits.

The permit also requires sampling and analysis of infiltration basins which contain 30 cm or more of liquid in January and June of any year. The Area 6 Yucca Lake facility level exceeded the 30 cm limit during June 1996. The analytic results have not been received yet and will be reported next quarter.

Annual sampling of primary treatment lagoons at facilities which receive industrial wastewater for toxics listed in Appendix I of the permit was performed in April 1996. Analytical results were below compliance limits and are shown in Table 14.0.

4.0 NON-HAZARDOUS SOLID WASTE DISPOSAL

Monitoring of the three sanitary landfills was limited to recording daily refuse amounts by weight. Waste disposed of in the Area 23 landfill was weighed at the Gate 100 weighing station. Waste disposed of in the 10c crater landfill in Area 9 was weighted at the landfill site. Approximately 1500 tons of waste were disposed of in the Areas 6, 9, and 23 sanitary landfills during the second quarter of 1996, as shown in Table 15.0.

5.0 NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) of 1969 requires all federal facilities, including the NTS, to account for environmental impacts, and potential alternatives, in conducting and

planning their operations. In accordance with NEPA, the DOE Nevada (DOE/NV) activities are evaluated for their potential environmental impacts and to ensure that the proper level of NEPA documentation is initiated. During the second quarter of 1996, NTS-related NEPA activities included actions on 7 Environmental Impact Statements (EISs), 8 Environmental Assessments (EAs), and 16 Categorical Exclusions (CXs). Of these, 2 EAs and 12 CXs were initiated in the second quarter of 1996. These NEPA documents are listed in chronological order in Table 16.0, with their assigned number and present status.

5.1 ENVIRONMENTAL RESTORATION/REMEDIAL ACTIVITIES

Work began in June 1996 on a process for removing plutonium contamination from the soil at the DOUBLE TRACKS site on the Nellis Range Complex. This activity was described in Environmental Assessment DOE/EA-1136 which had a Finding of No Significant Impact determination in March 1996. The design amount of surface soil was removed and stockpiled and the excavated area and stockpile were stabilized by June 29,1996. The stockpile will be disposed of in the Area 3 LLW site.

5.2 OTHER ACTIVITIES

A series of experiments was conducted on the Navy Thermal Treatment Unit during February and March 1996 to assess its capabilities. Stack gas measurements during test burns of colored dyes will be used to determine whether or not the system reduces the level of hazardous combustion products to state and national standards.

The LGFSTF, renamed the HAZMAT Spill Center, has had onsite customers for about 20 weeks this year, with the remainder of the time devoted to facility maintenance. Experiments have been conducted by various entities, including: a collaborative effort by Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), Brookhaven National Laboratory, and Sandia National Laboratories; the DuPont Corporation (mainly training of emergency operators); and a United Kingdom series consisting of Dual Source Releases.

6.0 ECOLOGICAL ACTIVITIES

6.1 ENDANGERED SPECIES ACT COMPLIANCE

6.1.1 DESERT TORTOISE SURVEYS

Field surveys for tortoises and onsite construction monitoring were conducted for road maintenance activities during the first quarter of 1996, and the tortoise-proof fences around sewage lagoons and the grenade range were inspected and needed fence repairs identified.

6.1.2 PREACTIVITY SURVEYS

Preactivity surveys are performed at selected sites to comply with DOE Order 54XC.1B. A preactivity survey of 10 large areas of contaminated soil in Yucca Flat was conducted in the first quarter. A pair of burrowing owls (a former candidate species under the Endangered Species Act and a State-protected species) was found and their burrow flagged for avoidance.

Two new candidate plant species for federal listing that may occur on the NTS were identified by the U.S. Fish and Wildlife Service (USFWS) in February. They include Clokey's egg-vetch (*Astragalus oophorus* var. *clokeyanus*) and the Blue Diamond cholla (*Opuntia whipplei* var. *multigeniculata*).

6.2 ECOLOGICAL MONITORING

Under the climate of changing NTS missions, a majority of the Basic Environmental Compliance and Monitoring Program tasks have been suspended. Efforts have thus focused on developing a new comprehensive and adaptive framework for ecological monitoring on the NTS. The result of this effort was a draft document produced in March 1996, *Guiding Principles and Prioritization Criteria for Ecological Monitoring at the Nevada Test Site.* The following activities are planned:

- Unique Habitat and Sensitive Species Monitoring - In February 1996, the USFWS issued a revised list of species and candidates proposed for listing under the Endangered Species Act. The revised list from USFWS removed 11 of the 12 animals and all of the 12 plants on the NTS from candidate status. During this reporting period, study designs for field surveys for chuckwalla, burrowing owls, and five species of bats were prepared.

- Ecosystem Mapping and Description - Habitat mapping of the southern one-third of the NTS was initiated. Mapping will facilitate the preparation of EAs and the management of biological resources at the NTS. The study design for this effort was developed, and an inventory of existing aerial photographs was performed.

- Project Specific Monitoring - A biological monitoring plan for the HAZMAT Spill Center was developed in January 1996. Such monitoring is prescribed in the facility's programmatic EA for those chemicals for which there are uncertain modeling predictions of downwind air concentrations that have not been tested before, or that have not been tested in large quantities. The biological monitoring plan addresses the method for biota sampling to determine test impacts under these circumstances.

6.3 LAND RECLAMATION

Both the Comprehensive Environmental Response, Compensations, and Liability Act and the Superfund Amendments and Reauthorization Act require remediation of the safety shot sites on and around the NTS. In fiscal year 1996, DOUBLE TRACKS, near the Tonopah Test Range (TTR), was targeted for remediation, and assessments for the three CLEAN SLATE sites, located on the TTR, were also initiated. Remediation includes the excavation and removal of soil from the area surrounding the detonation site. Once the contaminated soils are removed, the site will be revegetated and released for unrestricted use.

6.3.1 DOUBLE TRACKS SAFETY SHOT SITE

Stabilization of areas disturbed by cleanup activities at the DOUBLE TRACKS safety shot site are planned for calendar year 1996. Stabilization is critical both for preventing resuspension of residual plutonium, thus reducing health hazards and for reestablishing wildlife habitat. It is done by application of a chemical soil stabilizer immediately after the disturbance and later, by reestablishing native plants to provide a habitat for local wildlife, thus complementing other actions being taken to release the site for future use.

An irrigation study was initiated at field trial plots located adjacent to the DOUBLE TRACKS site to evaluate the effectiveness of different irrigation strategies in reestablishing native plants.

7.0 OCCURRENCE REPORTING

Occurrences are environmental, health, and/or safety-related events which are reported in several categories in accordance with the requirements of DOE Order 5000.3B. Two environmental occurrences were reported for NTS facilities during the second quarter of 1996. Details for these occurrences, including report numbers, description, and status, appear in Table 17.0.

TABLES

Table 1.0 Sample Collection and Analysis Schedule

			Frequency of Analyses			
Network	Media	No.	Weekly	Monthly	Quarterly	Annually
Air	Particulate	30	β, γ		Pu	
	RWMS	15	β, γ	Pu		
	Tritium	15		Bi-weekly		
	Noble Gas	3	^{85}Kr			
Water	Reservoir	15				β,γ,^{3}H,Sr,Pu
	Springs	8				β,γ,^{3}H,Sr,Pu
	Wells	12			β,γ,α,^{3}H+,Sr Pu,^{226,228}Ra	
	Spigot	7			β,γ,α,^{3}H,Pu	Sr
	Sewage	9			β,γ,^{3}H,Pu	Sr
	Pond	2			β,γ,^{3}H,Pu	Sr
TLD	Environ.	168			γ	

Table 2.0 Derived Limits for Radionuclides in Air and Water (DOE Order 5400.5)

	μCi/mL	
Radionuclide	DCG (air)[(a)]	DCG (water)[(b)]
^{3}H	1×10^{-8}	8×10^{-5}
^{40}K	9×10^{-11}	3×10^{-7}
^{85}Kr	3×10^{-7} [(c)]	--
^{90}Sr	9×10^{-13}	4×10^{-8}
^{226,228}Ra	1×10^{-13}	4×10^{-9}
^{238}Pu	4×10^{-15}	2×10^{-9}
$^{239+240}$Pu	4×10^{-15}	1×10^{-9}

(a) DCG - Derived Concentration Guides are reference values for conducting radiological protection programs at operational DOE facilities and sites. The DCG values for air are for an effective dose equivalent of 10 mrem (0.1 mSv) (inhalation) for a year as required by 40 CFR 61.92 and DOE Order 5400.5.

(b) The values listed for beta and photon emitters in the table are based on a 4 mrem committed effective dose equivalent for the radionuclide taken into the body by ingestion of water during one year (730 L). Gross beta levels less than or equal to 50 pCi/L are in compliance with 40 CFR 141, SDWA.

(c) Nonstochastic value.

Table 3.0 Summary Data for Gross α, Gross β, and ^{7}Be in Air (μCi/mL), Second Quarter - 1996

Location (Area)	Gross α	Gross β	Beryllium-7
Area 1, BJY		2.2×10^{-14}	3.7×10^{-13}
Area 2,	2.2×10^{-15}	1.6×10^{-14}	3.0×10^{-13}
Area 2, 2-1 Substation	1.4×10^{-15}	1.3×10^{-14}	1.9×10^{-13}
Area 2, Mud Plant	4.0×10^{-15}	2.2×10^{-14}	3.8×10^{-13}
Area 3, U-3ah/at South		1.4×10^{-14}	2.2×10^{-13}
Area 3, U-3ah/at East		1.7×10^{-14}	2.7×10^{-13}
Area 3, U-3ah/at North		1.7×10^{-14}	2.9×10^{-13}
Area 3, U-3ah/at West		1.6×10^{-14}	2.6×10^{-13}
Area 3, Well ER-3-1	4.0×10^{-15}	2.0×10^{-14}	3.4×10^{-13}
Area 4, Bunker T-4	3.3×10^{-15}	1.8×10^{-14}	3.1×10^{-13}
Area 5, RWMS No. 1		1.6×10^{-14}	2.7×10^{-13}
Area 5, RWMS No. 3		2.0×10^{-14}	3.3×10^{-13}
Area 5, RWMS No. 4		1.8×10^{-14}	3.0×10^{-13}
Area 5, RWMS No. 5		1.8×10^{-14}	3.2×10^{-13}
Area 5, RWMS No. 6		1.8×10^{-14}	2.5×10^{-13}
Area 5, RWMS No. 7		1.7×10^{-14}	2.7×10^{-13}
Area 5, RWMS No. 8		1.6×10^{-14}	3.1×10^{-13}
Area 5, RWMS No. 9		1.8×10^{-14}	2.6×10^{-13}
Area 5, RWMS PIT-5		1.6×10^{-14}	2.7×10^{-13}
Area 5, TRU Building North		1.8×10^{-14}	2.9×10^{-13}
Area 5, TRU Building South		1.6×10^{-14}	2.8×10^{-13}
Area 5, DOD	4.0×10^{-15}	1.8×10^{-14}	3.2×10^{-13}
Area 5, Well 5B	3.0×10^{-15}	1.8×10^{-14}	3.2×10^{-13}
Area 6, Yucca		1.8×10^{-15}	1.8×10^{-14}
2.9×10^{-13}			
Area 6, CP 6	2.4×10^{-15}	1.6×10^{-14}	2.9×10^{-13}
Area 6, Well 3		1.6×10^{-14}	3.0×10^{-13}
Area 7, Ue7ns	1.4×10^{-15}	1.6×10^{-14}	2.9×10^{-13}
Area 9, 9-300 Bunker	4.1×10^{-15}	1.5×10^{-14}	2.8×10^{-13}
Area 10, Gate 700	1.8×10^{-15}	1.5×10^{-14}	2.8×10^{-13}
Area 10, SEDAN Crater	2.4×10^{-15}	1.7×10^{-14}	3.2×10^{-13}
Area 11, Gate 293	2.7×10^{-15}	1.8×10^{-14}	3.1×10^{-13}
Area 12	1.8×10^{-15}	1.6×10^{-14}	3.2×10^{-13}
Area 15, EPA Farm	1.6×10^{-15}	1.6×10^{-14}	3.2×10^{-13}
Area 16, 3545 Substation		1.6×10^{-14}	2.7×10^{-13}
Area 18, Well UE-18t		1.8×10^{-14}	3.0×10^{-13}
Area 20, SCHOONER		1.8×10^{-14}	3.4×10^{-13}
Area 20		1.5×10^{-14}	3.0×10^{-13}
Area 23, Building 790 No. 2	1.9×10^{-15}	1.6×10^{-14}	3.1×10^{-13}
Area 23, H&S Building	3.0×10^{-15}	2.0×10^{-14}	3.8×10^{-13}
Area 25, E-MAD North	2.4×10^{-15}	1.8×10^{-14}	3.2×10^{-13}
Area 25, NRDS	2.7×10^{-15}	1.7×10^{-14}	3.0×10^{-13}
Area 27	2.5×10^{-15}	1.6×10^{-14}	2.8×10^{-13}
Network Averages	2.6×10^{-15}	1.7×10^{-14}	3.0×10^{-13}

Table 4.0 Offsite Particulate and Onsite ^{85}Kr in Air Summary Data, Second Quarter - 1996

Offsite Particulate Results (µCi/mL)[a]

Location	Gross α	Gross β	Beryllium-7	^{238}Pu	$^{239+240}Pu$
DOUBLE TRACKS	2.96×10^{-15}	1.55×10^{-14}	3.11×10^{-13}	3.4×10^{-19}	3.1×10^{-18}
CLEAN SLATE	1.45×10^{-14}	1.50×10^{-14}	2.95×10^{-13}	-5.1×10^{-20}	1.2×10^{-18}
Area 13	3.13×10^{-15}	1.60×10^{-14}	2.86×10^{-13}	4.9×10^{-19}	2.9×10^{-17}

(a) Particulate samples collected with solar-powered air sampler.

Onsite Krypton-85 Results (µCi/mL)

Location	Average	Maximum	Minimum
BJY	2.46×10^{-11}	3.29×10^{-11}	1.57×10^{-11}
Pahute Substation	4.67×10^{-11}	2.48×10^{-10}	1.47×10^{-11}
Area 20	5.22×10^{-11}	1.15×10^{-10}	2.13×10^{-11}

Table 5.0 Summary Data for Plutonium in Air Samples, First Quarter - 1996[a]

Location (Area)	^{238}Pu	$^{239+240}Pu$
Area 1 BJY		
Area 2	-1.4×10^{-19}	2.3×10^{-18}
Area 2 2-1 Substation	-1.2×10^{-19}	1.3×10^{-18}
Area 2 Mud Plant		
Area 3 U-3ah/at South	1.1×10^{-18}	4.5×10^{-17}
Area 3 U-3ah/at East	1.3×10^{-18}	5.1×10^{-17}
Area 3 U-3ah/at North	1.8×10^{-18}	1.4×10^{-16}
Area 3 U-3ah/at West	1.0×10^{-18}	1.1×10^{-16}
Area 3 Well ER-3-1	-1.4×10^{-19}	3.5×10^{-18}
Area 4 Bunker T-4		
Area 5 RWMS No. 1	-2.1×10^{-19}	4.0×10^{-18}
Area 5 RWMS No. 3	2.5×10^{-18}	1.7×10^{-18}
Area 5 RWMS No. 4	5.5×10^{-19}	6.3×10^{-19}
Area 5 RWMS No. 5	4.5×10^{-19}	4.1×10^{-18}
Area 5 RWMS No. 6	1.2×10^{-18}	4.6×10^{-18}
Area 5 RWMS No. 7	1.0×10^{-18}	2.6×10^{-17}
Area 5 RWMS No. 8	-2.7×10^{-19}	5.0×10^{-18}
Area 5 RWMS No. 9	-2.3×10^{-19}	2.2×10^{-18}
Area 5 RWMS Pit-5	-5.0×10^{-19}	4.9×10^{-18}
Area 5 RWMS TP Building North	1.4×10^{-18}	3.5×10^{-18}
Area 5 RWMS TP Building South	2.2×10^{-19}	4.0×10^{-19}

(a) Data not available for the first quarter report.

Table 5.0 (Summary Data for Plutonium in Air Samples, First Quarter - 1996[a], cont.)

Location (Area)	^{238}Pu	$^{239+240}Pu$
Area 5 DOD		
Area 5 Well 5B		
Area 6 Yucca	-1.3×10^{-19}	1.2×10^{-17}
Area 6 CP 6	-1.4×10^{-19}	5.6×10^{-18}
Area 6 Well 3	5.5×10^{-19}	1.6×10^{-17}
Area 7 Ue7ns	2.4×10^{-19}	6.5×10^{-18}
Area 9 9-300	3.0×10^{-18}	2.1×10^{-16}
Area 10 Gate 700	2.6×10^{-19}	4.0×10^{-18}
Area 10 SEDAN Crater	3.3×10^{-18}	2.8×10^{-17}
Area 11 Gate 293	-1.8×10^{-19}	5.0×10^{-18}
Area 12	1.0×10^{-18}	-6.7×10^{-20}
Area 15 EPA Farm	-1.9×10^{-19}	2.4×10^{-17}
Area 16 3545 Substation		
Area 18 Well UE-18t		
Area 20 SCHOONER		
Area 20	-1.8×10^{-19}	1.4×10^{-18}
Area 23 Building 790 No. 2		
Area 23 H&S Building		
Area 25 E-MAD North		
Area 25 NRDS		
Area 27		
Average	6.7×10^{-19}	2.5×10^{-17}

(a) Data not available for first quarter report.

Table 6.0 Tritium in Atmospheric Moisture Summary Data, Second Quarter - 1996

Location (Area)	Average	Maximum	Minimum
Area 1 BJY	4.2×10^{-13}	7.4×10^{-13}	1.0×10^{-13}
Area 3 Mud Plant	4.3×10^{-13}	1.5×10^{-12}	-8.1×10^{-13}
Area 5 RWMS No. 1	1.7×10^{-12}	3.1×10^{-12}	-4.0×10^{-13}
Area 5 RWMS No. 3	1.0×10^{-12}	2.1×10^{-12}	-5.4×10^{-14}
Area 5 RWMS No. 4	5.8×10^{-12}	1.2×10^{-11}	1.5×10^{-12}
Area 5 RWMS No. 5	2.0×10^{-12}	4.1×10^{-12}	5.9×10^{-13}
Area 5 RWMS No. 6	2.2×10^{-12}	5.2×10^{-12}	-3.0×10^{-13}
Area 5 RWMS No. 7	2.0×10^{-12}	3.8×10^{-12}	4.3×10^{-13}
Area 5 RWMS No. 8	2.8×10^{-12}	7.4×10^{-12}	-8.2×10^{-14}
Area 5 RWMS No. 9	2.3×10^{-12}	3.7×10^{-12}	1.0×10^{-12}
Area 10 SEDAN Crater	9.3×10^{-12}	1.9×10^{-11}	1.5×10^{-12}
Area 12	1.2×10^{-12}	5.5×10^{-12}	-1.2×10^{-12}
Area 12 E Tunnel Pond	1.0×10^{-11}	1.6×10^{-11}	-4.8×10^{-13}
Area 15 EPA Farm	2.7×10^{-12}	3.4×10^{-12}	1.7×10^{-12}
Area 23 H&S Building	4.8×10^{-13}	1.1×10^{-12}	-3.2×10^{-13}
Average	3.0×10^{-12}		

Table 7.0 Summary Data for Well and Surface Water Samples, Second Quarter - 1996

Ground Water (µCi/mL)

Well Name	Gross Alpha	Gross Beta	Enrich. Tritium[(a)]	^{226}Ra[(a)]	^{238}Pu	$^{239+240}Pu$	^{90}Sr
			Potable Wells				
Well 5B	6.3×10^{-9}	1.2×10^{-9}	4.1×10^{-9}	1.3×10^{-9}	9.3×10^{-14}	2.2×10^{-12}	2.5×10^{-11}
Well 5C	1.5×10^{-9}	9.2×10^{-9}	2.5×10^{-9}	-1.2×10^{-9}	7.0×10^{-12}	6.7×10^{-12}	8.3×10^{-11}
Well 4A	9.6×10^{-9}	6.1×10^{-9}			-2.2×10^{-12}	7.3×10^{-12}	
Well 4	1.1×10^{-9}	6.9×10^{-9}	-7.7×10^{-10}	2.3×10^{-9}	9.0×10^{-12}	5.5×10^{-12}	9.9×10^{-11}
Well C-1	1.5×10^{-9}	1.6×10^{-9}	-2.0×10^{-9}	2.9×10^{-9}	6.4×10^{-12}	3.9×10^{-12}	6.9×10^{-11}
Well UE-16d	7.5×10^{-9}	7.3×10^{-9}	3.9×10^{-9}	2.4×10^{-9}	6.7×10^{-12}	6.4×10^{-12}	2.4×10^{-11}
Well HTH 8	9.2×10^{-10}	3.8×10^{-9}	4.8×10^{-9}	1.8×10^{-9}	5.5×10^{-12}	8.0×10^{-12}	1.8×10^{-11}
Well Army #1	2.9×10^{-9}	3.1×10^{-9}	2.4×10^{-9}	5.8×10^{-10}	4.5×10^{-12}	6.7×10^{-12}	1.6×10^{-10}
Well J-12	1.8×10^{-9}	4.3×10^{-9}	1.1×10^{-9}	1.2×10^{-10}	7.8×10^{-12}	7.5×10^{-12}	2.4×10^{-11}
Well J-13	1.2×10^{-9}	4.5×10^{-9}	-2.0×10^{-10}	1.7×10^{-9}	7.0×10^{-12}	6.7×10^{-12}	3.9×10^{-11}

(a) All ^{228}Ra and tritium values are near or below the MDC.

			Industrial Wells				
Well UE-5c	9.2×10^{-9}	6.3×10^{-9}	4.0×10^{-10}	4.6×10^{-10}	8.5×10^{-12}	8.2×10^{-12}	5.9×10^{-11}
Network Avg.	7.3×10^{-9}	7.2×10^{-9}	1.7×10^{-9}	1.1×10^{-9}	5.5×10^{-12}	6.3×10^{-12}	6.0×10^{-11}

Sewage Lagoons (µCi/mL)

Name	Gross Beta	Tritium	^{137}Cs	^{238}Pu	^{239}Pu
RWMS Pond	3.4×10^{-8}	2.4×10^{-7}	NA	-1.1×10^{-11}	-2.8×10^{-12}
Yucca Pond	2.4×10^{-8}	2.4×10^{-7}	NA	1.5×10^{-13}	-3.1×10^{-12}
DAF Pond	3.0×10^{-8}	3.4×10^{-7}	NA	-7.5×10^{-12}	-3.5×10^{-12}
LANL Pond	2.3×10^{-8}	2.3×10^{-7}	NA	1.3×10^{-13}	-7.2×10^{-12}
A-12 Pond	1.2×10^{-8}	8.2×10^{-8}	NA	-5.1×10^{-12}	-7.5×10^{-12}
A-22 Pond	4.5×10^{-8}	2.2×10^{-8}	NA	-8.4×10^{-12}	-8.1×10^{-12}
A-23 Pond	4.5×10^{-8}	3.4×10^{-7}	NA	-3.0×10^{-12}	2.4×10^{-13}
Central Support	2.6×10^{-8}	2.8×10^{-7}	NA	-6.1×10^{-12}	-5.7×10^{-12}

(NA) Not Analyzed

Containment Ponds (µCi/mL)

Name	Gross Beta	Tritium	^{137}Cs	^{238}Pu	^{239}Pu
E Tunnel #1		1.0×10^{-3}			
E Tunnel Ef	6.1×10^{-8}	7.8×10^{-4}	1.8×10^{-7}	2.3×10^{-10}	2.1×10^{-9}

Table 8.0 Faucet Water Sample Summary Results (μCi/mL), Second Quarter - 1996

Location (Area)	Gross α	Gross β	^{238}Pu	$^{239+240}Pu$	Tritium
Area 1, Building 101	7.5×10^{-9}	6.5×10^{-9}	-9.6×10^{-12}	-9.1×10^{-12}	6.0×10^{-9}
Area 2, Restroom	8.9×10^{-10}	3.9×10^{-9}	-4.3×10^{-12}	-6.2×10^{-12}	1.2×10^{-7}
Area 6, Cafeteria	5.7×10^{-9}	8.0×10^{-9}	-4.3×10^{-12}	-4.0×10^{-12}	-1.4×10^{-7}
Area 6, Building 6-900	9.8×10^{-9}	7.0×10^{-9}	-4.4×10^{-12}	-4.0×10^{-12}	1.0×10^{-7}
Area 12, Building 12-23	1.0×10^{-9}	4.5×10^{-9}	-6.8×10^{-12}	-6.5×10^{-12}	1.3×10^{-7}
Mercury, Cafeteria	5.8×10^{-9}	1.0×10^{-8}	-1.2×10^{-11}	-1.2×10^{-11}	3.4×10^{-7}
Area 25, Building 4221	1.6×10^{-9}	5.2×10^{-9}	-1.9×10^{-12}	-2.2×10^{-12}	-2.2×10^{-8}
Network Average	4.6×10^{-9}	6.5×10^{-9}	-6.2×10^{-12}	-6.2×10^{-12}	7.7×10^{-8}

Table 9.0 Background Radiation Measurements with TLDs, First Quarter - 1996[a]

Location (Area)	mR/yr	Location	mR/yr
Area 3, Hill Top	135	Area 20, Stake LC-4	172
Area 5, Well 5B	110	Area 20, Stake A-118	135
Area 5, 3.3 mi SE Agg pit	62	Area 22, Army Well #1	Lost
Area 6, CP-6	84	Area 23, Bldg 650 Dos.	44
Area 6, Yucca Oil Storage	95	Area 23, Bldg 650 Roof	44
Area 9, Papoose Lk Rd	80	Area 23, Post Office	62
Area 11, E of U-11b	124	Area 25, NRDS Warehse	117
Area 12, Gold Meadows	106	Area 25, HENRY Site	120
Area 15, U-15e Substatn	95	Area 25, Jackass & A27 Rds	77
Area 19, Stake C-16	150	Area 25, Guard Sta 510	113
Area 19, Stake R-29	142	Area 25, Yucca Mtn	128
Area 19, Gate 19-3P	146	Area 27, Area 27 Cafe	124
Area 20, Stake J-41	120	Area 30, Gate 30-3P	Not Coll.

(a) Data not available for the first quarter report.

Table 10.0 Tritium in Soil Moisture, RWMS-5 - nCi/m^3

	Months From First Sampling						
Depth	Start	8	13	17	21	25	30
10	2	1	4	2	3	5.5	4
20	19	20	19	13	14	18	14
30	11	10	10	7.5	8	10	10
40	11	10	11	8	8.5	12	12

Table 10.0 (Tritium in Soil Moisture, RWMS-5 - nCi/m^3, cont.)

		Months From First Sampling, Cont.					
Depth	Start	8	13	17	21	25	30
50	6.5	6	7	6	7	29	36
65	6.2	62	82	65	81	4760	3040
85	1120	1450	10000	12000	13700	24400	29400
110	0	0	1540	1090	1120	1470	1380
119	342	268	399	313	376	469	426
Depth		32	38	42	45	50	57
10		4	12	7	5	10	8
20		14	24	15	14	19	14
30		8	13	10	9	11	10
40		12	16	15	13	15	1450
		35	57	58	53	68	77
65		2490	3580	2970	1480	3390	3050
85		28600	58600	55900	72300	62000	99000
110		1420	2240	1920	1830	2530	2350
119		0	812	541	686	853	803

Table 11.0 Pond Water Depths in Infiltration Basins, Second Quarter - 1996

Impound	Maximum Operating Depth, cm	Average Depth, cm (the first Quarter)
Gate 100, Basin	90	0
Mercury, Basin	180	0
Yucca Lake		
North Basin	140	75
South Basin	140	16
Tweezer		
East Basin	244	0
West Basin	244	0
CP-6		
East Basin	90	0
West Basin	90	0
CP-72	90	0
DAF		
Basin 1	150	0
Basin 2	150	0
Reactor Control, Basin	130	0
Test Stand 1, Basin	90	0
Test Cell C, Basin	90	0
Base Camp 25, Basin	100	0
Base Camp 12, Basin 1	120	0
Basin 2	120	0
Basin 3	120	0
Basin 4	120	0
Basin 5	120	0
RWMS-5, Basin 1	150	0
Basin 2	150	0

Table 12.0 Influent Quality, Second Quarter - 1996

Facility	BOD5[a] (mg/L)	S.C.[b] (µmhos/cm)
Gate 100	476	1.40
Mercury	98	0.80
Yucca Lake	98	0.86
Tweezer	81	0.76
CP-6	0	0
CP-72	0	0
DAF	20	1.22
Reactor Control	0	0
Test Stand 1	0	0
Base Camp 25	164	0.91
Base Camp 12	13	0.48
Test Cell C	0	0
RWMS-5	391	1.30

(a) Biochemical oxygen demand.
(b) Specific conductivity.

Table 13.0 Organic Loading Rates, Second Quarter - 1996

Facility	Limit (Kg/day)	Mean Daily Load Metered Rates
Mercury	172	38.14
Yucca Lake	8.6	4.48
Base Camp 12	54	0.04
LANL on Tweezer	5.0	0.92
RWMS-5	0.955	.56
		Calculated Rates
CP-6	8.7	0[a]
CP-72	1.1	0[a]
DAF	7.6	0.25
Reactor Control	4.2	0
Eng Test Stand	2.3	0[a]
Test Cell C	1.3	0[a]
Base Camp 25	7.4	1.19
Gate 100	2.4	1.77

(a) Samples not taken due to inadequate or nonexistent flow.

Table 14.0 Influent Toxics for Facilities that Receive Industrial Wastewater, Second Quarter - 1996

Parameter	Action Level (mg/L)	Measurement (mg/L)
Area 6 Yucca Lake		
Lead	5.0	0.0143
Cresol, total	200	0.013
Area 23 Mercury		
Arsenic	5.0	0.0205
Lead	5.0	0.0051
Cresol, total	200	0.012
Area 25 Base Camp		
Arsenic	5.0	0.0183
Area 6 Tweezer		
Cresol, total	200	0.061
Area 6 DAF		
Arsenic	5.0	0.0139
Area 5 RWMS		
Arsenic	5.0	0.0104

Table 15.0 Quantity of Waste Disposed of in Landfills, Second Quarter - 1996

	Quantity (in pounds)		
Month	Area 9	Area 23	Area 6
January	864,742	236,530	129,430
February	783,690	323,100	6,200
March	412,290	257,020	47,852
Total	2,060,722	816,650	183,482

Table 16.0 NEPA Documentation Open, Second Quarter - 1996

File Number	Description	Category	Review Status[a]
NV-93-025	Fire Training Facility, Area 23	EA	Pending
NV-94-020	Pantex Sitewide EIS	EIS	Pending
NV-94-023	Transportation of BOMARC Missle Site Contaminated Material Area 5	EA	Pending
NV-94-026	Liquid Waste Treatment Facility, Area 6	EA	Pending
NV-94-033	Storage and Disposition of Fissile Nuclear Materials, DOE	EIS	Pending
NV-94-050	Foreign Research Reactor Spent Nuclear Fuel	EIS	05/17/96
NV-94-056	National Ignition Facility	EIS	Pending
NV-95-011	Stockpile Stewardship and Management	PEIS	Pending
NV-95-032	Sitewide EIS for LANL, NTS/LANL	EIS	Pending
NV-95-046	SNL Offsite Transportation of LLW, Areas 3 & 5	EA	Pending
NV-95-047	Yucca Mountain EIS, Area 25	EIS	Pending
NV-95-062	RF Characterization Capability, Tweezer Facility, Area 11	CX	Pending
NV-95-066	Area 5 LLW Management Site Improvement Project	EA	Pending
NV-96-002	Cotter Concentrate Treatment Facility, Area 5	EA	Pending
NV-96-006	High Explosives Research and Development (Weapons Effects Testing), Area 12	CX	Pending
NV-96-007	Develop, and Test Pulsed Neutron Generator Concepts, NLV	CX	Pending
NV-96-008	SNT-96-001 Radio Frequency Electromagnetic Testing, TTR	CX	05/06/96
NV-96-009	Borehole Drilling & Characterization at Area 3, U3ah/at	CX	04/26/96
NV-96-010	Site-wide Lead Cleanup Program	CX	04/26/96
NV-96-011	Corrective Action Investigation of CLEAN SLATE Sites, TTR	CX	04/26/96
NV-96-012	Waste Examination Facility, Area 5	EA	04/26/96
NV-96-013	Mixed Waste Disposal Units, Area 5	EA	Pending
NV-96-014	Transportation of Mixed Waste Offsite, Area 5	CX	05-24-96
NV-96-015	Lead Contaminated Soil, Area 6	CX	06-07-96
NV-96-016	Area 3 Soil Trench Excavation #1	CX	06/11/96
NV-96-017	Free Air CO_2 Enrichment Facility, Area 5	CX	06/13/96
NV-96-018	Reconstruction of 100-yr Storm Protection Channel, Area 5	CX	06/13/96
NV-96-019	Area 25 Captive Flight Testing	CX	06/13/96
NV-96-020	Corrective Action Investigation of Project Shoal Area	CX	06/13/96
NV-96-021	EMF Installation for DAF Lightning Detection, Areas 5 & 6	CX	06/28/96
NV-96-022	Remediation of Area 2 Bitcutter Shop & LLNL Postshot Injection Wells	CX	06/28/96

(a) Date entry is date approved.

Table 17.0 Environmental Occurrences at NTS Facilities, Second Quarter - 1996

Date	Report Number	Description	Status
06/04/96	NVOO-BNOO-NTS 1996-0007	Historic fuel leak discovered when underground storage tank removed	Pending
06/12/96	NVOO-BNOO-NTS 1996-0009	Historic fuel leak discovered when underground storage tank removed	Pending

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