STOLLER-ESER-61

S.M. Stoller Corporation
Environmental Surveillance, Education and Research Program
ISSN NUMBER 1089-5469

Idaho National Engineering and Environmental Laboratory Offsite Environmental Surveillance Program Report: First Quarter 2002

September 2003

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Program conducted for the U.S. Department of Energy, Idaho Operations Office
Under Contract DE-RP07-99ID13658

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EXECUTIVE SUMMARY

None of the radionuclides detected in any of the samples collected during the first quarter of 2002 could be directly linked with INEEL activities. Levels of detected radionuclides were no different than values measured at other locations across the United States and/or were consistent with levels measured historically at the INEEL. All detected radionuclide concentrations were well below guidelines set by the U.S. Department of Energy (DOE) and regulatory standards established by the U.S. Environmental Protection Agency (EPA) for protection of the public. (See Table ES-1.)

This report for the first quarter, 2002, contains results from the Environmental Surveillance, Education and Research (ESER) Program's monitoring of the Department of Energy's Idaho National Engineering and Environmental Laboratory's (INEEL) offsite environment, January 1 through March 31, 2002. All sample types (media) and the sampling schedule followed during 2002 are listed in Appendix A. Specifically, this report contains the results for the following:

- Air sampling, including air filters and charcoal cartridges, atmospheric moisture, and 10-micron particulate matter (PM_{10}) (Section 3);
- Water sampling, specifically collection of precipitation (Section 4);
- Agricultural product sampling, including milk and large game animals(Section 5).

Results are presented in this report with an analytical uncertainty term, 2s, where "s" is an estimate of the population standard deviation (σ), assuming a normal (Guassian) distribution. The result plus or minus ($\pm$) the uncertainty term represents the 95 confidence interval. That is, there is 95 percent confidence that the real concentration in the sample lies somewhere between the measured concentration minus the uncertainty term and the measured concentration plus the uncertainty term. Results that are greater than 2s are considered "detected".

Gross alpha and gross beta measurements are used as general indicators of the presence of alpha-emitting and beta-emitting radionuclides in air. Gross alpha and gross beta results were found to have no discernable statistical distribution during the first quarter of 2002. Because of this, these data were statistically analyzed using nonparametric methods, including the use of the median to represent central tendency. At no time during the first quarter were gross alpha concentrations from Boundary locations statistically higher than corresponding data sets for Distant locations, as one would expect if the INEEL were a significant source of radionuclide contamination. There were no statistical differences between gross beta results analyzed by location group on a quarterly basis. However, comparisons of monthly gross beta results show that Boundary results were statistically greater than Distant results during February. Further investigation indicates that the Mud Lake data tended to be higher than those measured at other locations during the month of February, but additional information indicates that the higher results probably reflect natural variation in data and do not implicate any INEEL releases. Gross beta concentrations measured at Boundary locations were also greater than those measured at Distant locations during the week of January 23, 2002. This difference was attributed to temperature inversion conditions, which act to trap gases and fine particulates, that existed at the Boundary locations during this week.

During the first quarter, analysis of three batches containing 8-10 cartridges detected ^{131}I greater than the associated 2s values. Immediate reanalysis of each individual cartridge yielded results below both the 2s values. Because initial counting is done as a batch sample, it appears that the cumulative activity for these ten cartridge batches was above the 2s values but was not but was not attributable to any single location (cartridge).

Selected quarterly composite filter samples were analyzed for gamma emitting radionuclides, strontium-90 (^{90}Sr), plutonium-238 (^{238}Pu), plutonium-239/240 ($^{239/240}$Pu), and americium-241 (^{241}Am). Six samples collected from air monitoring stations located at Arco (Q/A-1), Atomic City, Blackfoot Community Monitoring Station (CMS), Dubois, and Mud lake showed at least one human-made radionuclide greater than its related 2s value. Plutonium-239/240 and ^{241}Am were detected most frequently. Cesium-137 and ^{238}Pu were each detected once. All values were within the range of those measured in the past and are likely due to fallout from past nuclear weapons testing. All results were far less than their respective DOE Derived Concentration Guide (DCG) values

Seventeen atmospheric moisture samples were obtained during the first quarter of 2002; two from Blackfoot, three from Rexburg, and six each Idaho Falls and Atomic City. All but two sample results, one from Idaho Falls in February and one from Rexburg in March, exceeded their respective 2s values. Of the remaining fifteen samples, the analytical laboratory flagged three as questionable due to small sample size (less than 9 mL), and reanalysis did not support a positive detection for two others (an indication that the initial result was a false positive). The ten remaining samples are considered positive detections. The maximum value of 4.9 ± 7.8 x 10^{-13} μCi/mL$_{air}$ (1.8 ± 0.7 x 10^{-8} Bq/mL) is well below the DCG for tritium in air of 1 x 10^{-7} μCi/mL (3.7 x 10^{-3} Bq/mL).

The ESER Program operates three PM_{10} samplers, one each at Rexburg, Blackfoot, and Atomic City. Sampling of PM_{10} is informational as no analyses are conducted for contaminants. PM_{10} concentrations were well below all health standard levels for all samples. The maximum 24-hour concentration was 37.4 µg/m^3 on February 12, 2002, in Rexburg.

Sufficient precipitation occurred to allow collection of three monthly composite samples from Idaho Falls, two monthly composite samples from the Central Facilities Area (CFA) on the INEEL, and six weekly samples from the Experimental Field Station (EFS) on the INEEL. Tritium was detected in two samples: one from Idaho Falls and one from the EFS. There is no DCG for tritium in precipitation, but in drinking water it is 2.0 x 10^6 pCi/L (74,074 Bq/L). The Safe Drinking Water Act sets a limit of 20,000 pCi/L (740 Bq/L) for tritium. The levels of tritium measured in first quarter precipitation samples were well below the DCG value and the Safe Drinking Water Act Limit.

Milk samples were collected weekly in Idaho Falls and monthly at eight other locations around the INEEL. All samples were analyzed for gamma emitting radionuclides. Iodine-131 (^{131}I) was not detected in any of the collected samples. One sample had a ^{137}Cs concentration greater than its 2s uncertainty. There are no established limits for ^{137}Cs in milk but, for comparison, the EPA has set the limit for ^{137}Cs in drinking water at 120 pCi/L (4.44 Bq/L). The Safe Drinking Water limit is based on a 4 mrem per year maximum allowable dose and the assumption that two liters per day are consumed. The maximum ^{137}Cs concentration (1.6 $\pm$ 1.5 pCi/L) measured in milk collected at Idaho Falls during the first quarter, 2002 was many times lower than the 120 pCi/L limit.

Fourteen large game animals were sampled during the first quarter of 2002. All were killed as a result of vehicular collisions. These accidents all involved six mule deer (*Odocoileus hemionus*) and eight pronghorn antelope (*Antilocapra americana*). Every effort was made to collect thyroid, liver, and muscle tissue from each animal. However, certain tissues could not be collected from all animals due to their condition at the time of collection. Two of the pronghorn muscle samples contained radionuclides at concentrations greater than the associated 2s uncertainty values. The concentrations were well within historical measurements.

Table ES-1 Summary of results for the first quarter of 2002.

Media	Sample Type	Analysis	Results
Air	Filters	Gross alpha, gross beta	Statistical comparisons of gross alpha data indicate no differences between INEEL, Boundary, and Distant locations. A few statistical differences in gross beta results were observed between location groups. However, these differences can be attributed to natural variation in the data and to meteorological conditions (i.e.,temperature inversions). All gross alpha and gross beta results were within historical levels and were far less than applicable DOE DCGs.
		Gamma emitting radionuclides (including ^{137}Cs), select actinides (^{238}Pu, ^{239,240}Pu, & ^{241}Am) and ^{90}Sr	Quarterly composite samples had measurable levels of ^{241}Am and/or $^{239/240}$Pu in samples collected from Arco (Q/A-1), Atomic City, Blackfoot CMS, Dubois, and Mud Lake. Pu-238 was detected in the Arco (Q/A-1) composite. Cesium-137 was detected in the Main Gate sample. The results were well below DOE DCGs and within historical measurements.
	Charcoal Cartridge	Iodine-131	Three mutiple-cartridge batches, one collected on January 23 and two collected on March 20, had initial detections of ^{131}I. Immediate recounts of individual cartridges resulted in no measurable ^{131}I.
	PM_{10}	Particulate matter	No regulatory limits were exceeded for atmospheric particulates.
Atmospheric Moisture	Liquid	Tritium	Fifteen of 17 atmospheric moisture samples had tritium detected in them. Three of these results are invalid due to insufficient sample size. No sample result exceeded the DCG for tritium in air.
Precipitation	Liquid	Tritium	Two of 11 samples (one collected at Idaho Falls and one collected at the EFS in February) had measurable concentrations of tritium. Both samples were well below regulatory limits for tritium in drinking water.
Milk	Liquid	Iodine-131, gamma emitting radionuclides (including ^{137}Cs)	Iodine-131 was not detected in any sample. One weekly sample from Idaho Falls in mid-January had measurable ^{137}Cs. The concentration was well below regulatory limits for ^{137}Cs in drinking water.
Game Animals	Tissue	Iodine-131, gamma emitting radionuclides (including ^{137}Cs)	Cs-137 was reported above the 2s level in two muscle samples taken from pronghorn antelope. The concentrations were within the range of historical values for game animals collected at the INEEL.

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LIST OF ABBREVIATIONS

AEC	Atomic Energy Commission
ANL-W	Argonne National Laboratory-West
CFA	Central Facilities Area
CMS	community monitoring station
DCG	Derived Concentration Guide
DOE	Department of Energy
DOE – ID	Department of Energy Idaho Operations Office
EAL	Environmental Assessment Laboratory
EFS	Experimental Field Station
EPA	Environmental Protection Agency
ERAMS	Environmental Radiation Ambient Monitoring System
ESER	Environmental Surveillance, Education and Research
INEL	Idaho National Engineering Laboratory
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
ISU	Idaho State University
MDC	minimum detectable concentration
M&O	Management and Operating
NRTS	National Reactor Testing Station
PM	particulate matter
PM_{10}	particulate matter less than 10 micrometers in diameter
SI	Systeme International d'Unites
TLDs	thermoluminescent dosimeters
TRA	Test Reactor Area
UI	University of Idaho
WSU	Washington State University

LIST OF UNITS

Bq	becquerel
Ci	curie
g	gram
L	liter
μCi	microcurie
mL	milliliter
mR	milliroentgens
mrem	millirem
mSv	millisieverts
pCi	picocurie
R	Roentgen
μSv	microseiverts

1. ESER PROGRAM DESCRIPTION

Operations at the Idaho National Engineering and Environmental Laboratory (INEEL) are conducted under requirements imposed by the U.S. Department of Energy (DOE) under authority of the Atomic Energy Act, and the U.S. Environmental Protection Agency (EPA) under a number of acts (e.g. the Clean Air Act and Clean Water Act). The requirements imposed by DOE are specified in DOE Orders. These requirements include those to monitor the effects of DOE activities on and off of DOE facilities (DOE 1988). During calendar year 2002, environmental monitoring within the INEEL boundaries was primarily the responsibility of the INEEL Management and Operating (M&O) contractor, while monitoring outside the INEEL boundaries was conducted under the Environmental Surveillance, Education and Research (ESER) Program. The ESER Program is led by the S.M. Stoller Corporation in cooperation with its team members, including: the University of Idaho (UI) and Washington State University (WSU) for research, and MWH Global, Inc., and North Wind Environmental, Inc. for technical support. This report contains monitoring results from the ESER Program for samples collected during the first quarter of 2002 (January 1 – March 31, 2002).

The surveillance portion of the ESER Program is designed to satisfy the following program objectives:

- Verify compliance with applicable environmental laws, regulations, and DOE Orders;
- Characterize and define trends in the physical, chemical, and biological condition of environmental media on and around the INEEL;
- Assess the potential radiation dose to members of the public from INEEL effluents, and;
- Present program results clearly and concisely through the use of reports, presentations, newsletter articles, and press releases.

The goal of the surveillance program is to monitor different media at a number of potential exposure points within the various exposure pathways, including air, water, agricultural products, wildlife, and soil, that could possibly contribute to the radiation dose received by the public.

Environmental samples collected include:

- air at 16 locations on and around the INEEL;
- moisture in air at four locations around the INEEL;
- surface water at five locations on the Snake River;
- drinking water at 14 locations around the INEEL;
- agricultural products, including milk at 10 dairies around the INEEL, potatoes from at least five local producers, wheat from approximately 10 local producers, lettuce from approximately nine home-owned gardens around the INEEL, and sheep from two operators which graze their sheep on the INEEL;
- soil from 13 locations around the INEEL biennially;
- environmental dosimeters from 15 locations semi-annually; and
- various numbers of wildlife including big game (pronghorn, mule deer, and elk), waterfowl, doves, and marmots sampled on and near the INEEL. Fish are also sampled as available (i.e., when there is flow in the Big Lost River).

Table A-1 in Appendix A lists samples, sampling locations and collection frequency for the ESER Program.

The ESER Program used two laboratories to perform analyses on routine environmental samples collected during the quarter reported here. The Idaho State University (ISU) Environmental Assessment Laboratory (EAL) performed routine gross alpha, gross beta, tritium, and gamma spectrometry analyses. Analyses requiring radiochemistry, including strontium-90 (^{90}Sr), plutonium-238 (^{238}Pu), plutonium-239/240 ($^{239/240}Pu$), and americium-241 (^{241}Am) were performed by Severn-Trent, Inc.

In the event of non-routine occurrences, such as suspected releases of radioactive material, the ESER Program may increase the frequency of sampling and/or the number of sampling locations based on the nature of the release and wind distribution patterns. Any data found to be outside historical norms in the ESER Program is thoroughly investigated to determine if an INEEL origin is likely. Investigation may include re-sampling and/or re-analysis of prior samples.

In the event of any suspected worldwide nuclear incidents, like the 1986 Chernobyl accident, the EPA may request additional sampling be performed through the Environmental Radiation Ambient Monitoring System (ERAMS) network (EPA 2002). The EPA established the ERAMS network in 1973 with an emphasis on identifying trends in the accumulation of long-lived radionuclides in the environment. ERAMS is comprised of a nationwide network of sampling stations that provide air, precipitation, surface water, drinking water, and milk samples. The ESER Program currently operates a high-volume air sampler and precipitation sampling equipment in Idaho Falls for this national program and routinely sends samples to EPA's Eastern Environmental Radiation Facility for analyses. The ERAMS data collected at Idaho Falls are not reported by the ESER Program but are available through the EPA ERAMS website (http://www.epa.gov/enviro/html/erams/).

Once samples have been collected and analyzed, the ESER Program has the responsibility for quality control of the data and for preparing quarterly reports on results from the environmental surveillance program. The quarterly reports are then consolidated into the INEEL Annual Site Environmental Report for each calendar year. Annual reports also include data collected by other INEEL contractors.

The results reported in the quarterly and annual reports are assessed in terms of data quality and statistical significance with respect to laboratory analytical uncertainties, sample locations, reported INEEL releases, meteorological data, and worldwide events that might conceivably have an effect on the INEEL environment. First, field collection and laboratory information are reviewed to determine identifiable errors that would invalidate or limit use of the data. Examples of these include insufficient sample volume, torn filters, evidence of laboratory cross-contamination or quality control issues. Data that pass initial screening are further evaluated using statistical methods. Statistical tools are necessary for data evaluation particularly since environmental measurements typically involve the determination of minute concentrations, which are difficult to detect and even more difficult to distinguish from other measurements.

The term "measurable" as used for the discussion of results in this report does not imply any degree of risk to the public or environment but rather indicates that the radionuclide was detected at a concentration sufficient for the analytical instrument to record a value. The minimum detectable concentration (MDC) is used to assess measurement process capabilities. The MDC indicates the ability of the laboratory to detect an analyte in a sample at desired concentration levels. The ESER requires that the laboratory be able to detect radionuclides at levels below that normally expected in environmental samples, as observed historically in the region. These levels are typically well below regulatory limits. The MDC is instrument and analysis specific, and is established by the analytical laboratory at the beginning of each analytical run.

It is the goal of the ESER program to minimize the error of saying something is not present when it actually is, to the extent that is reasonable and practicable. This is accomplished through the use of the uncertainty term, which is reported by the analytical laboratory with the sample result. Results are presented in this report with an analytical uncertainty term, 2s, where “s” is an estimate of the population standard deviation (σ), assuming a Guassian or normal distribution. The result plus or minus ($\pm$) the uncertainty term (2s) represents the 95 confidence interval for the measurement. That is, there is 95 percent confidence that the real concentration in the sample lies somewhere between the measured concentration minus the uncertainty term and the measured concentration plus the uncertainty term. By using a 2s value as a reporting level, the error rate for saying something is not there when it is, is kept to less than 5%. However, there may be a relatively high error rate for false detections (reporting something as present when it actually is not) for results near their 2s uncertainty levels. This is because the variability around the sample result may substantially overlap the variability around a net activity of zero for samples with no radioactivity. Analyses with results in the questionable range (2s to 3s) are thus presented in this report with the understanding that the radionuclide may not actually be present in the sample. If a result exceeds three times its estimated uncertainty (3s), there is confidence that the radionuclide is present in the sample. If a result is less than or equal to 2s there is little confidence that the radionuclide is present in the sample. A more detailed discussion about confidence in detections may be found in Confidence in Detections under Helpful Information.

For more information concerning the ESER Program, contact the S.M. Stoller Corporation at (208) 525-9358, or visit the Program’s web page (http://www.stoller-eser.com).

2. THE INEEL

The INEEL is a nuclear energy research and environmental management facility. It is owned and administered by the U.S. Department of Energy, Idaho Operations Office (DOE-ID) and occupies about 890 mi^2 (2,300 km^2) of the upper Snake River Plain in Southeastern Idaho. The history of the INEEL began during World War II when the U.S. Naval Ordnance Station was located in Pocatello, Idaho. This station, one of two such installations in the U.S., retooled large guns from U.S. Navy warships. The retooled guns were tested on the nearby, uninhabited plain, known as the Naval Proving Ground. In the years following the war, as the nation worked to develop nuclear power, the Atomic Energy Commission (AEC), predecessor to the DOE, became interested in the Naval Proving Ground and made plans for a facility to build, test, and perfect nuclear power reactors.

The Naval Proving Ground became the National Reactor Testing Station (NRTS) in 1949, under the AEC. By the end of 1951, a reactor at the NRTS became the first to produce useful amounts of electricity. Over time the site evolved into an assembly of 52 reactors, associated research centers, and waste handling areas. The NRTS was renamed the Idaho National Engineering Laboratory (INEL) in 1974 and the INEEL in January 1997. With renewed interest in nuclear power the DOE announced in 2002 that Argonne National Laboratory and the INEEL will be the lead laboratories for development of the next generation of power reactors. Other activities at the INEEL include environmental cleanup, subsurface research, and technology development.

3. AIR SAMPLING

The primary pathway by which radionuclides can move off the INEEL is through the air and for this reason the air pathway is the primary focus of monitoring on and around the INEEL. Samples for particulates and iodine-131 (^{131}I) gas in air were collected weekly at 16 locations using low-volume air samplers for the duration of the quarter. Moisture in the atmosphere was sampled at four locations around the INEEL and analyzed for tritium. Concentrations of airborne particulates less than 10 micrometers in diameter (PM_{10}) were measured for comparison with EPA standards at three locations. Air sampling activities and results for the first quarter, 2002 are discussed below. A summary of approximate minimum detectable concentrations (MDCs) for radiological analyses and DOE Derived Concentration Guide (DCG) (DOE 1993) values is provided in Appendix B.

LOW-VOLUME AIR SAMPLING

Radioactivity associated with airborne particulates was monitored continuously by 18 low-volume air samplers (two of which are used as replicate samplers) at 16 locations during the first quarter of 2002 (Figure 1). Three of these samplers are located on the INEEL, nine are situated off the INEEL near the boundary, and six have been placed at locations distant to the INEEL. Samplers are divided into INEEL, Boundary, and Distant groups to determine if there is a gradient of radionuclide concentrations, increasing towards the INEEL. Each replicate sampler is relocated every year to a new location. One replicate sampler was placed at Arco (Boundary location) and one at Howe (Boundary location) during 2002. An average of 13,168 ft^3 (373 m^3) of air was sampled at each location, each week, at an average flow rate of 1.3 ft^3/min (0.04 m^3/min). Particulates in air were collected on glass fiber particulate filters (1.2-µm pore size). Gases passing through the filter were collected with an activated charcoal cartridge.

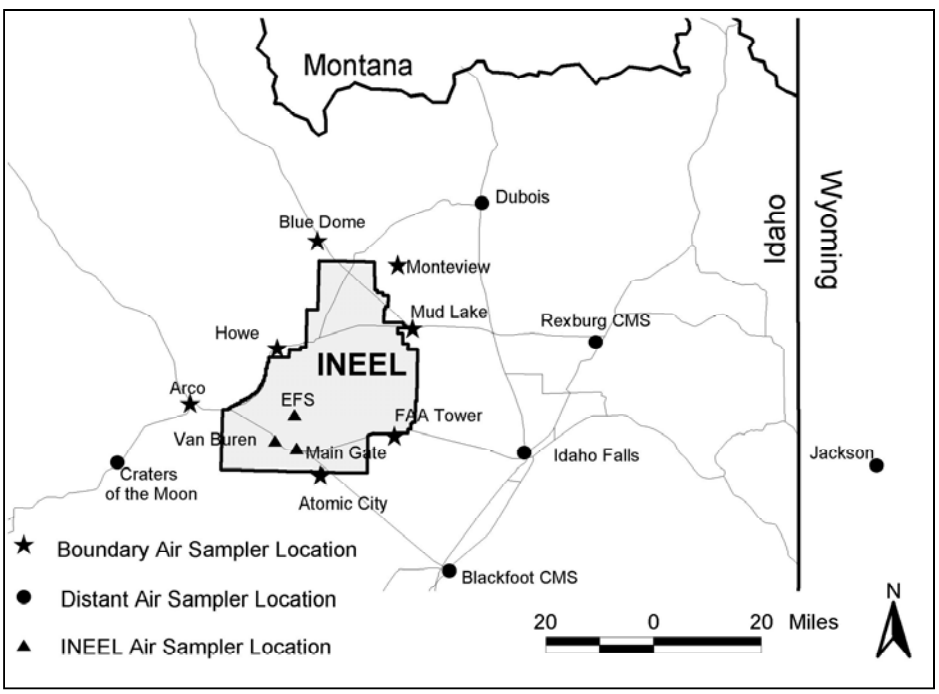

Figure 1. Low-volume air sampler locations.

Filters and charcoal cartridges were changed weekly at each station during the quarter. Each particulate filter was analyzed for gross alpha and gross beta radioactivity using thin-window gas flow proportional counting systems after waiting about four days for naturally-occurring daughter products of radon and thorium to decay. More information concerning gross alpha and beta radioactivity can be found in Gross versus Specific Analyses under Helpful Information.

The weekly particulate filters collected during the quarter for each location were composited and analyzed for gamma-emitting radionuclides. Composites were also analyzed by location for ^{90}Sr, or ^{238}Pu, $^{239/240}$Pu, and ^{241}Am as determined by a rotating quarterly schedule.

Charcoal cartridges were analyzed for gamma-emitting radionuclides, specifically for iodine-131 (^{131}I). Iodine-131 is of particular interest because it is produced in relatively large quantities by nuclear fission, is readily accumulated in human and animal thyroids, and has a half-life of eight days. This means that any elevated level of ^{131}I in the environment could be from a recent release of fission products.

Gross alpha results are reported in Table C-1. Median gross alpha concentrations in air for INEEL, Boundary, and Distant locations for the first quarter of 2002 are shown in Figure 2. The data were tested for normality prior to statistical analyses. For the most part the data showed no discernable distribution. Box and whisker plots are commonly used when there is no assumed distribution. Each data group in Figure 2 is presented as a box and whisker plot, with a median, a box enclosing values between the 25th and 75th percentiles, and whiskers representing the non-outlier range. Note that outliers and extreme values are identified separately from the box and whiskers. Outliers and extreme values are atypical, infrequent, data points that are far from the middle of the data distribution. For this report, outliers are defined as values that are greater than 1.5 times the height of the box, above or below the box. Extreme values are greater than 2 times the height of the box, above or below the box. Outliers and extreme values may reflect inherent variability, may be due to errors associated with transcription or measurement, or may be related to other anomalies. A careful review of the data collected during the first quarter indicates that the outliers and extreme values were not due to mistakes in collection, analysis, or reporting procedures, but rather reflect natural variability in the measurements. The outliers and extreme values lie within the range of measurements made within the past five years. Thus, rather than dismissing the outliers, they were included in the subsequent statistical analyses. Further discussion of box plots may be found in Determining Statistical Differences under Helpful Information.

Figure 2 graphically shows that the gross alpha measurements made at INEEL, Boundary, and Distant locations are similar for the first quarter. If the INEEL were a significant source of offsite contamination, concentrations of contaminants could be statistically greater at Boundary locations than at Distant locations. Because there is no discernable distribution of the data, the nonparametric Kruskal-Wallis test of multiple independent groups was used to test for statistical differences between INEEL, Boundary, and Distant locations. The use of nonparametric tests, such as Kruskal-Wallis, gives less weight to outliers and extreme values thus allowing a more appropriate comparison of data groups. A statistically significant difference exists between data groups if the (p) value is less than 0.05. Values greater than 0.05 translate into a 95 percent confidence that the medians are statistically the same. The p-value for each comparison is shown in Table D-1. There were no statistical differences in gross alpha concentrations between groups for the first quarter.

Comparisons of gross alpha concentrations were made for each month of the quarter (Figures 3 – 5). Again the Kruskal-Wallis test of multiple independent groups was used to determine if statistical differences exist between INEEL, Boundary, and Distant data groups. There were no statistical differences in gross alpha between groups for any month (Table D-1).

As a further check, comparisons between gross alpha concentrations measured at Boundary and Distant locations were made on a weekly basis. The Mann-Whitney U test was

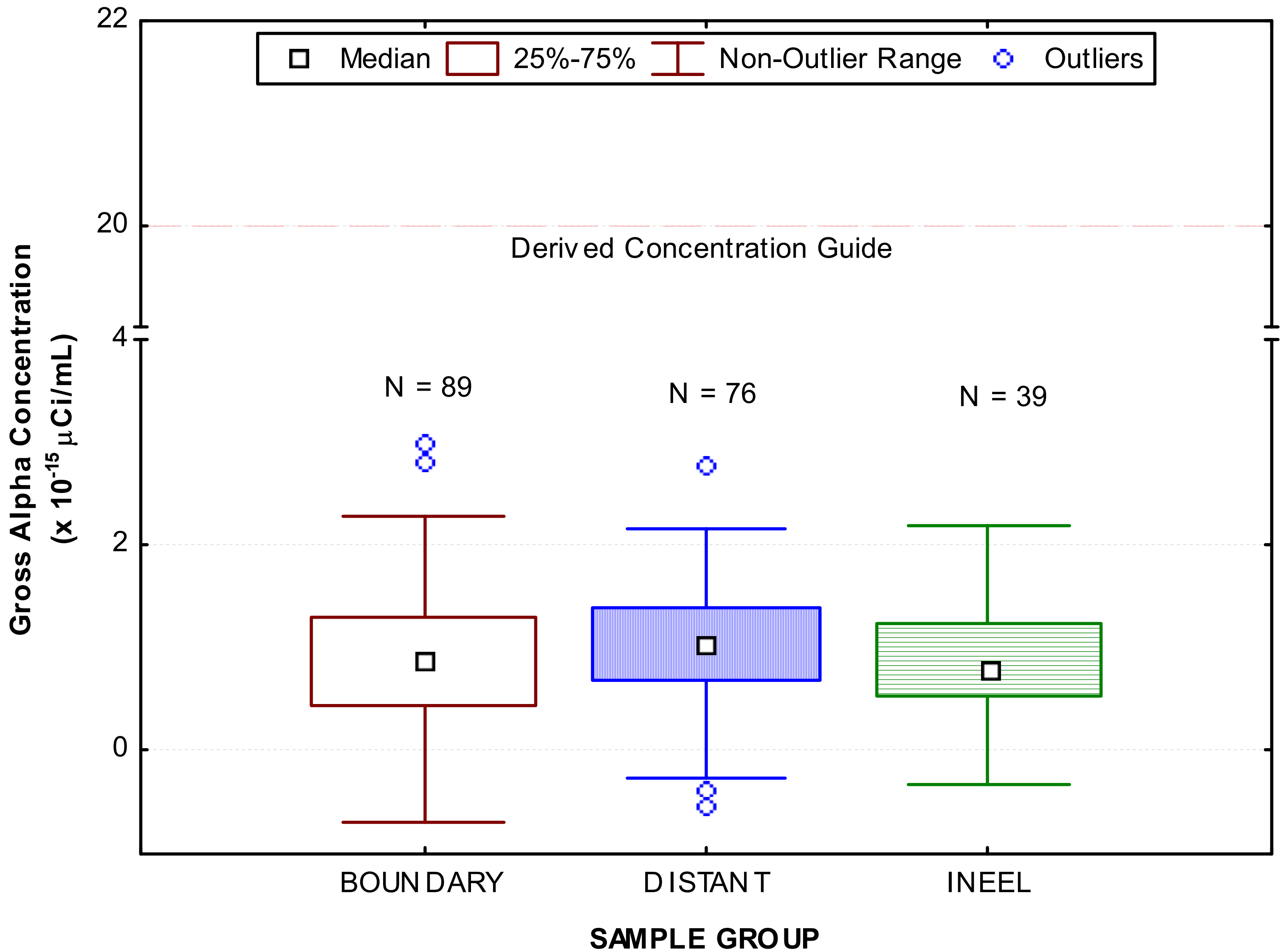

Figure 2. Gross alpha concentrations in air at ESER Program INEEL, Boundary, and Distant locations for the first quarter of 2002.

used to compare the Boundary and Distant data because it is the most powerful nonparametric alternative to the t-test for independent samples. INEEL sample results were not included in this analysis because the onsite data, collected at only three locations, are not representative of the entire INEEL and would not aid in determining offsite impacts. The gross alpha concentrations measured at Boundary locations were not statistically greater than those measured at Distant locations in any of the thirteen weeks of data evaluated (Table D-2). More detail on the statistical tests used can be found in Determining Statistical Differences under Helpful Information.

Gross beta results are presented in Table C-1. Gross beta concentrations in air for INEEL, Boundary, and Distant locations for the first quarter of 2002 are shown in Figure 6. The data were tested and found to be neither normally nor lognormally distributed. Box and whiskers plots were used for presentation of the data. Outliers and extreme values were retained in subsequent statistical analyses because they are within the range of measurements made in the past five years, and because these values could not be attributed to mistakes in collection, analysis, or reporting procedures. As in the case of alpha activity, the quarterly data for each group appear to be similar and were determined using the Kruskal-Wallace test to be statistically the same (Table D-1).

Monthly median gross beta concentrations in air for each sampling group are shown in Figures 7 – 9. Statistical data are presented in Table D-1. Only the February comparison showed a significant statistical difference. Further examination by sample location revealed that the Mud Lake median and maximum results were higher than those measured at other locations (Figure 8). There was no statistical difference between monthly median gross beta concentrations when Mud Lake was not included in the analysis ($p=0.06$). However, there was also no statistical difference between monthly median gross beta concentrations at Mud Lake. Furthermore, comparison of the weekly results, as discussed below, indicates no statistical difference between Boundary and Distant data sets during any week in February. For these reasons, it is believed that the higher value at Mud Lake in February reflects natural variation in the data rather than a release from the INEEL.

Comparison of weekly Boundary and Distant data sets, using the Mann Whitney U test, indicates a difference between the two location groups for the week of January 23, 2002 (Table D-2). The Boundary group was statistically greater than the Distant group for this week. Additional investigation indicates that a temperature inversion (i.e., where air temperatures warms with increasing altitude) existed for most of the day at Boundary stations, unlike at Distant locations. Inversions tend to “trap” gases and fine particulates, resulting in increased levels of naturally occurring radioactivity. The results do implicate any release from the INEEL.

Iodine-131 was initially detected (at a level greater than the associated 2s value) in three batches of charcoal cartridges. Each batch contained eight to ten charcoal cartridges. One batch was collected during the week of January 23, 2002 and two batches were collected during the week of March 20, 2002. Immediate reanalysis of each individual cartridge yielded results below the 2s values. Because initial counting is done as a batch sample it appears that the cumulative activity for each of the ten-cartridge batches in question was above the detection limit and the 2s activity, but could not attributable to any single location (cartridge). Weekly ^{131}I results for each location, including individual recount data, are listed in Table C-2 of Appendix C.

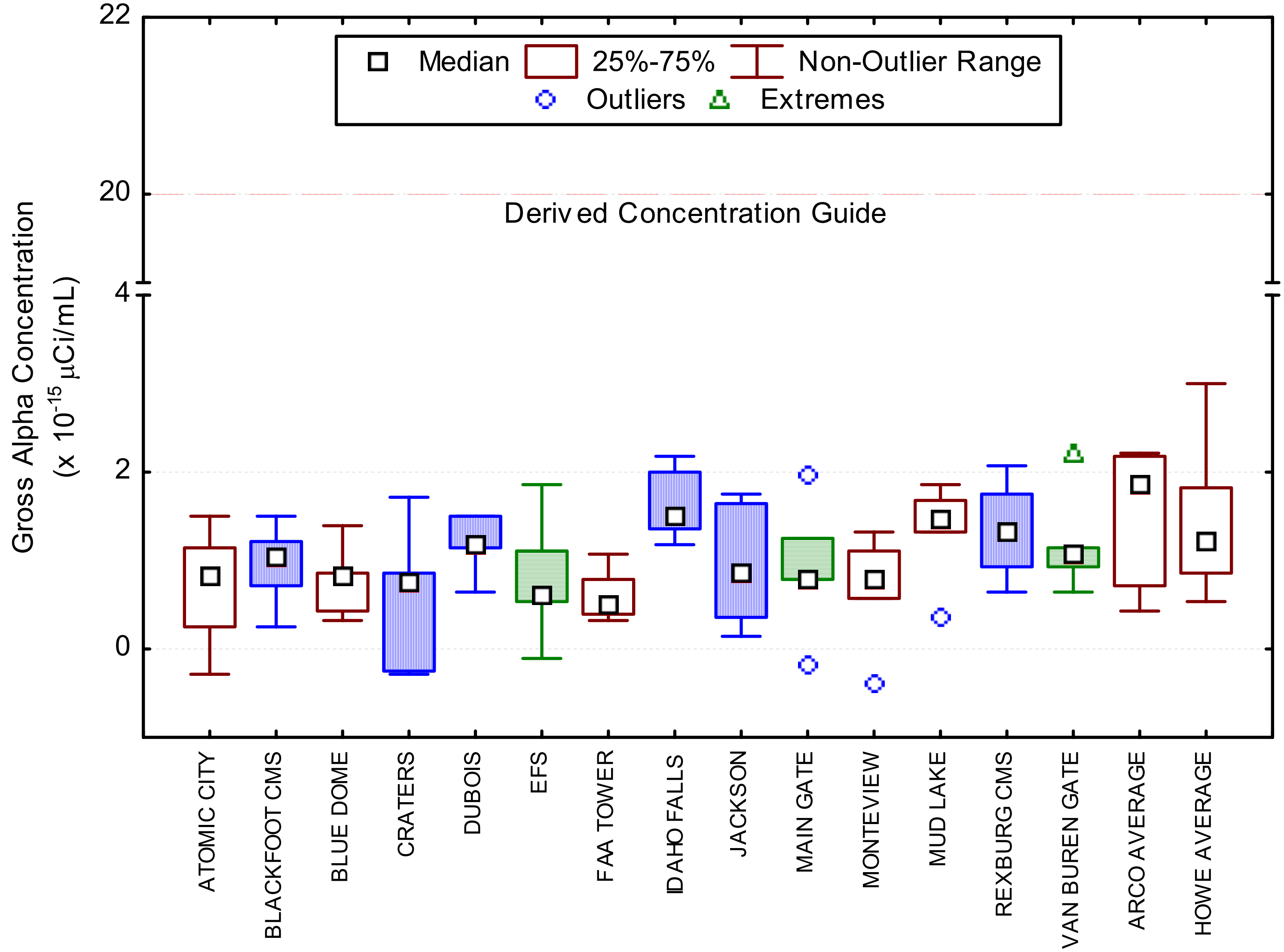

Figure 3. **January gross alpha concentrations in air at ESER Program stations**. Stations belonging to INEEL, Boundary, or Distant locations are represented by boxes that are patterned with vertical green stripes, no fill, or horizontal blue stripes, respectively. [Number of samples (N) = 5 for each location except for Rexburg CMS, where N = 4.]

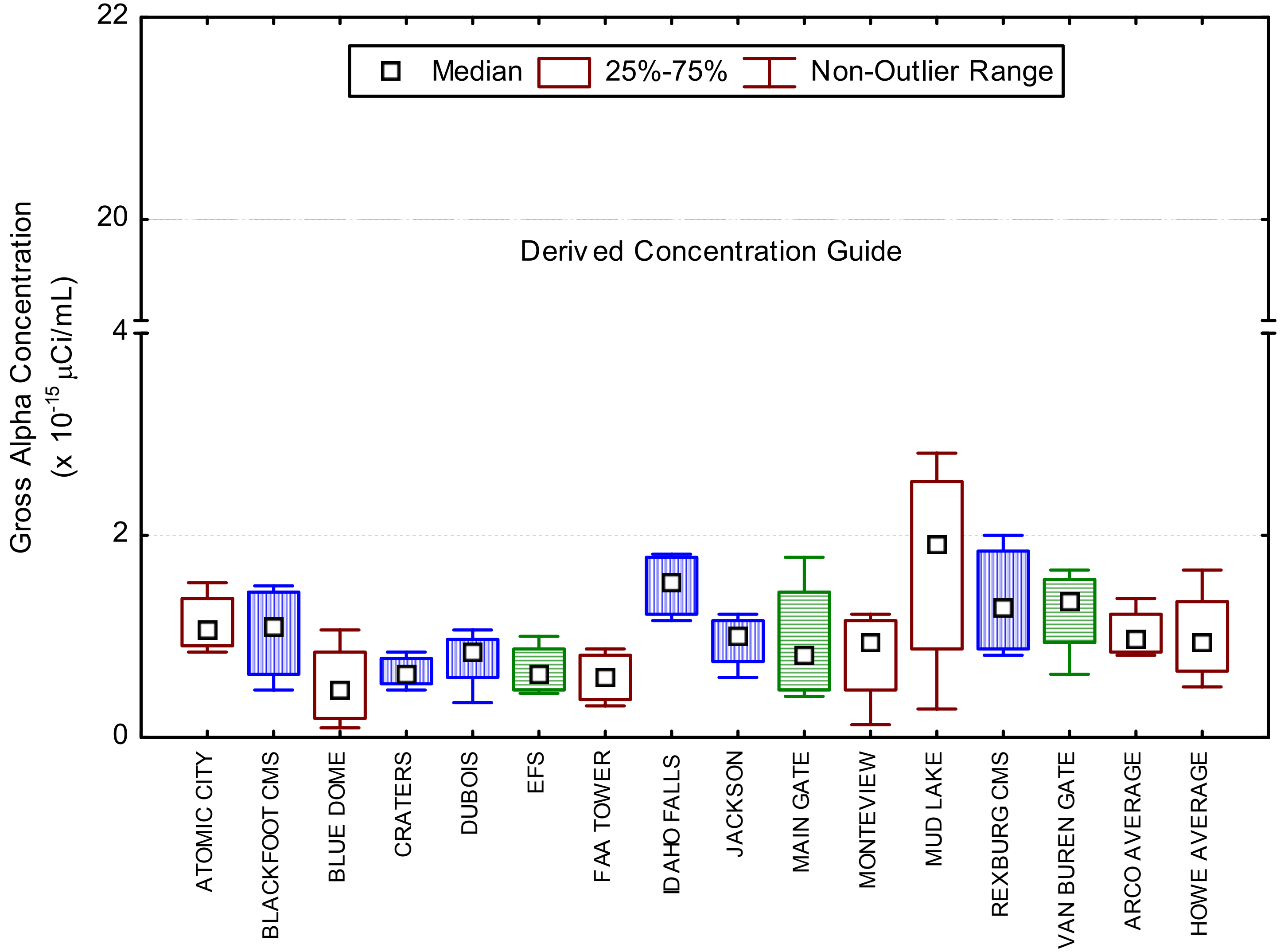

Figure 4. **February gross alpha concentrations in air at ESER Program INEEL, Boundary, and Distant locations.** Stations belonging to INEEL, Boundary, or Distant locations are represented by boxes that are patterned with vertical green stripes, no fill, or horizontal blue stripes, respectively. [Number of samples (N) = 4 at each location.]

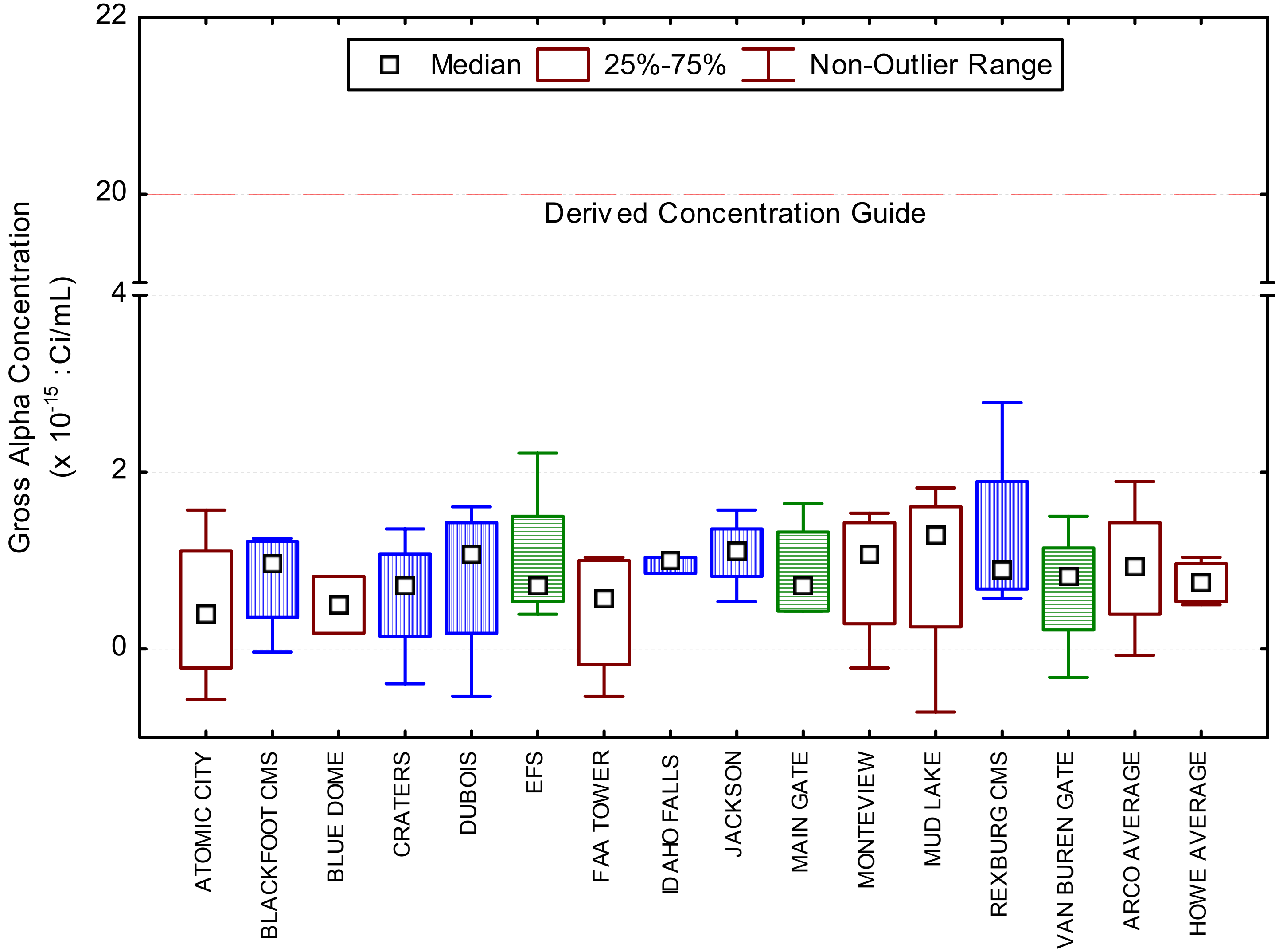

Figure 5. **March gross alpha concentrations in air at ESER Program INEEL, Boundary, and Distant locations.** Stations belonging to INEEL, Boundary, or Distant locations are represented by boxes that are patterned with vertical green stripes, no fill, or horizontal blue stripes, respectively. [Number of samples (N) = 4 at each location except for Blue Dome, where N=2, and Idaho Falls, where N=3.]

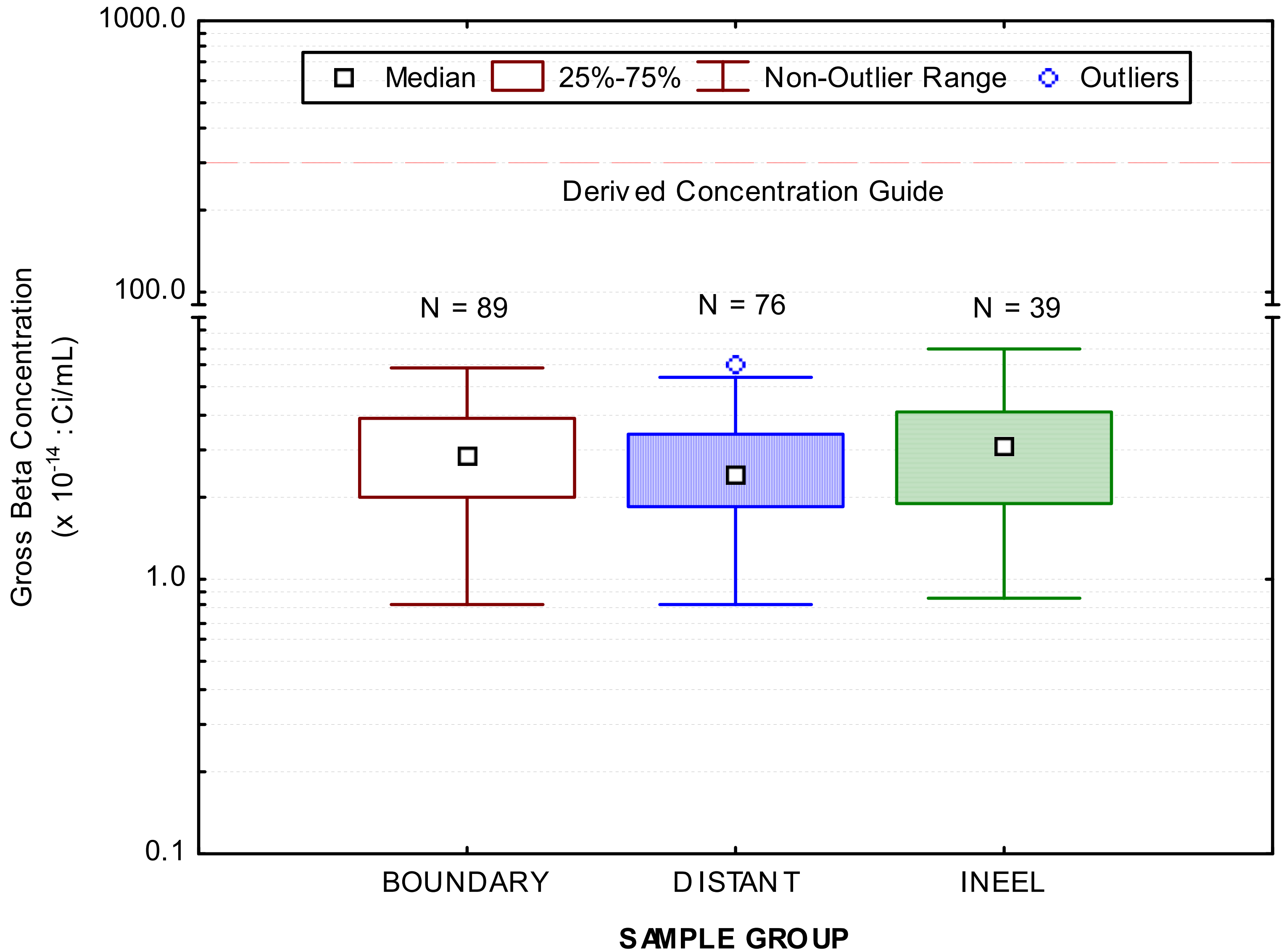

Figure 6. Gross beta concentrations in air at ESER Program INEEL, Boundary, and Distant locations for the first quarter 2002.

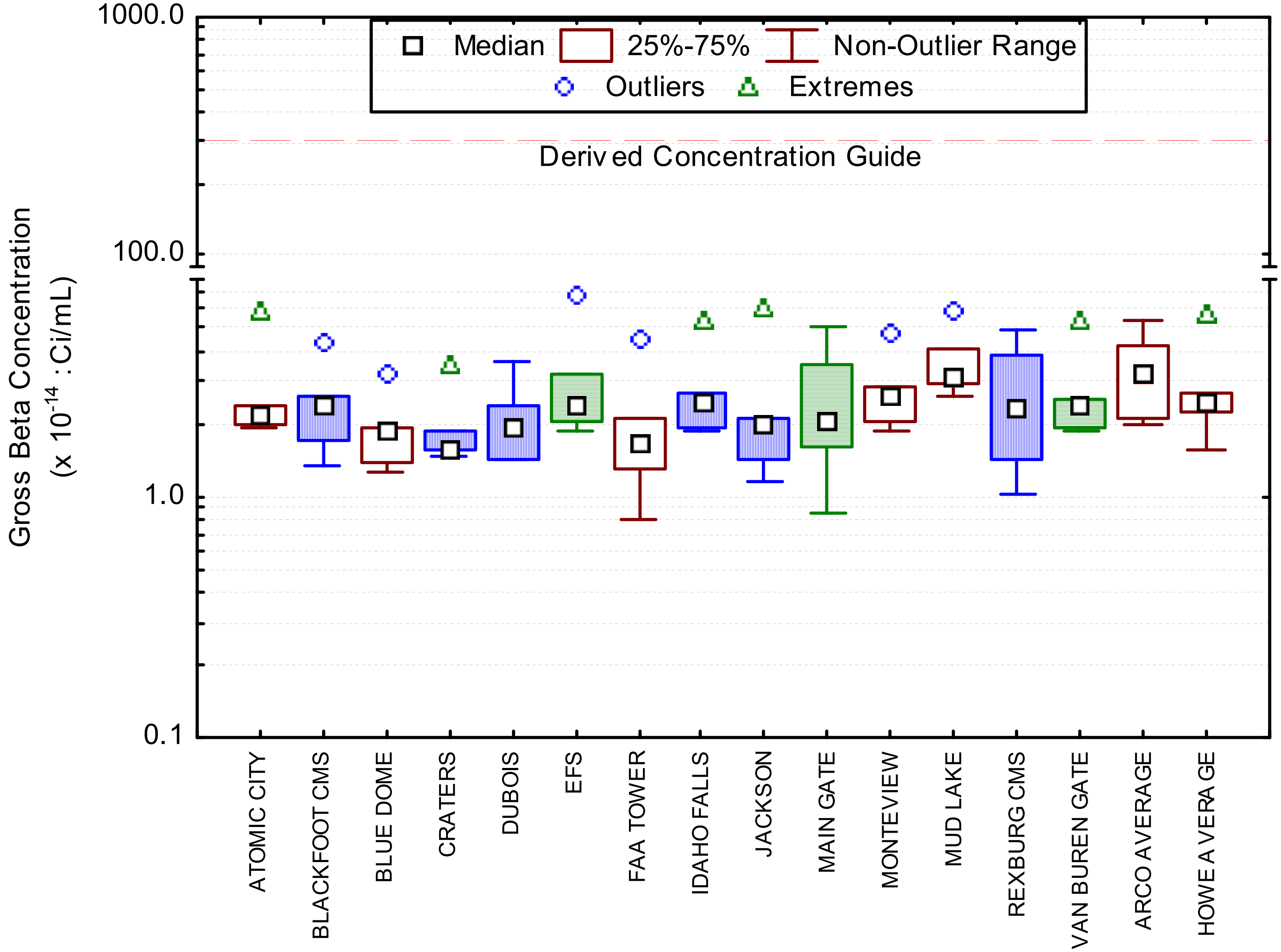

Figure 7. January gross beta concentrations in air at ESER Program INEEL, Boundary, and Distant locations. Distant locations are represented by boxes that are patterned with vertical green stripes, no fill, or horizontal blue stripes, respectively. [Number of samples (N) = 5 for each location except for Rexburg CMS, where N = 4.])

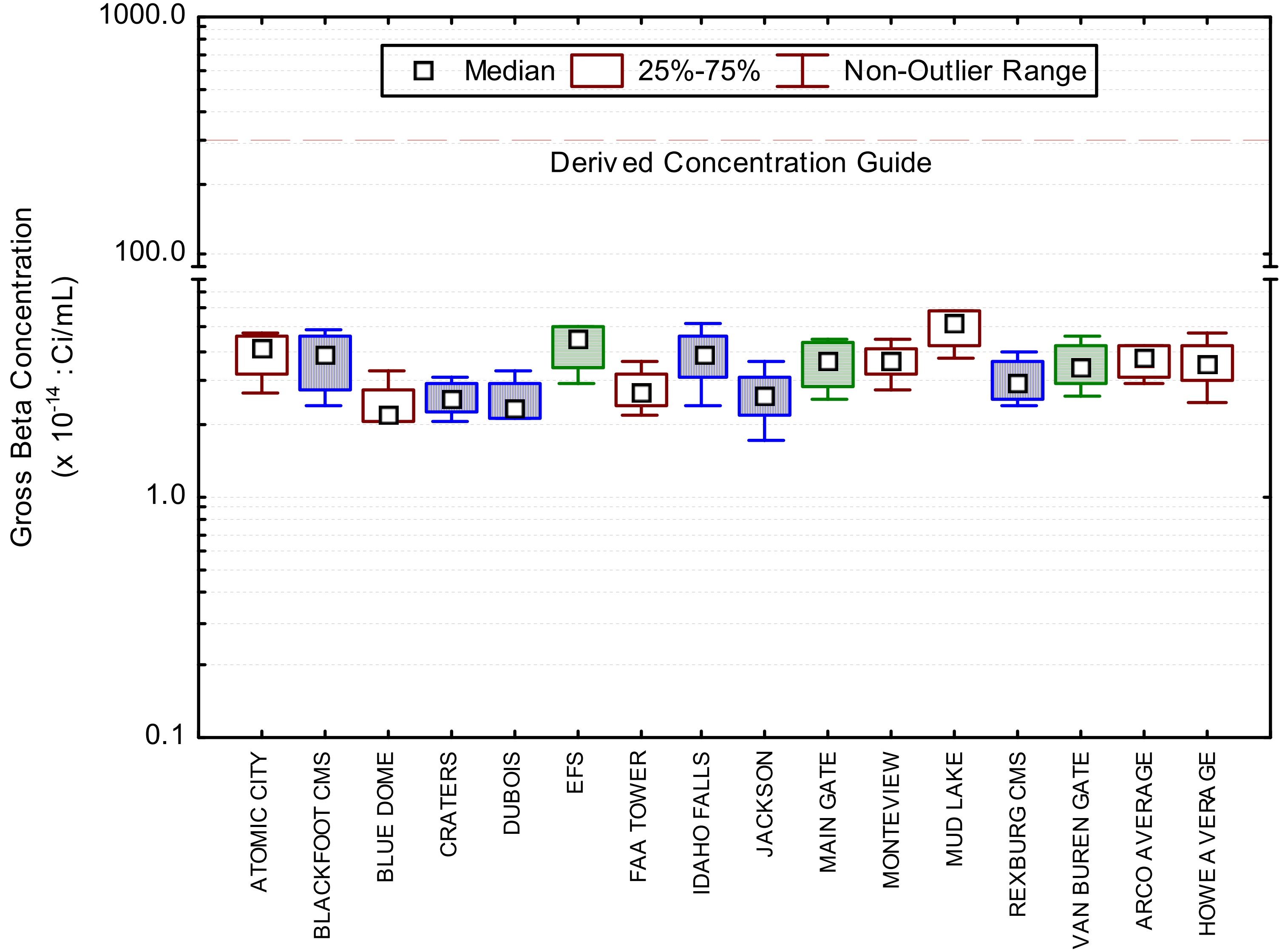

Figure 8. February gross beta concentrations in air at ESER Program INEEL, Boundary, and Distant locations. Stations belonging to INEEL, Boundary, or Distant locations are represented by boxes that are patterned with vertical green stripes, no fill, or horizontal blue stripes, respectively. [Number of samples (N) = 4 at each location.]

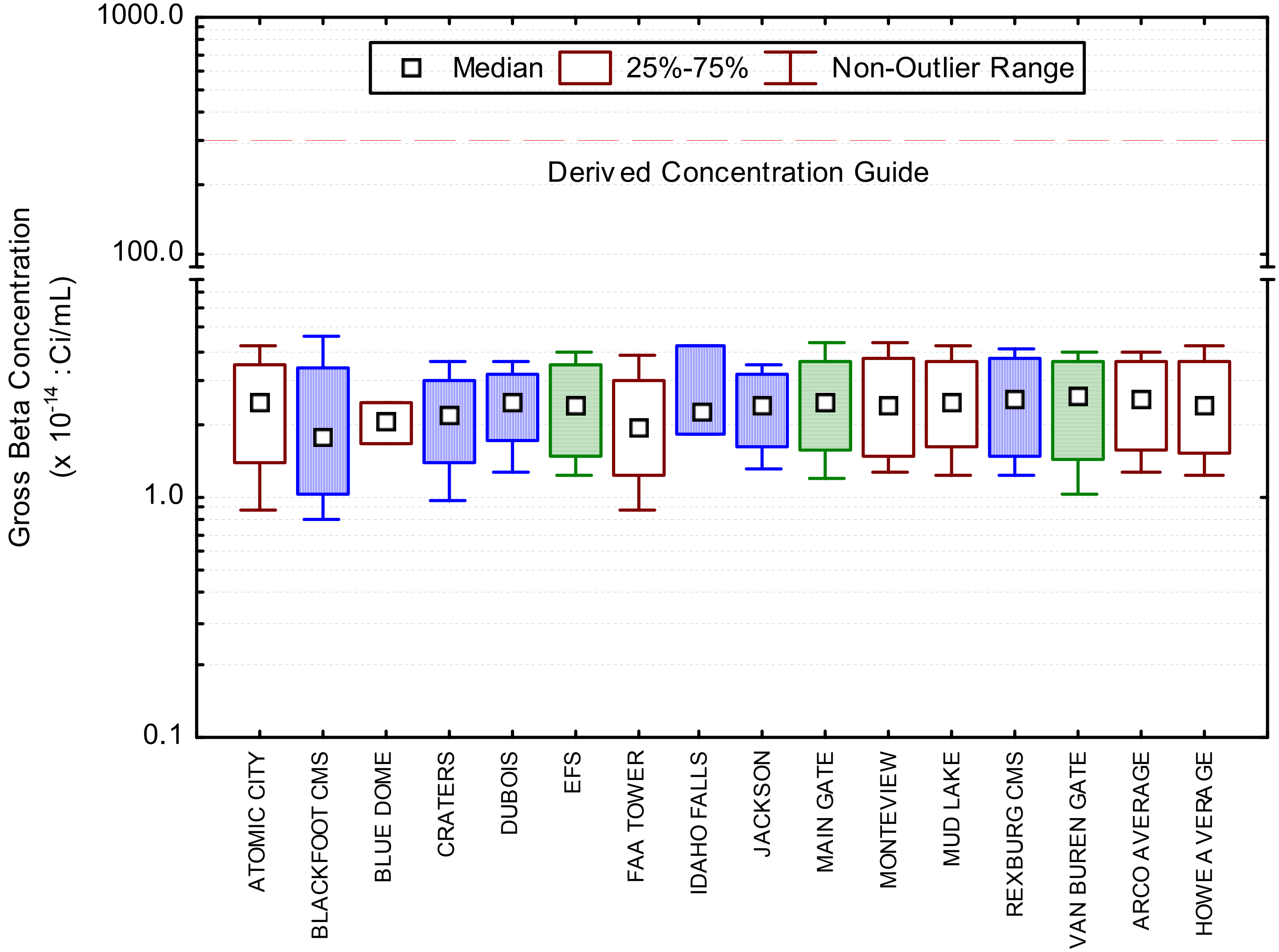

Figure 9. **March gross beta concentrations in air at ESER Program INEEL, Boundary, and Distant locations. .** Stations belonging to INEEL, Boundary, or Distant locations are represented by boxes that are patterned with vertical green stripes, no fill, or horizontal blue stripes, respectively. [Number of samples (N) = 4 at each location except for Blue Dome, where N=2, and Idaho Falls, where N=3.]

Weekly filters for the first quarter of 2002 were composited by location and analyzed for gamma-emitting radionuclides, including ^{137}Cs. Composites were also analyzed for ^{90}Sr, ^{238}Pu, $^{239/240}Pu$, and ^{241}Am. Samples collected from six air monitoring stations (Arco Q/A-1, Atomic City, Blackfoot CMS, Dubois, Main Gate and Mud Lake) showed at least one human-made radionuclide greater than and its related 2s value. Americium-241 and $^{239/240}Pu$ were the most frequently detected radionuclides in the quarterly composites (Figure 10). Cesium-137 was measured in the sample collected from the Main Gate at a concentration of $(1.2 \pm 1.1) \times 10^{-15}$ μCi/mL. Plutonium-238 was measured in the sample collected from the Arco Q/A-1 station at a concentration of $(1.2 \pm 1.1) \times 10^{-18}$ μCi/mL. Strontium-90 was not detected in any sample. Occasional detection of human-made radionuclides is not unusual and represents natural variations in concentrations of radionuclides introduced by historical nuclear weapons testing. The concentrations measured during this quarter are consistent with those recorded in the past. All results were far less than their respective DCGs. All results for composite filter samples are shown in Table C-3, Appendix C.

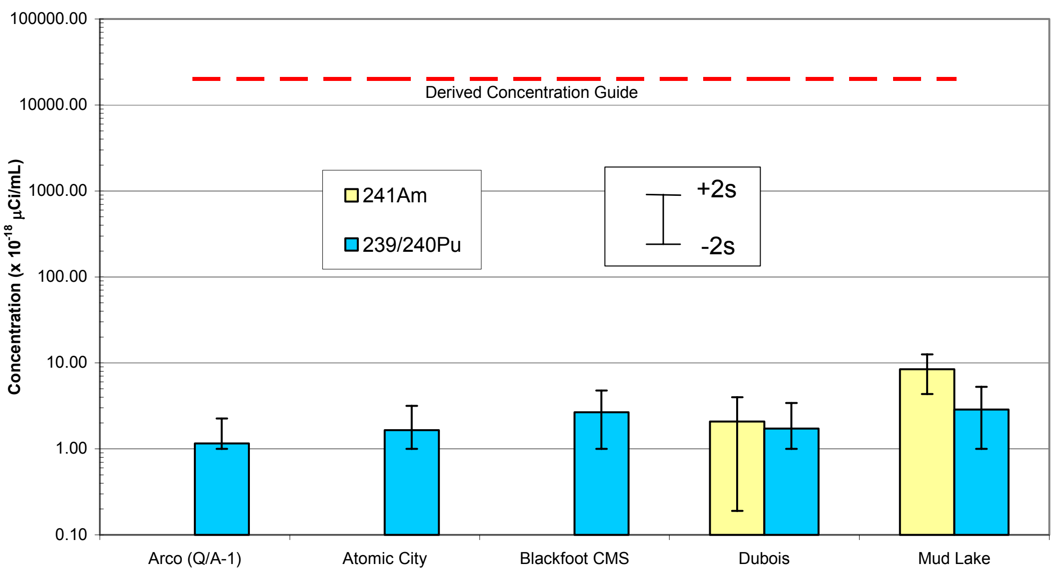

Figure 10. Concentrations of ^{241}Am and $^{239/240}Pu$ detected in quarterly composite air filters (by locations).

ATMOSPHERIC MOISTURE SAMPLING

Seventeen atmospheric moisture samples were obtained during the first quarter of 2002; two from Blackfoot, three from Rexburg, and six each Idaho Falls and Atomic City. Atmospheric moisture is collected by pulling air through a column of absorbent material (i.e., silica gel) to absorb water vapor. The water is then extracted from the absorbent material by heat distillation. The resulting water samples are then analyzed for tritium using liquid scintillation. Starting in 2002 the ESER program began an evaluation of Drierite (anhydrous calcium sulfate) as an absorbent material. For this reason Table C-4 in Appendix C shows two samples collected on each date at Atomic City and Idaho Falls. Each set of two results represents a sample from the silica gel and a sample from the drierite material, respectively.

All but two samples, one collected from Idaho Falls in February and one collected from the Rexburg CMS in March, exceeded their respective 2s values. Results associated with three samples collected on February 6 from Atomic City (using drierite), Idaho Falls (using silica gel), and Rexburg (using drierite) are invalid due to small sample size (less than 9 mL). The twelve remaining sample results, were all well below the DOE DCG for tritium in air of 1×10^{-7} µCi/mL (3.7×10^{-3} Bq/mL). Of these twelve results, the maximum value was $4.9 \pm 1.8 \times 10^{-13}$ µCi/mL of air ($1.8 \pm 0.7 \times 10^{-8}$ Bq/mL of air).

PM_{10} AIR SAMPLING

The EPA began using a standard for concentrations of airborne particulate matter (PM) less than 10 micrometers in diameter (PM_{10}) in 1987 (40 CFR 50.6, 1996). Particles of this size can be inhaled deep into the lungs and are considered to be responsible for most of the adverse health effects associated with airborne particulate pollution. The air quality standards for these particulates are an annual average of 50 µg/m^3, with a maximum 24-hour concentration of 150 µg/m^3.

The ESER Program operates three PM_{10} samplers, one each at the Rexburg CMS and Blackfoot CMS, and one in Atomic City. Sampling of PM_{10} is informational only as no chemical analyses are conducted for contaminants. A twenty-four hour sampling period is scheduled to run once every six days. Equipment and measurement problems nullified a number of samples from each location (six each from Atomic City and the Blackfoot CMS, and five from the Rexburg CMS). The maximum 24-hour concentration was 37.4 µg/m^3 on February 12, 2002, in Rexburg. The average, maximum, and minimum results of the 24-hour samples are summarized in Table 1. None of the results exceeds the maximum 24-hour air quality standard established by EPA. Results for all PM_{10} samples are listed in Table C-5, Appendix C.

Table 1 Summary of 24-hour PM_{10} values.

	Concentration[a]		
Location	**Minimum**	**Maximum**	**Average**
Atomic City	0.78	23.35	8.68
Blackfoot, CMS	0.53	28.21	8.64
Rexburg, CMS	2.81	37.36	18.29

a. All concentrations are in (: g/m^3).

4. WATER SAMPLING

The ESER program samples precipitation, surface water, and drinking water. Monthly composite precipitation samples are collected from Idaho Falls and the Central Facilities Area (CFA) on the INEEL. Weekly precipitation samples are collected from the Experimental Field Station (EFS) on the INEEL. Surface and/or drinking water are sampled twice each year at 19 locations around the INEEL. This occurs during the second and fourth quarters and is therefore not reported here. A summary of approximate minimum detectable concentrations (MDCs) for radiological analyses and DOE Derived Concentration Guide (DCG) (DOE 1993) values is provided in Appendix B.

PRECIPITATION SAMPLING

Precipitation samples are gathered when sufficient precipitation occurs to allow for the collection of the minimum sample volume of approximately 20 mL. Samples are taken of a monthly composite from Idaho Falls and CFA, and weekly from the EFS. Precipitation samples are analyzed for tritium. Storm events in the first quarter of 2002 produced enough precipitation for a total of 11 samples – three from Idaho Falls, two from CFA, and six from the EFS.

Tritium was measured above the sample's 2s value in two samples: one each from Idaho Falls and the EFS in February. While there is no regulatory limit for tritium in precipitation, the DOE DCG and maximum contaminant level set by EPA for tritium in drinking water can be used as a measure. The highest tritium concentration, 94.7 ± 61.0 pCi/L (3.5 ± 2.3 Bq/L), was measured in a sample collected from Idaho Falls on February 28. This value is many times lower than the DCG value (2×10^6 pCi/L) and the Safe Drinking Water Act limit (20,000 pCi/L) for tritium in drinking water.

Low levels of tritium exist in the environment at all times as a result of cosmic ray reactions with water molecules in the upper atmosphere. Tritium measured in first quarter ESER samples were within the range of values measured elsewhere. The EPA's ERAMS program collects precipitation samples from across the United States. From 1978 to 2001 tritium measured in those samples ranged from -2.00 to 7.38×10^6 pCi/L (-7.4 to 2.7×10^4 Bq/L) (EPA 2002). Data for all first quarter 2002 precipitation samples collected by the ESER Program are listed in Table C-6 (Appendix C).

5. AGRICULTURAL PRODUCTS AND WILDLIFE SAMPLING

Another potential pathway for contaminants to reach humans is through the food chain. The ESER Program samples multiple agricultural products and game animals from around the INEEL and Southeast Idaho. Specifically, milk, wheat, potatoes, garden lettuce, sheep, big game, waterfowl, and marmots are sampled. Milk is sampled throughout the year. Sheep are sampled during the second quarter. Lettuce and wheat are sampled during the third quarter, while potatoes and waterfowl are collected during the fourth quarter. See Table A-1, Appendix A, for more details on agricultural product and wildlife sampling. This section discusses results from milk, and large game sampled during the first quarter of 2002. A summary of approximate minimum detectable concentrations (MDCs) for radiological analyses is provided in Appendix B. There no regulatory standards for radionuclide concentrations in agricultural products and wildlife tissues.

MILK SAMPLING

Milk samples were collected weekly in Idaho Falls and monthly at eight other locations around the INEEL (Figure 11) during the first quarter of 2002. All samples were analyzed for gamma emitting radionuclides. Samples are analyzed for ^{90}Sr during the second and fourth quarters.

Data for ^{131}I and ^{137}Cs in milk samples are listed in Table C-7. No Iodine-131 (^{131}I) was detected in any milk sample during this quarter. One sample collected from Idaho Falls in mid-January had a ^{137}Cs concentration (1.6 pCi/L) greater than its 2s uncertainty.

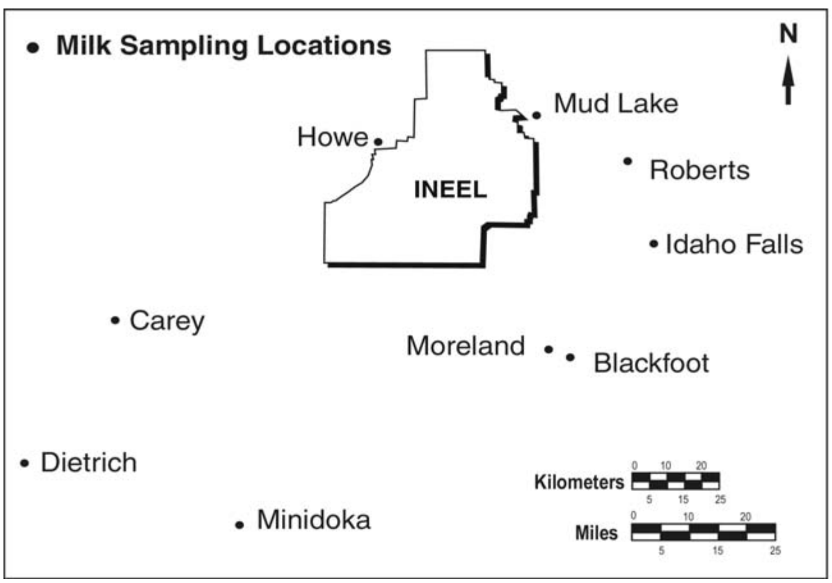

Figure 11. ESER Program milk sampling locations.

The detection of ^{137}Cs in milk around the INEEL at very low concentrations is not unusual and is indistinguishable from ^{137}Cs levels expected from historical fallout events (e.g. from nuclear weapons tests and Chernobyl) (EPA 1997). There are no established limits for ^{137}Cs in milk but, for comparison, the EPA has set the limit for ^{137}Cs under the Safe Drinking Water Act at 120 pCi/L (4.4 Bq/L). This limit is based on a 4 mrem per year exposure limit and the assumption that two liters per day are consumed. The maximum concentration (1.6 ±

1.5 pCi/L [5.9 ± 5.5 x 10^{-2} Bq/L) measured in milk during the first quarter, 2002 is many times lower than the 120 pCi/L limit.

LARGE GAME ANIMAL SAMPLING

Fourteen game animals were sampled during the first quarter of 2002. All were killed as a result of vehicular collisions. These accidents involved six mule deer (*Odocoileus hemionus*) and eight pronghorn antelope (*Antilocapra americana*). Efforts were made to collect samples of thyroid, liver, and muscle tissue from each animal, but due to their condition at the time of sampling not all animals provided all samples. Cesium-137 and ^{131}I data for all big game samples are listed in Appendix C, Table C-8.

Each sample collected was analyzed for gamma emitting radionuclides. Liver and muscle tissue of all animals had detectable concentrations of naturally occurring potassium-40. Cesium-137 was detected in the muscle of two pronghorns above the respective 2s values on March 5 and 6, 2002.

The concentrations measured in the above samples are within the range of values for samples collected in the past. Likewise, the presence of ^{137}Cs is commonly associated with fallout from past weapons testing and nuclear accidents (i.e., Chernobyl).

6. SUMMARY AND CONCLUSIONS

There were no observed gradients of gross alpha concentrations in air increasing towards the INEEL from Distant locations. Gross beta activity was statistically higher during February at Boundary locations than at Distant locations. This was found to be due higher gross beta levels at Mud Lake during this month. However, this appears to be linked to natural variations in the data, not INEEL releases. Gross beta results were also statistically higher at Boundary locations, as compared with Distant locations, during the week of January 23, 2002. Meteorological data obtained from NOAA demonstrate temperature inversion conditions at Boundary locations during this week that typically result in increased levels of naturally occurring radionuclides associated with fine particulates. Levels of specific radionuclides detected in composited air filters (^{239,240}Pu and ^{241}Am) and in atmospheric moisture samples (tritium) were well below regulatory guidelines set by both the DOE and the EPA for protection of the public and were not different from values measured historically at the INEEL.

Tritium was detected in two of 11 precipitation samples collected during the first quarter. The concentrations were consistent with measurements made by EPA at other locations across the United States and reported by the ERAMS program.

Milk sample samples collected during the first quarter had no detectable ^{131}I. Cesium-137 was detected in one milk sample collected from Idaho Falls in January. The result was indistinguishable from historical measurements.

Results of analyses of game animal tissues indicate detectable levels of 40K, a naturally occurring radionuclide in all samples, and ^{137}Cs in two pronghorn muscle samples. All results are within concentrations measured historically at the INEEL.

In conclusion, no radionuclides in any of the samples taken during the first quarter of 2002 could be directly linked with INEEL activities. Concentrations in all of the samples collected and analyzed during the first quarter, 2002 were similar to levels measured in the past in the INEEL environment or in other locations in the United States and were well below regulatory standards for public health.

7. REFERENCES

DOE Order 5400.1, "General Environmental Protection Program," U.S. Department of Energy, November 1988.

DOE Order 5400.1, "Radiation Protection of the Public and the Environment," U.S. Department of Energy, January 1993.

40 CFR 50.6, "National Primary and Secondary Ambient Air Quality Standards for Particulate Matter," Code of Federal Regulations, Office of the Federal Register, 1996.

EPA, 1997. Environmental Radiation Data. Report 89. United States Environmental Protection Agency, Office of Radiation and Indoor Air, Montgomery, AL.

EPA, 2002. Environmental Radiation Ambient Monitoring System (ERAMS). Web-page: http://www.epa.gov/enviro/html/erams/

NRC, 2002, Fact Sheet on The Biological Effects of Radiation, Web page http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/bio-effects-radiation.html. U.S. Nuclear Regulatory Commission, Washington, D.C.

APPENDIX A

SUMMARY OF SAMPLING MEDIA & SCHEDULE

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Table A-1. Summary of the ESER Program's Sampling Schedule

Sample Type Analysis	Collection Frequency	LOCATIONS[a]		
		Distant	Boundary	INEEL
AIR SAMPLING				
LOW-VOLUME AIR				
Gross Alpha, Gross Beta, ^{131}I	weekly	Blackfoot, Craters of the Moon, Dubois, Idaho Falls, Jackson WY, Rexburg	Arco, Atomic City, Blue Dome, FAA Tower, Howe, Monteview, Mud Lake	Main Gate, EFS, Van Buren
Gamma Spec	quarterly	Blackfoot, Craters of the Moon, Dubois, Idaho Falls, Jackson WY, Rexburg	Arco, Atomic City, Blue Dome, FAA Tower, Howe, Monteview, Mud Lake	Main Gate, EFS, Van Buren
^{90}Sr, Transuranics	quarterly	Rotating schedule	Rotating schedule	Rotating schedule
ATMOSPHERIC MOISTURE				
Tritium	4 to 13 weeks	Blackfoot, Idaho Falls, Rexburg	Atomic City	None
PRECIPITATION				
Tritium	monthly	Idaho Falls	None	CFA
Tritium	weekly	None	None	EFS
PM-10				
Particulate Mass	every 6th day	Rexburg, Blackfoot	Atomic City	None
WATER SAMPLING				
SURFACE WATER				
Gross Alpha, Gross Beta, ^{3}H	semi-annually	Bliss, Buhl, Hagerman, Idaho Falls, Twin Falls	None	None
DRINKING WATER				
Gross Alpha, Gross Beta, ^{3}H	semi-annually	Aberdeen, Carey, Idaho Falls, Fort Hall, Moreland, Minidoka, Roberts, Shoshone, Taber	Arco, Atomic City, Howe, Monteview, Mud Lake,	None
ENVIRONMENTAL RADIATION SAMPLING				
TLDs				
Gamma Radiation	semiannual	Aberdeen, Blackfoot, Craters of the Moon, Idaho Falls, Minidoka, Rexburg, Roberts	Arco, Atomic City, Birch Creek, Howe, Monteview, Mud Lake	None
SOIL SAMPLING				
SOIL				
Gamma Spec, ^{90}Sr, Transuranics	Biennially	Blackfoot, Carey, Crystal Ice Caves, St. Anthony	Atomic City, Birch Creek, Butte City, FAA Tower, Howe, Monteview, Mud Lake (2)	None

Table A—1. Summary of the ESER Program's Sampling Schedule (continued)

Sample Type Analysis	Collection Frequency	LOCATIONS		
		Distant	Boundary	INEEL
FOODSTUFF SAMPLING				
MILK				
Gamma Spec (^{131}I)	weekly	Idaho Falls	None	None
Gamma Spec (^{131}I)	monthly	Blackfoot, Carey, Dietrich, Minidoka, Roberts, Moreland	Howe, Terreton	None
Tritium, ^{90}Sr	Semi-annually	Blackfoot, Carey, Dietrich, Idaho Falls, Minidoka, Roberts, Moreland	Howe, Terreton	None
POTATOES				
Gamma Spec, ^{90}Sr	annually	Ammon, Blackfoot, Rupert, Tabor, occasional samples across the U.S.	Arco, Howe, Monteivew, Mud Lake	None
WHEAT				
Gamma Spec, ^{90}Sr	annually	Aberdeen, Carey, Dietrich, Goveland, Idaho Falls, Menan, Minidoka, Rockford, Rupert	Arco, Howe, Monteview, Mud Lake, Terreton	None
LETTUCE				
Gamma Spec, ^{90}Sr	annually	Blackfoot, Carey, Idaho Falls	Arco, Howe, Monteview, Mud Lake	None
BIG GAME				
Gamma Spec	varies	Occasional samples across the U.S.	Boundary roads	INEEL roads
SHEEP				
Gamma Spec	annually	Dubois	None	N. INEEL, S. INEEL
WATERFOWL				
Gamma Spec, ^{90}Sr, Transuranics	annually	Mud Lake, Heise	None	Waste disposal ponds
FISH				
Gamma Spec	annually or as available	None	None	Big Lost River

a. Sampling locations may vary from year to year based on sample availability.

APPENDIX B

SUMMARY OF MDC's, DCG's, AND SDWA LIMITS

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Table B-1. Summary of Approximate Minimum Detectable Concentrations for Radiological Analyses Performed During First Quarter 2002

Sample Type	Analysis	Approximate Minimum Detectable Concentration[a] (MDC)	Derived Concentration Guide[b] (DCG)
Air (particulate filter)[e]	Gross alpha[c]	1.3×10^{-15} µCi/mL	2×10^{-14} µCi/mL
	Gross beta[d]	2.5×10^{-15} µCi/mL	3×10^{-12} µCi/mL
	Specific gamma (^{137}Cs)	2.7×10^{-16} µCi/mL	4×10^{-10} µCi/mL
	^{238}Pu	1.9×10^{-18} µCi/mL	3×10^{-14} µCi/mL
	$^{239/240}$Pu	1.9×10^{-18} µCi/mL	2×10^{-14} µCi/mL
	^{241}Am	1.9×10^{-18} µCi/mL	2×10^{-14} µCi/mL
	^{90}Sr	7.6×10^{-17} µCi/mL	9×10^{-12} µCi/mL
Air (charcoal cartridge)[e]	^{131}I	1.3×10^{-15} µCi/mL	4×10^{-10} µCi/mL
Air (atmospheric moisture)[f]	^{3}H	1.6×10^{-13} µCi/mL	1×10^{-7} µCi/mL
Air (precipitation)	^{3}H	1.2×10^{-7} µCi/mL	2×10^{-3} µCi/mL
Milk	^{131}I	3.1 pCi/L	--
	^{137}Cs	0.6 pCi/L	--
Game Animal Tissue[g]	^{137}Cs	4.7 pCi/kg	--

a The MDC is an estimate of the concentration of radioactivity in a given sample type that can be identified with a 95% level of confidence and precision of plus or minus 100% under a specified set of typical laboratory measurement conditions.

b DCGs, set by the DOE, represent reference values for radiation exposure. They are based on a radiation dose of 100 mrem/yr for exposure through a particular exposure mode such as direct exposure, inhalation, or ingestion of water.

c The DCG for gross alpha is equivalent to the DCGs for ^{239,240}Pu and ^{241}Am.

d The DCG for gross beta is equivalent to the DCGs for ^{228}Ra.

e The approximate MDC is based on an average filtered air volume (pressure corrected) of 570 m^3/week.

f The approximate MDC is expressed for tritium (as tritiated water) in air, and is based on an average filtered air volume of 39 m^3, assuming an average sampling period of eight weeks.

g The approximate MDC assumes a sample size of 500 g.

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APPENDIX C

SAMPLE ANALYSIS RESULTS

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APPENDIX D

STATISTICAL ANALYSIS RESULTS

Table D-1. Kruskal-Wallace[a] statistical results between INEEL, Boundary, and Distant sample groups by quarter and by month.

Parameter	p[b]
Gross Alpha	
Quarter	0.27
January	0.22
February	0.09
March	0.98
Gross Beta	
Quarter	0.17
January	0.40`
February	0.02
March	1.00

a. See the Determining Statistical Differences of the Helpful Information section for details on the Kruskal-Wallace test.

b. A 'p' value greater than 0.05 signifies no statistical difference between data groups.

Table D-2. Statistical difference in weekly gross alpha concentrations measured at Boundary and Distant locations.

Mann-Whitney U Test[a]		
Parameter	**Week**	**p[b]**
Gross Alpha		
	January 2nd	0.39
	January 9th	0.89
	January 16th	0.12
	January 23rd	0.47
	January 30th	0.39
	February 6th	0.78
	February 13th	0.78
	February 20th	0.32
	February 27th	0.48
	March 6th	0.75
	March 13th	0.14
	March 20th	0.15
	March 27th	0.94
Gross Beta		
	January 2nd	0.57
	January 9th	0.57
	January 16th	0.89
	January 23rd	0.03
	January 30th	0.06
	February 6th	0.39
	February 13th	0.39
	February 20th	0.48
	February 27th	0.06
	March 6th	0.34
	March 13th	1.00
	March 20th	0.57
	March 27th	0.94

a. See the Determining Statistical Differences of the Helpful Information section for details on the Mann Whitney U test.

b. A 'p' value greater than 0.05 signifies no statistical difference between data groups.

Table C-1: Weekly Gross Alpha and Gross Beta Concentrations in Air

Sample Group and Location	Sampling Date	GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-15}$ $\mu Ci/mL$)			GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)			GROSS BETA Result ± Uncertainty(2s) ($x10^{-14}$ $\mu Ci/mL$)			GROSS BETA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)		
BOUNDARY													
ARCO													
	1/2/2002	2.14	±	0.76	0.79	±	0.28	5.17	±	0.27	19.12	±	1.00
	1/9/2002	1.82	±	1.26	0.67	±	0.47	3.79	±	0.32	14.01	±	1.17
	1/16/2002	0.02	±	0.85	0.01	±	0.31	2.34	±	0.23	8.66	±	0.86
	1/23/2002	2.03	±	1.02	0.75	±	0.38	2.99	±	0.26	11.07	±	0.95
	1/30/2002	0.61	±	0.94	0.23	±	0.35	1.85	±	0.23	6.86	±	0.85
	2/6/2002	1.45	±	0.76	0.54	±	0.28	4.14	±	0.27	15.32	±	1.00
	2/13/2002	0.88	±	0.71	0.33	±	0.26	3.01	±	0.24	11.14	±	0.88
	2/20/2002	0.53	±	0.77	0.19	±	0.29	4.00	±	0.27	14.80	±	0.99
	2/27/2002	0.96	±	0.68	0.35	±	0.25	2.91	±	0.22	10.76	±	0.81
	3/6/2002	1.92	±	0.81	0.71	±	0.30	3.77	±	0.25	13.93	±	0.92
	3/13/2002	-0.02	±	0.85	-0.01	±	0.32	1.17	±	0.19	4.32	±	0.72
	3/20/2002	0.72	±	0.66	0.27	±	0.24	3.13	±	0.41	11.59	±	1.51
	3/27/2002	0.85	±	0.52	0.31	±	0.19	1.92	±	0.17	7.11	±	0.61
ARCO (Q/A-1)													
	1/2/2002	2.23	±	2.23	0.82	±	0.32	5.62	±	0.31	20.80	±	1.14
	1/9/2002	2.55	±	2.55	0.94	±	0.53	4.59	±	0.36	16.98	±	1.32
	1/16/2002	0.86	±	0.86	0.32	±	0.38	1.88	±	0.23	6.95	±	0.85
	1/23/2002	1.65	±	1.65	0.61	±	0.39	3.49	±	0.29	12.93	±	1.08
	1/30/2002	0.79	±	0.79	0.29	±	0.38	2.14	±	0.25	7.93	±	0.93
	2/6/2002	1.30	±	1.30	0.48	±	0.30	4.44	±	0.30	16.43	±	1.10
	2/13/2002	0.94	±	0.94	0.35	±	0.28	3.42	±	0.26	12.66	±	0.97
	2/20/2002	1.08	±	1.08	0.40	±	0.34	4.43	±	0.30	16.40	±	1.09
	2/27/2002	1.11	±	1.11	0.41	±	0.29	3.01	±	0.25	11.15	±	0.91
	3/6/2002	1.85	±	1.85	0.68	±	0.32	4.26	±	0.28	15.75	±	1.03
	3/13/2002	-0.16	±	-0.16	-0.06	±	0.36	1.39	±	0.23	5.15	±	0.84
	3/20/2002	1.02	±	1.02	0.38	±	0.28	3.22	±	0.43	11.92	±	1.60
	3/27/2002	1.11	±	1.11	0.41	±	0.26	1.83	±	0.20	6.77	±	0.75

Sample Group and Location	Sampling Date	GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-15}$ μCi/mL)			GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)			GROSS BETA Result ± Uncertainty(2s) ($x10^{-14}$ μCi/mL)			GROSS BETA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)		
ATOMIC CITY													
	1/2/2002	1.48	±	0.71	0.55	±	0.26	5.82	±	0.29	21.52	±	1.08
	1/9/2002	0.24	±	0.98	0.09	±	0.36	2.17	±	0.25	8.04	±	0.92
	1/16/2002	-0.30	±	0.83	-0.11	±	0.31	1.98	±	0.22	7.31	±	0.83
	1/23/2002	0.82	±	0.94	0.30	±	0.35	2.36	±	0.25	8.72	±	0.93
	1/30/2002	1.15	±	0.95	0.43	±	0.35	1.92	±	0.22	7.10	±	0.81
	2/6/2002	0.85	±	0.65	0.31	±	0.24	4.41	±	0.27	16.31	±	0.99
	2/13/2002	1.51	±	0.87	0.56	±	0.32	3.82	±	0.28	14.13	±	1.03
	2/20/2002	1.20	±	0.95	0.45	±	0.35	4.77	±	0.31	17.64	±	1.14
	2/27/2002	0.94	±	0.78	0.35	±	0.29	2.72	±	0.24	10.05	±	0.89
	3/6/2002	1.56	±	0.84	0.58	±	0.31	4.16	±	0.28	15.41	±	1.02
	3/13/2002	-0.58	±	1.00	-0.21	±	0.37	0.88	±	0.22	3.26	±	0.82
	3/20/2002	0.16	±	0.66	0.06	±	0.24	2.98	±	0.45	11.03	±	1.68
	3/27/2002	0.65	±	0.54	0.24	±	0.20	1.87	±	0.18	6.91	±	0.66
BLUE DOME													
	1/2/2002	0.80	±	0.71	0.30	±	0.26	3.21	±	0.26	11.89	±	0.98
	1/9/2002	0.85	±	1.30	0.31	±	0.48	1.88	±	0.28	6.95	±	1.03
	1/16/2002	0.32	±	1.21	0.12	±	0.45	1.39	±	0.25	5.13	±	0.94
	1/23/2002	1.38	±	1.19	0.51	±	0.44	1.94	±	0.27	7.18	±	1.00
	1/30/2002	0.44	±	1.12	0.16	±	0.41	1.26	±	0.24	4.68	±	0.89
	2/6/2002	1.07	±	0.77	0.39	±	0.28	2.26	±	0.23	8.36	±	0.86
	2/13/2002	0.63	±	0.77	0.23	±	0.28	2.07	±	0.23	7.67	±	0.86
	2/20/2002	0.30	±	0.91	0.11	±	0.34	3.29	±	0.29	12.16	±	1.06
	2/27/2002	0.08	±	1.07	0.03	±	0.39	2.02	±	0.31	7.48	±	1.15
No Sample	3/6/2002	0.00	±	0.00	0.00	±	0.00	0.00	±	0.00	0.00	±	0.00
	3/13/2002	-3.46	±	5.11	-1.28	±	1.89	-0.15	±	0.89	-0.55	±	3.31
	3/20/2002	0.18	±	0.66	0.07	±	0.24	2.48	±	0.43	9.18	±	1.59
	3/27/2002	0.81	±	0.55	0.30	±	0.20	1.64	±	0.17	6.07	±	0.62

Sample Group and Location	Sampling Date	GROSS ALPHA Result ± Uncertainty(2s) (x10^{-15} μCi/mL)			GROSS ALPHA Result ± Uncertainty(2s) (x10^{-10} Bq/mL)			GROSS BETA Result ± Uncertainty(2s) (x10^{-14} μCi/mL)			GROSS BETA Result ± Uncertainty(2s) (x10^{-10} Bq/mL)		
FAA TOWER													
	1/2/2002	1.05	±	0.65	0.39	±	0.24	4.44	±	0.26	16.42	±	0.98
	1/9/2002	0.78	±	1.03	0.29	±	0.38	0.80	±	0.19	2.96	±	0.71
	1/16/2002	0.31	±	0.91	0.11	±	0.34	1.68	±	0.21	6.20	±	0.79
	1/23/2002	0.49	±	0.86	0.18	±	0.32	2.12	±	0.24	7.83	±	0.87
	1/30/2002	0.41	±	0.92	0.15	±	0.34	1.32	±	0.21	4.89	±	0.78
	2/6/2002	0.89	±	0.69	0.33	±	0.25	2.84	±	0.24	10.50	±	0.88
	2/13/2002	0.74	±	0.67	0.27	±	0.25	2.55	±	0.22	9.42	±	0.81
	2/20/2002	0.43	±	0.84	0.16	±	0.31	3.69	±	0.28	13.66	±	1.03
	2/27/2002	0.31	±	0.62	0.11	±	0.23	2.18	±	0.21	8.05	±	0.76
	3/6/2002	0.98	±	0.75	0.36	±	0.28	3.83	±	0.27	14.17	±	0.99
	3/13/2002	-0.54	±	0.93	-0.20	±	0.35	0.88	±	0.21	3.27	±	0.77
	3/20/2002	0.17	±	0.61	0.06	±	0.23	2.28	±	0.40	8.42	±	1.48
	3/27/2002	1.02	±	0.67	0.38	±	0.25	1.55	±	0.19	5.74	±	0.69
HOWE													
	1/2/2002	1.42	±	0.75	0.53	±	0.28	5.51	±	0.30	20.40	±	1.12
	1/9/2002	1.44	±	1.19	0.53	±	0.44	2.83	±	0.28	10.48	±	1.04
	1/16/2002	0.54	±	1.12	0.20	±	0.41	1.58	±	0.24	5.85	±	0.90
	1/23/2002	3.00	±	1.29	1.11	±	0.48	2.66	±	0.28	9.84	±	1.03
	1/30/2002	1.30	±	1.12	0.48	±	0.41	2.36	±	0.26	8.73	±	0.98
	2/6/2002	1.69	±	0.83	0.62	±	0.31	3.76	±	0.27	13.90	±	1.00
	2/13/2002	1.00	±	0.78	0.37	±	0.29	3.51	±	0.27	13.00	±	0.98
	2/20/2002	0.06	±	0.80	0.02	±	0.30	4.82	±	0.31	17.84	±	1.14
	2/27/2002	0.66	±	0.69	0.25	±	0.25	2.99	±	0.23	11.05	±	0.87
	3/6/2002	0.97	±	0.76	0.36	±	0.28	4.26	±	0.28	15.75	±	1.04
	3/13/2002	0.66	±	1.09	0.25	±	0.40	1.32	±	0.23	4.89	±	0.84
	3/20/2002	0.48	±	0.72	0.18	±	0.26	3.28	±	0.46	12.14	±	1.72
	3/27/2002	1.03	±	0.55	0.38	±	0.20	1.87	±	0.17	6.90	±	0.61

Sample Group and Location	Sampling Date	GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-15}$ μCi/mL)	GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)	GROSS BETA Result ± Uncertainty(2s) ($x10^{-14}$ μCi/mL)	GROSS BETA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)
HOWE (Q/A-2)					
	1/2/2002	2.24 ± 2.24	0.83 ± 0.31	5.76 ± 0.31	21.30 ± 1.13
	1/9/2002	0.29 ± 0.29	0.11 ± 0.38	2.62 ± 0.27	9.71 ± 1.00
	1/16/2002	-2.53 ± -2.53	-0.94 ± 2.65	1.46 ± 1.28	5.40 ± 4.73
	1/23/2002	2.99 ± 2.99	1.11 ± 0.55	2.18 ± 0.30	8.07 ± 1.12
	1/30/2002	1.09 ± 1.09	0.40 ± 0.37	2.12 ± 0.24	7.85 ± 0.88
	2/6/2002	1.59 ± 1.59	0.59 ± 0.27	3.38 ± 0.23	12.50 ± 0.87
	2/13/2002	1.14 ± 1.14	0.42 ± 0.27	3.67 ± 0.25	13.57 ± 0.91
	2/20/2002	0.95 ± 0.95	0.35 ± 0.30	4.81 ± 0.28	17.80 ± 1.04
	2/27/2002	0.90 ± 0.90	0.33 ± 0.24	1.96 ± 0.19	7.27 ± 0.70
	3/6/2002	1.11 ± 1.11	0.41 ± 0.31	4.13 ± 0.29	15.26 ± 1.08
	3/13/2002	0.32 ± 0.32	0.12 ± 0.44	1.11 ± 0.24	4.10 ± 0.89
	3/20/2002	0.73 ± 0.73	0.27 ± 0.31	2.67 ± 0.48	9.89 ± 1.78
	3/27/2002	0.75 ± 0.75	0.28 ± 0.19	1.69 ± 0.16	6.26 ± 0.60
MONTEVIEW					
	1/2/2002	0.79 ± 0.63	0.29 ± 0.23	4.73 ± 0.28	17.51 ± 1.03
	1/9/2002	1.30 ± 1.17	0.48 ± 0.43	2.87 ± 0.28	10.62 ± 1.04
	1/16/2002	-0.38 ± 0.93	-0.14 ± 0.35	1.87 ± 0.24	6.92 ± 0.89
	1/23/2002	0.57 ± 0.92	0.21 ± 0.34	2.61 ± 0.26	9.67 ± 0.98
	1/30/2002	1.10 ± 1.04	0.41 ± 0.38	2.05 ± 0.24	7.59 ± 0.90
	2/6/2002	1.08 ± 0.68	0.40 ± 0.25	3.61 ± 0.25	13.36 ± 0.92
	2/13/2002	0.78 ± 0.70	0.29 ± 0.26	3.58 ± 0.25	13.24 ± 0.94
	2/20/2002	0.14 ± 0.81	0.05 ± 0.30	4.54 ± 0.30	16.78 ± 1.12
	2/27/2002	1.21 ± 0.77	0.45 ± 0.29	2.80 ± 0.23	10.36 ± 0.85
	3/6/2002	1.33 ± 0.79	0.49 ± 0.29	4.38 ± 0.28	16.19 ± 1.03
	3/13/2002	-0.22 ± 0.99	-0.08 ± 0.37	1.27 ± 0.23	4.72 ± 0.84
	3/20/2002	0.78 ± 0.74	0.29 ± 0.28	3.09 ± 0.45	11.43 ± 1.65
	3/27/2002	1.51 ± 0.62	0.56 ± 0.23	1.63 ± 0.16	6.02 ± 0.59

Sample Group and Location	Sampling Date	GROSS ALPHA Result ± Uncertainty(2s) (x10^-15 µCi/mL)			GROSS ALPHA Result ± Uncertainty(2s) (x10^-10 Bq/mL)			GROSS BETA Result ± Uncertainty(2s) (x10^-14 µCi/mL)			GROSS BETA Result ± Uncertainty(2s) (x10^-10 Bq/mL)		
MUD LAKE													
	1/2/2002	1.65	±	0.71	0.61	±	0.26	5.94	±	0.29	21.99	±	1.06
	1/9/2002	1.85	±	1.19	0.68	±	0.44	4.05	±	0.31	14.98	±	1.14
	1/16/2002	0.34	±	0.99	0.13	±	0.37	2.57	±	0.26	9.51	±	0.95
	1/23/2002	1.47	±	1.32	0.54	±	0.49	2.95	±	0.33	10.92	±	1.23
	1/30/2002	1.31	±	1.23	0.49	±	0.45	3.18	±	0.31	11.75	±	1.16
	2/6/2002	0.27	±	0.67	0.10	±	0.25	4.70	±	0.31	17.39	±	1.16
	2/13/2002	2.29	±	1.08	0.85	±	0.40	5.90	±	0.36	21.82	±	1.34
	2/20/2002	2.79	±	1.22	1.03	±	0.45	5.96	±	0.36	22.06	±	1.33
	2/27/2002	1.51	±	0.90	0.56	±	0.33	3.80	±	0.28	14.06	±	1.04
	3/6/2002	1.81	±	0.95	0.67	±	0.35	4.28	±	0.30	15.84	±	1.12
	3/13/2002	-0.71	±	1.04	-0.26	±	0.39	1.23	±	0.24	4.53	±	0.91
	3/20/2002	1.36	±	0.93	0.50	±	0.35	2.89	±	0.49	10.69	±	1.81
	3/27/2002	1.18	±	0.67	0.44	±	0.25	1.99	±	0.20	7.37	±	0.72
DISTANT													
BLACKFOOT, CMS													
	1/2/2002	1.48	±	1.48	0.55	±	0.26	4.40	±	0.26	16.27	±	0.97
	1/9/2002	1.23	±	1.23	0.45	±	0.41	2.64	±	0.26	9.77	±	0.97
	1/16/2002	0.71	±	0.71	0.26	±	0.37	2.40	±	0.25	8.86	±	0.92
	1/23/2002	0.25	±	0.25	0.09	±	0.28	1.69	±	0.21	6.27	±	0.77
	1/30/2002	1.04	±	1.04	0.39	±	0.35	1.33	±	0.20	4.90	±	0.74
	2/6/2002	1.51	±	1.51	0.56	±	0.30	4.44	±	0.29	16.43	±	1.07
	2/13/2002	0.45	±	0.45	0.17	±	0.24	3.22	±	0.24	11.93	±	0.90
	2/20/2002	0.81	±	0.81	0.30	±	0.31	4.91	±	0.30	18.17	±	1.11
	2/27/2002	1.38	±	1.38	0.51	±	0.28	2.38	±	0.21	8.79	±	0.78
	3/6/2002	1.16	±	1.16	0.43	±	0.28	4.64	±	0.28	17.18	±	1.04
	3/13/2002	-0.05	±	-0.05	-0.02	±	0.31	0.81	±	0.18	2.99	±	0.65
	3/20/2002	0.74	±	0.74	0.27	±	0.25	2.26	±	0.38	8.35	±	1.42
	3/27/2002	1.24	±	1.24	0.46	±	0.23	1.25	±	0.15	4.61	±	0.56

Sample Group and Location	Sampling Date	GROSS ALPHA Result ± Uncertainty(2s) (x10^-15 µCi/mL)			GROSS ALPHA Result ± Uncertainty(2s) (x10^-10 Bq/mL)			GROSS BETA Result ± Uncertainty(2s) (x10^-14 µCi/mL)			GROSS BETA Result ± Uncertainty(2s) (x10^-10 Bq/mL)		
CRATERS OF THE MOON													
	1/2/2002	1.71	±	0.74	0.63	±	0.27	3.51	±	0.24	0.27	±	0.89
	1/9/2002	-0.25	±	0.88	-0.09	±	0.32	1.89	±	0.23	0.32	±	0.85
	1/16/2002	-0.27	±	0.90	-0.10	±	0.33	1.48	±	0.22	0.33	±	0.81
	1/23/2002	0.75	±	0.86	0.28	±	0.32	1.55	±	0.21	0.32	±	0.77
	1/30/2002	0.85	±	0.99	0.32	±	0.37	1.55	±	0.22	0.37	±	0.81
	2/6/2002	0.58	±	0.60	0.21	±	0.22	2.69	±	0.22	0.22	±	0.83
	2/13/2002	0.85	±	0.68	0.32	±	0.25	2.38	±	0.21	0.25	±	0.79
	2/20/2002	0.69	±	0.78	0.26	±	0.29	3.16	±	0.24	0.29	±	0.90
	2/27/2002	0.46	±	0.62	0.17	±	0.23	2.06	±	0.20	0.23	±	0.74
	3/6/2002	1.33	±	0.75	0.49	±	0.28	3.63	±	0.25	0.28	±	0.92
	3/13/2002	-0.39	±	0.91	-0.15	±	0.34	0.96	±	0.20	0.34	±	0.75
	3/20/2002	0.68	±	0.68	0.25	±	0.25	2.48	±	0.40	0.25	±	1.47
	3/27/2002	0.78	±	0.62	0.29	±	0.23	1.82	±	0.19	0.23	±	0.72
DUBOIS													
	1/2/2002	1.12	±	0.64	0.41	±	0.24	3.66	±	0.24	13.54	±	0.88
	1/9/2002	1.49	±	1.20	0.55	±	0.44	2.35	±	0.27	8.69	±	0.98
	1/16/2002	0.64	±	0.98	0.24	±	0.36	1.44	±	0.21	5.34	±	0.78
	1/23/2002	1.51	±	1.00	0.56	±	0.37	1.92	±	0.23	7.12	±	0.86
	1/30/2002	1.17	±	0.97	0.43	±	0.36	1.41	±	0.20	5.22	±	0.76
	2/6/2002	1.06	±	0.66	0.39	±	0.25	2.49	±	0.21	9.20	±	0.79
	2/13/2002	0.87	±	0.65	0.32	±	0.24	2.13	±	0.20	7.87	±	0.73
	2/20/2002	0.35	±	0.77	0.13	±	0.28	3.34	±	0.25	12.34	±	0.94
	2/27/2002	0.84	±	0.66	0.31	±	0.24	2.08	±	0.19	7.70	±	0.71
	3/6/2002	1.59	±	0.77	0.59	±	0.28	3.60	±	0.24	13.32	±	0.90
	3/13/2002	-0.54	±	0.88	-0.20	±	0.32	1.25	±	0.21	4.62	±	0.79
	3/20/2002	0.89	±	0.74	0.33	±	0.28	2.77	±	0.42	10.23	±	1.57
	3/27/2002	1.23	±	0.67	0.46	±	0.25	2.12	±	0.20	7.85	±	0.73

Sample Group and Location	Sampling Date	GROSS ALPHA Result ± Uncertainty(2s) (x10^-15^ μCi/mL)			GROSS ALPHA Result ± Uncertainty(2s) (x10^-10^ Bq/mL)			GROSS BETA Result ± Uncertainty(2s) (x10^-14^ μCi/mL)			GROSS BETA Result ± Uncertainty(2s) (x10^-10^ Bq/mL)		
IDAHO FALLS													
	1/2/2002	2.16	±	0.89	0.80	±	0.33	5.44	±	0.32	20.12	±	1.17
	1/9/2002	1.48	±	1.35	0.55	±	0.50	2.66	±	0.30	9.83	±	1.12
	1/16/2002	1.98	±	1.32	0.73	±	0.49	1.89	±	0.26	7.00	±	0.96
	1/23/2002	1.16	±	1.09	0.43	±	0.40	2.44	±	0.28	9.04	±	1.02
	1/30/2002	1.36	±	1.25	0.50	±	0.46	1.91	±	0.27	7.06	±	1.00
	2/6/2002	1.79	±	0.95	0.66	±	0.35	3.97	±	0.31	14.69	±	1.14
	2/13/2002	1.27	±	0.90	0.47	±	0.33	3.88	±	0.30	14.34	±	1.10
	2/20/2002	1.80	±	1.14	0.67	±	0.42	5.16	±	0.35	19.09	±	1.28
	2/27/2002	1.16	±	0.79	0.43	±	0.29	2.41	±	0.23	8.93	±	0.83
	3/6/2002	1.03	±	0.85	0.38	±	0.32	4.28	±	0.30	15.82	±	1.12
	3/13/2002	0.18	±	3.17	0.07	±	1.17	0.59	±	0.54	2.18	±	2.00
	3/20/2002	1.00	±	0.96	0.37	±	0.36	2.25	±	0.50	8.34	±	1.87
	3/27/2002	0.86	±	0.59	0.32	±	0.22	1.84	±	0.18	6.79	±	0.67
REXBURG, CMS													
	1/2/2002	2.05	±	2.05	0.76	±	0.33	4.99	±	0.31	18.45	±	1.13
	1/9/2002	1.43	±	1.43	0.53	±	0.49	2.73	±	0.30	10.11	±	1.11
	1/16/2002	1.24	±	1.24	0.46	±	0.40	1.84	±	0.23	6.82	±	0.85
	1/30/2002	0.63	±	0.63	0.23	±	0.33	1.02	±	0.18	3.79	±	0.68
	2/6/2002	0.82	±	0.82	0.30	±	0.28	3.25	±	0.27	12.03	±	1.00
	2/13/2002	0.89	±	0.89	0.33	±	0.29	2.71	±	0.25	10.03	±	0.92
	2/20/2002	1.70	±	1.70	0.63	±	0.34	3.92	±	0.26	14.51	±	0.98
	2/27/2002	1.99	±	1.99	0.74	±	0.31	2.42	±	0.21	8.94	±	0.79
	3/6/2002	2.79	±	2.79	1.03	±	0.35	4.13	±	0.27	15.30	±	1.00
	3/13/2002	0.57	±	0.57	0.21	±	0.38	1.22	±	0.21	4.52	±	0.79
	3/20/2002	0.79	±	0.79	0.29	±	0.27	3.28	±	0.44	12.14	±	1.62
	3/27/2002	0.97	±	0.97	0.36	±	0.22	1.73	±	0.18	6.42	±	0.66

Sample Group and Location	Sampling Date	GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-15}$ $\mu Ci/mL$)			GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)			GROSS BETA Result ± Uncertainty(2s) ($x10^{-14}$ $\mu Ci/mL$)			GROSS BETA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)		
INEEL													
EFS													
	1/2/2002	1.84	±	0.82	0.68	±	0.30	6.83	±	0.33	25.26	±	1.23
	1/9/2002	0.54	±	1.09	0.20	±	0.40	3.24	±	0.30	11.98	±	1.09
	1/16/2002	-0.12	±	1.00	-0.05	±	0.37	2.03	±	0.25	7.51	±	0.94
	1/23/2002	0.60	±	0.90	0.22	±	0.33	1.88	±	0.23	6.97	±	0.86
	1/30/2002	1.10	±	1.10	0.41	±	0.41	2.37	±	0.27	8.78	±	0.99
	2/6/2002	0.76	±	0.69	0.28	±	0.26	5.12	±	0.30	18.96	±	1.12
	2/13/2002	0.99	±	0.75	0.37	±	0.28	3.91	±	0.27	14.48	±	0.99
	2/20/2002	0.43	±	0.80	0.16	±	0.30	5.05	±	0.30	18.70	±	1.12
	2/27/2002	0.52	±	0.67	0.19	±	0.25	2.90	±	0.23	10.74	±	0.86
	3/6/2002	2.21	±	0.91	0.82	±	0.34	4.03	±	0.27	14.91	±	1.01
	3/13/2002	0.40	±	1.06	0.15	±	0.39	1.22	±	0.22	4.53	±	0.82
	3/20/2002	0.64	±	0.71	0.24	±	0.26	3.11	±	0.44	11.51	±	1.63
	3/27/2002	0.76	±	0.52	0.28	±	0.19	1.68	±	0.16	6.23	±	0.60
MAIN GATE													
	1/2/2002	1.97	±	0.73	0.73	±	0.27	5.14	±	0.27	19.03	±	0.98
	1/9/2002	-0.17	±	0.87	-0.06	±	0.32	0.86	±	0.19	3.17	±	0.69
	1/16/2002	0.79	±	0.98	0.29	±	0.36	1.60	±	0.21	5.94	±	0.79
	1/23/2002	1.24	±	1.12	0.46	±	0.41	3.52	±	0.31	13.01	±	1.16
	1/30/2002	0.78	±	0.95	0.29	±	0.35	2.02	±	0.23	7.47	±	0.86
	2/6/2002	1.76	±	0.78	0.65	±	0.29	4.23	±	0.26	15.66	±	0.98
	2/13/2002	1.11	±	0.73	0.41	±	0.27	3.07	±	0.24	11.37	±	0.87
	2/20/2002	0.52	±	0.77	0.19	±	0.28	4.47	±	0.28	16.53	±	1.02
	2/27/2002	0.40	±	0.61	0.15	±	0.22	2.56	±	0.21	9.48	±	0.79
	3/6/2002	1.64	±	0.80	0.61	±	0.30	4.31	±	0.27	15.94	±	0.99
	3/13/2002	0.43	±	0.99	0.16	±	0.37	1.19	±	0.21	4.41	±	0.77
	3/20/2002	0.42	±	0.63	0.16	±	0.23	3.05	±	0.42	11.28	±	1.54
	3/27/2002	0.97	±	0.55	0.36	±	0.20	1.89	±	0.17	6.98	±	0.62

Sample Group and Location	Sampling Date	GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-15}$ μCi/mL)	GROSS ALPHA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)	GROSS BETA Result ± Uncertainty(2s) ($x10^{-14}$ μCi/mL)	GROSS BETA Result ± Uncertainty(2s) ($x10^{-10}$ Bq/mL)
VAN BUREN					
	1/2/2002	2.20 ± 0.79	0.81 ± 0.29	5.44 ± 0.28	20.12 ± 1.05
	1/9/2002	1.07 ± 1.05	0.40 ± 0.39	2.54 ± 0.25	9.40 ± 0.94
	1/16/2002	0.93 ± 1.03	0.34 ± 0.38	1.86 ± 0.23	6.87 ± 0.85
	1/23/2002	0.63 ± 0.86	0.23 ± 0.32	2.41 ± 0.24	8.91 ± 0.90
	1/30/2002	1.13 ± 1.01	0.42 ± 0.38	1.94 ± 0.23	7.19 ± 0.86
	2/6/2002	1.65 ± 0.74	0.61 ± 0.27	3.66 ± 0.24	13.53 ± 0.90
	2/13/2002	1.48 ± 0.75	0.55 ± 0.28	3.24 ± 0.23	11.99 ± 0.86
	2/20/2002	1.23 ± 0.86	0.45 ± 0.32	4.69 ± 0.28	17.35 ± 1.05
	2/27/2002	0.62 ± 0.63	0.23 ± 0.23	2.64 ± 0.21	9.78 ± 0.79
	3/6/2002	1.48 ± 0.73	0.55 ± 0.27	3.93 ± 0.25	14.53 ± 0.91
	3/13/2002	-0.32 ± 0.86	-0.12 ± 0.32	1.04 ± 0.20	3.83 ± 0.73
	3/20/2002	0.77 ± 0.67	0.29 ± 0.25	3.32 ± 0.42	12.27 ± 1.54
	3/27/2002	0.83 ± 0.52	0.31 ± 0.19	1.83 ± 0.16	6.78 ± 0.61
OUT OF STATE					
JACKSON, WYOMING					
	1/2/2002	1.64 ± 0.90	0.61 ± 0.33	6.05 ± 0.36	22.38 ± 1.31
	1/9/2002	0.34 ± 1.03	0.13 ± 0.38	1.97 ± 0.25	7.29 ± 0.91
	1/16/2002	0.14 ± 1.03	0.05 ± 0.38	2.09 ± 0.25	7.74 ± 0.94
	1/23/2002	0.85 ± 0.96	0.32 ± 0.36	1.43 ± 0.22	5.28 ± 0.82
	1/30/2002	1.75 ± 1.11	0.65 ± 0.41	1.16 ± 0.21	4.31 ± 0.76
	2/6/2002	0.60 ± 0.65	0.22 ± 0.24	2.61 ± 0.23	9.66 ± 0.86
	2/13/2002	1.21 ± 0.77	0.45 ± 0.28	2.63 ± 0.23	9.72 ± 0.85
	2/20/2002	1.08 ± 0.87	0.40 ± 0.32	3.62 ± 0.26	13.39 ± 0.98
	2/27/2002	0.91 ± 0.71	0.34 ± 0.26	1.73 ± 0.19	6.41 ± 0.71
	3/6/2002	1.56 ± 0.79	0.58 ± 0.29	2.88 ± 0.23	10.65 ± 0.85
	3/13/2002	0.54 ± 1.09	0.20 ± 0.40	1.29 ± 0.23	4.76 ± 0.84
	3/20/2002	1.11 ± 0.78	0.41 ± 0.29	3.53 ± 0.46	13.05 ± 1.69
	3/26/2002	1.07 ± 0.71	0.40 ± 0.26	1.93 ± 0.21	7.15 ± 0.77

Table C-2: Weekly Iodine-131 Activity in Air

Sampling Group and Location	Sampling Date	Result ± Uncertainty(2s) (x 10^{-6} μCi)			Result ± Uncertainty(2s) (x 10^{-2} Bq)		
BOUNDARY							
ARCO							
	1/2/2002	-0.33	±	2.94	-1.24	±	10.88
	1/9/2002	0.93	±	3.12	3.44	±	11.54
	1/16/2002	-1.12	±	2.04	-4.14	±	7.55
	1/23/2002	-1.98	±	3.42	-7.33	±	12.65
	Recount 1/23/2002	2.61	±	5.82	9.66	±	21.53
	1/30/2002	0.86	±	3.26	3.19	±	12.06
	2/6/2002	-0.39	±	4.26	-1.44	±	15.76
	2/13/2002	0.23	±	2.58	0.84	±	9.55
	2/20/2002	0.51	±	2.04	1.90	±	7.55
	2/27/2002	1.34	±	3.14	4.96	±	11.62
	3/6/2002	-1.43	±	3.14	-5.29	±	11.62
	3/13/2002	0.41	±	2.50	1.50	±	9.25
	3/20/2002	41.80	±	4.62	154.66	±	17.09
	Recount 3/20/2002	3.84	±	2.10	14.21	±	7.77
	3/27/2002	0.34	±	2.48	1.26	±	9.18
ARCO (Q/A-1)							
	1/2/2002	-0.33	±	2.94	-1.24	±	10.88
	1/9/2002	0.93	±	3.12	3.44	±	11.54
	1/16/2002	-1.12	±	2.04	-4.14	±	7.55
	1/23/2002	-1.98	±	3.42	-7.33	±	12.65
	Recount 1/23/2002	2.61	±	5.82	9.66	±	21.53
	1/30/2002	0.86	±	3.26	3.19	±	12.06
	2/6/2002	-0.39	±	4.26	-1.44	±	15.76
	2/13/2002	0.23	±	2.58	0.84	±	9.55
	2/20/2002	0.51	±	2.04	1.90	±	7.55
	2/27/2002	1.34	±	3.14	4.96	±	11.62
	3/6/2002	-1.43	±	3.14	-5.29	±	11.62
	3/13/2002	0.41	±	2.50	1.50	±	9.25
	3/20/2002	41.80	±	4.62	154.66	±	17.09
	Recount 3/20/2002	3.84	±	2.10	14.21	±	7.77
	3/27/2002	0.34	±	2.48	1.26	±	9.18
ATOMIC CITY							
	1/2/2002	-0.33	±	2.94	-1.24	±	10.88
	1/9/2002	0.93	±	3.12	3.44	±	11.54
	1/16/2002	-1.12	±	2.04	-4.14	±	7.55
	1/23/2002	-1.98	±	3.42	-7.33	±	12.65
	Recount 1/23/2002	2.61	±	5.82	9.66	±	21.53
	1/30/2002	0.86	±	3.26	3.19	±	12.06
	2/6/2002	-0.39	±	4.26	-1.44	±	15.76
	2/13/2002	0.23	±	2.58	0.84	±	9.55

Sampling Group and Location	Sampling Date	Result ± Uncertainty(2s) (x 10^{-6} μCi)			Result ± Uncertainty(2s) (x 10^{-2} Bq)		
ATOMIC CITY cont…	2/20/2002	0.51	±	2.04	1.90	±	7.55
	2/27/2002	1.34	±	3.14	4.96	±	11.62
	3/6/2002	-1.43	±	3.14	-5.29	±	11.62
	3/13/2002	0.41	±	2.50	1.50	±	9.25
	3/20/2002	41.80	±	4.62	154.66	±	17.09
	Recount 3/20/2002	3.84	±	2.10	14.21	±	7.77
	3/27/2002	0.34	±	2.48	1.26	±	9.18
BLUE DOME							
	1/2/2002	-2.06	±	2.30	-7.62	±	8.51
	1/9/2002	-0.96	±	2.18	-3.55	±	8.07
	1/16/2002	-0.55	±	2.64	-2.02	±	9.77
	1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount 1/23/2002	-5.54	±	2.10	-20.50	±	7.77
	1/30/2002	-0.18	±	2.86	-0.65	±	10.58
	2/6/2002	0.14	±	3.40	0.51	±	12.58
	2/13/2002	-0.32	±	3.30	-1.18	±	12.21
	2/20/2002	-0.02	±	2.54	-0.06	±	9.40
	2/27/2002	-1.47	±	2.30	-5.44	±	8.51
	3/6/2002	-0.83	±	2.26	-3.07	±	8.36
	3/13/2002	0.94	±	1.73	3.48	±	6.42
	3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount 3/20/2002	3.84	±	1.93	14.21	±	7.14
	3/27/2002	1.65	±	1.78	6.11	±	6.57
FAA TOWER							
	1/2/2002	-2.06	±	2.30	-7.62	±	8.51
	1/9/2002	-0.96	±	2.18	-3.55	±	8.07
	1/16/2002	-0.55	±	2.64	-2.02	±	9.77
	1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount 1/23/2002	-5.54	±	2.10	-20.50	±	7.77
	1/30/2002	-0.18	±	2.86	-0.65	±	10.58
	2/6/2002	0.14	±	3.40	0.51	±	12.58
	2/13/2002	-0.32	±	3.30	-1.18	±	12.21
	2/20/2002	-0.02	±	2.54	-0.06	±	9.40
	2/27/2002	-1.47	±	2.30	-5.44	±	8.51
	3/6/2002	-0.83	±	2.26	-3.07	±	8.36
	3/13/2002	0.94	±	1.73	3.48	±	6.42
	3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount 3/20/2002	3.84	±	1.93	14.21	±	7.14
	3/27/2002	1.65	±	1.78	6.11	±	6.57
HOWE							
	1/2/2002	-2.06	±	2.30	-7.62	±	8.51
	1/9/2002	-0.96	±	2.18	-3.55	±	8.07
	1/16/2002	-0.55	±	2.64	-2.02	±	9.77
	1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount 1/23/2002	-5.54	±	2.10	-20.50	±	7.77

Sampling Group and Location	*Sampling Date*	*Result ± Uncertainty(2s) (x 10^{-6} μCi)*			*Result ± Uncertainty(2s) (x 10^{-2} Bq)*		
HOWE cont…							
	1/30/2002	-0.18	±	2.86	-0.65	±	10.58
	2/6/2002	0.14	±	3.40	0.51	±	12.58
	2/13/2002	-0.32	±	3.30	-1.18	±	12.21
	2/20/2002	-0.02	±	2.54	-0.06	±	9.40
	2/27/2002	-1.47	±	2.30	-5.44	±	8.51
	3/6/2002	-0.83	±	2.26	-3.07	±	8.36
	3/13/2002	0.94	±	1.73	3.48	±	6.42
	3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount 3/20/2002	3.84	±	1.93	14.21	±	7.14
	3/27/2002	1.65	±	1.78	6.11	±	6.57
HOWE (Q/A-2)							
	1/2/2002	-0.33	±	2.94	-1.24	±	10.88
	1/9/2002	0.93	±	3.12	3.44	±	11.54
	1/16/2002	-1.12	±	2.04	-4.14	±	7.55
	1/23/2002	-1.98	±	3.42	-7.33	±	12.65
	Recount 1/23/2002	2.61	±	5.82	9.66	±	21.53
	1/30/2002	0.86	±	3.26	3.19	±	12.06
	2/6/2002	-0.39	±	4.26	-1.44	±	15.76
	2/13/2002	0.23	±	2.58	0.84	±	9.55
	2/20/2002	0.51	±	2.04	1.90	±	7.55
	2/27/2002	1.34	±	3.14	4.96	±	11.62
	3/6/2002	-1.43	±	3.14	-5.29	±	11.62
	3/13/2002	0.41	±	2.50	1.50	±	9.25
	3/20/2002	41.80	±	4.62	154.66	±	17.09
	Recount 3/20/2002	3.84	±	2.10	14.21	±	7.77
	3/27/2002	0.34	±	2.48	1.26	±	9.18
MONTEVIEW							
	1/2/2002	-2.06	±	2.30	-7.62	±	8.51
	1/9/2002	-0.96	±	2.18	-3.55	±	8.07
	1/16/2002	-0.55	±	2.64	-2.02	±	9.77
	1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount 1/23/2002	-5.54	±	2.10	-20.50	±	7.77
	1/30/2002	-0.18	±	2.86	-0.65	±	10.58
	2/6/2002	0.14	±	3.40	0.51	±	12.58
	2/13/2002	-0.32	±	3.30	-1.18	±	12.21
	2/20/2002	-0.02	±	2.54	-0.06	±	9.40
	2/27/2002	-1.47	±	2.30	-5.44	±	8.51
	3/6/2002	-0.83	±	2.26	-3.07	±	8.36
	3/13/2002	0.94	±	1.73	3.48	±	6.42
	3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount 3/20/2002	3.84	±	1.93	14.21	±	7.14
	3/27/2002	1.65	±	1.78	6.11	±	6.57

Sampling Group and Location	Sampling Date	Result ± Uncertainty(2s) (x 10^{-6} μCi)			Result ± Uncertainty(2s) (x 10^{-2} Bq)		
MUD LAKE							
	1/2/2002	-2.06	±	2.30	-7.62	±	8.51
	1/9/2002	-0.96	±	2.18	-3.55	±	8.07
	1/16/2002	-0.55	±	2.64	-2.02	±	9.77
	1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount 1/23/2002	-5.54	±	2.10	-20.50	±	7.77
	1/30/2002	-0.18	±	2.86	-0.65	±	10.58
	2/6/2002	0.14	±	3.40	0.51	±	12.58
	2/13/2002	-0.32	±	3.30	-1.18	±	12.21
	2/20/2002	-0.02	±	2.54	-0.06	±	9.40
	2/27/2002	-1.47	±	2.30	-5.44	±	8.51
	3/6/2002	-0.83	±	2.26	-3.07	±	8.36
	3/13/2002	0.94	±	1.73	3.48	±	6.42
	3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount 3/20/2002	3.84	±	1.93	14.21	±	7.14
	3/27/2002	1.65	±	1.78	6.11	±	6.57
DISTANT							
BLACKFOOT, CMS							
	1/2/2002	-0.33	±	2.94	-1.24	±	10.88
	1/9/2002	0.93	±	3.12	3.44	±	11.54
	1/16/2002	-1.12	±	2.04	-4.14	±	7.55
	1/23/2002	-1.98	±	3.42	-7.33	±	12.65
	Recount 1/23/2002	2.61	±	5.82	9.66	±	21.53
	1/30/2002	0.86	±	3.26	3.19	±	12.06
	2/6/2002	-0.39	±	4.26	-1.44	±	15.76
	2/13/2002	0.23	±	2.58	0.84	±	9.55
	2/20/2002	0.51	±	2.04	1.90	±	7.55
	2/27/2002	1.34	±	3.14	4.96	±	11.62
	3/6/2002	-1.43	±	3.14	-5.29	±	11.62
	3/13/2002	0.41	±	2.50	1.50	±	9.25
	3/20/2002	41.80	±	4.62	154.66	±	17.09
	Recount 3/20/2002	3.84	±	2.10	14.21	±	7.77
	3/27/2002	0.34	±	2.48	1.26	±	9.18
CRATERS OF THE MOON							
	1/2/2002	-0.33	±	2.94	-1.24	±	10.88
	1/9/2002	0.93	±	3.12	3.44	±	11.54
	1/16/2002	-1.12	±	2.04	-4.14	±	7.55
	1/23/2002	-1.98	±	3.42	-7.33	±	12.65
	Recount 1/23/2002	2.61	±	5.82	9.66	±	21.53
	1/30/2002	0.86	±	3.26	3.19	±	12.06
	2/6/2002	-0.39	±	4.26	-1.44	±	15.76
	2/13/2002	0.23	±	2.58	0.84	±	9.55
	2/20/2002	0.51	±	2.04	1.90	±	7.55
	2/27/2002	1.34	±	3.14	4.96	±	11.62

Sampling Group and Location	*Sampling Date*	*Result ± Uncertainty(2s) (x 10^{-6} μCi)*			*Result ± Uncertainty(2s) (x 10^{-2} Bq)*		
CRATERS OF THE MOON cont…..	3/6/2002	-1.43	±	3.14	-5.29	±	11.62
	3/13/2002	0.41	±	2.50	1.50	±	9.25
	3/20/2002	41.80	±	4.62	154.66	±	17.09
	Recount 3/20/2002	3.84	±	2.10	14.21	±	7.77
	3/27/2002	0.34	±	2.48	1.26	±	9.18
DUBOIS							
	1/2/2002	-2.06	±	2.30	-7.62	±	8.51
	1/9/2002	-0.96	±	2.18	-3.55	±	8.07
	1/16/2002	-0.55	±	2.64	-2.02	±	9.77
	1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount 1/23/2002	-5.54	±	2.10	-20.50	±	7.77
	1/30/2002	-0.18	±	2.86	-0.65	±	10.58
	2/6/2002	0.14	±	3.40	0.51	±	12.58
	2/13/2002	-0.32	±	3.30	-1.18	±	12.21
	2/20/2002	-0.02	±	2.54	-0.06	±	9.40
	2/27/2002	-1.47	±	2.30	-5.44	±	8.51
	3/6/2002	-0.83	±	2.26	-3.07	±	8.36
	3/13/2002	0.94	±	1.73	3.48	±	6.42
	3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount 3/20/2002	3.84	±	1.93	14.21	±	7.14
	3/27/2002	1.65	±	1.78	6.11	±	6.57
IDAHO FALLS							
	1/2/2002	-2.06	±	2.30	-7.62	±	8.51
	1/9/2002	-0.96	±	2.18	-3.55	±	8.07
	1/16/2002	-0.55	±	2.64	-2.02	±	9.77
	1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount 1/23/2002	-5.54	±	2.10	-20.50	±	7.77
	1/30/2002	-0.18	±	2.86	-0.65	±	10.58
	2/6/2002	0.14	±	3.40	0.51	±	12.58
	2/13/2002	-0.32	±	3.30	-1.18	±	12.21
	2/20/2002	-0.02	±	2.54	-0.06	±	9.40
	2/27/2002	-1.47	±	2.30	-5.44	±	8.51
	3/6/2002	-0.83	±	2.26	-3.07	±	8.36
	3/13/2002	0.94	±	1.73	3.48	±	6.42
	3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount 3/20/2002	3.84	±	1.93	14.21	±	7.14
	3/27/2002	1.65	±	1.78	6.11	±	6.57
REXBURG, CMS							
	1/2/2002	-2.06	±	2.30	-7.62	±	8.51
	1/9/2002	-0.96	±	2.18	-3.55	±	8.07
	1/16/2002	-0.55	±	2.64	-2.02	±	9.77
	1/23/2002[a]	0.00	±	0.00	0.00	±	0.00
	1/30/2002	-0.18	±	2.86	-0.65	±	10.58
	2/6/2002	0.14	±	3.40	0.51	±	12.58
	2/13/2002	-0.32	±	3.30	-1.18	±	12.21

Sampling Group and Location		Sampling Date	Result ± Uncertainty(2s) (x 10^-6^ µCi)			Result ± Uncertainty(2s) (x 10^-2^ Bq)		
REXBURG, CMS cont…								
		2/20/2002	-0.02	±	2.54	-0.06	±	9.40
		2/27/2002	-1.47	±	2.30	-5.44	±	8.51
		3/6/2002	-0.83	±	2.26	-3.07	±	8.36
		3/13/2002	0.94	±	1.73	3.48	±	6.42
		3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount	3/20/2002	3.84	±	1.93	14.21	±	7.14
		3/27/2002	1.65	±	1.78	6.11	±	6.57
INEEL								
EFS								
		1/2/2002	-0.33	±	2.94	-1.24	±	10.88
		1/9/2002	-0.96	±	2.18	-3.55	±	8.07
		1/16/2002	-0.55	±	2.64	-2.02	±	9.77
		1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount	1/23/2002	-5.54	±	2.10	-20.50	±	7.77
		1/30/2002	-0.18	±	2.86	-0.65	±	10.58
		2/6/2002	0.14	±	3.40	0.51	±	12.58
		2/13/2002	0.23	±	2.58	0.84	±	9.55
		2/20/2002	-0.02	±	2.54	-0.06	±	9.40
		2/27/2002	-1.47	±	2.30	-5.44	±	8.51
		3/6/2002	-0.83	±	2.26	-3.07	±	8.36
		3/13/2002	0.94	±	1.73	3.48	±	6.42
		3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount	3/20/2002	3.84	±	1.93	14.21	±	7.14
		3/27/2002	1.65	±	1.78	6.11	±	6.57
MAIN GATE								
		1/2/2002	-2.06	±	2.30	-7.62	±	8.51
		1/9/2002	-0.96	±	2.18	-3.55	±	8.07
		1/16/2002	-0.55	±	2.64	-2.02	±	9.77
		1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount	1/23/2002	-5.54	±	2.10	-20.50	±	7.77
		1/30/2002	-0.18	±	2.86	-0.65	±	10.58
		2/6/2002	0.14	±	3.40	0.51	±	12.58
		2/13/2002	-0.32	±	3.30	-1.18	±	12.21
		2/20/2002	-0.02	±	2.54	-0.06	±	9.40
		2/27/2002	-1.47	±	2.30	-5.44	±	8.51
		3/6/2002	-0.83	±	2.26	-3.07	±	8.36
		3/13/2002	0.94	±	1.73	3.48	±	6.42
		3/20/2002	1.79	±	1.69	6.62	±	6.27
	Recount	3/20/2002	3.84	±	1.93	14.21	±	7.14
		3/27/2002	1.65	±	1.78	6.11	±	6.57
VAN BUREN								
		1/2/2002	-0.33	±	2.94	-1.24	±	10.88
		1/9/2002	0.93	±	3.12	3.44	±	11.54
		1/16/2002	-1.12	±	2.04	-4.14	±	7.55
		1/23/2002	2.49	±	1.90	9.21	±	7.02
	Recount	1/23/2002	-5.54	±	2.10	-20.50	±	7.77

Sampling Group and Location	Sampling Date	Result ± Uncertainty(2s) (x 10^{-6} μCi)			Result ± Uncertainty(2s) (x 10^{-2} Bq)		
VAN BUREN cont….							
	1/30/2002	0.86	±	3.26	3.19	±	12.06
	2/6/2002	-0.39	±	4.26	-1.44	±	15.76
	2/13/2002	0.23	±	2.58	0.84	±	9.55
	2/20/2002	0.51	±	2.04	1.90	±	7.55
	2/27/2002	1.34	±	3.14	4.96	±	11.62
	3/6/2002	-1.43	±	3.14	-5.29	±	11.62
	3/13/2002	0.41	±	2.50	1.50	±	9.25
	3/20/2002	41.80	±	4.62	154.66	±	17.09
	Recount 3/20/2002	3.84	±	2.10	14.21	±	7.77
	3/27/2002	0.34	±	2.48	1.26	±	9.18
OUT OF STATE							
JACKSON, WYOMING							
	1/2/2002	-2.06	±	2.30	-7.62	±	8.51
	1/9/2002	0.93	±	3.12	3.44	±	11.54
	1/16/2002	-1.12	±	2.04	-4.14	±	7.55
	1/23/2002	-1.98	±	3.42	-7.33	±	12.65
	Recount 1/23/2002	2.61	±	5.82	9.66	±	21.53
	1/30/2002	0.86	±	3.26	3.19	±	12.06
	2/6/2002	-0.39	±	4.26	-1.44	±	15.76
	2/13/2002	-0.32	±	3.30	-1.18	±	12.21
	2/20/2002	0.51	±	2.04	1.90	±	7.55
	2/27/2002	1.34	±	3.14	4.96	±	11.62
	3/6/2002	-1.43	±	3.14	-5.29	±	11.62
	3/13/2002	0.41	±	2.50	1.50	±	9.25
	3/20/2002[b]	-0.90	±	1.47	-3.32	±	5.45
	3/27/2002	0.34	±	2.48	1.26	±	9.18

a. No readings for Rexburg were reported for this day.

b. Charcoal Filter Sample Sent to Lab earlier. Not included in group which required recount.

Table C-3: Quarterly Cesium-137, Americium-241, Plutonium-238, Plutonium-239/240, & Strontium-90 Concentrations in Composited Air Filters

Sample Group and Location	*Collect Date*	*Analyte*	*Result ± Uncertainty(2s) (x 10^{-18} μCi/mL)*			*Result ± Uncertainty(2s) (x 10^{-13} Bq/mL)*		
BOUNDARY								
ARCO								
	3/31/2002	AMERICIUM-241	0.47	±	0.87	0.17	±	0.32
	3/31/2002	CESIUM-137	78.44	±	239.62	29.02	±	88.66
	3/31/2002	PLUTONIUM-238	0.52	±	0.95	0.19	±	0.35
	3/31/2002	PLUTONIUM-239/240	0.65	±	0.92	0.24	±	0.34
ARCO (Q/A-1)								
	3/31/2002	AMERICIUM	0.99	±	1.40	0.37	±	0.52
	3/31/2002	CESIUM-137	177.52	±	265.26	65.68	±	98.15
	3/31/2002	PLUTONIUM-238	1.17	±	1.10	0.43	±	0.41
	3/31/2002	PLUTONIUM-239/240	1.16	±	1.10	0.43	±	0.41
ATOMIC CITY								
	3/31/2002	AMERICIUM-241	0.39	±	0.78	0.14	±	0.29
	3/31/2002	CESIUM-137	109.05	±	244.77	40.35	±	90.57
	3/31/2002	PLUTONIUM-238	0.00	±	0.81	0.00	±	0.30
	3/31/2002	PLUTONIUM-239/240	1.66	±	1.50	0.61	±	0.56
BLUE DOME								
	3/31/2002	AMERICIUM	0.68	±	1.70	0.25	±	0.63
	3/31/2002	CESIUM-137	-611.68	±	859.85	-226.32	±	318.14
	3/31/2002	PLUTONIUM-238	0.36	±	1.30	0.13	±	0.48
	3/31/2002	PLUTONIUM239/240	0.60	±	1.20	0.22	±	0.44
FAA TOWER								
	3/31/2002	CESIUM-137	8.42	±	262.56	3.12	±	97.15
	3/31/2002	STRONTIUM-90	21.50	±	37.00	7.96	±	13.69
HOWE								
	3/31/2002	CESIUM-137	150.28	±	256.42	55.61	±	94.88
	3/31/2002	STRONTIUM-90	34.90	±	42.00	12.91	±	15.54
HOWE (Q/A-2)								
	3/31/2002	CESIUM-137	1226.97	±	1333.67	453.98	±	493.46
	3/31/2002	STRONTIUM-90	34.10	±	45.00	12.62	±	16.65

Sample Group and Location	Collect Date	Analyte	Result ± Uncertainty(2s) (x 10^{-18} μCi/mL)			Result ± Uncertainty(2s) (x 10^{-13} Bq/mL)		
MONTEVIEW								
	3/31/2002	CESIUM-137	-28.98	±	620.75	-10.72	±	229.68
	3/31/2002	STRONTIUM-90	28.50	±	38.00	10.55	±	14.06
MUD LAKE								
	3/31/2002	AMERICIUM-241	8.44	±	4.10	3.12	±	1.52
	3/31/2002	CESIUM-137	169.96	±	271.46	62.89	±	100.44
	3/31/2002	PLUTONIUM-238	1.05	±	1.80	0.39	±	0.67
	3/31/2002	PLUTONIUM-239/240	2.87	±	2.40	1.06	±	0.89
DISTANT								
BLACKFOOT, CMS								
	3/31/2002	AMERICIUM-241	2.20	±	2.20	0.81	±	0.81
	3/31/2002	CESIUM-137	-111.90	±	248.53	-41.40	±	91.96
	3/31/2002	PLUTONIUM-238	0.00	±	0.94	0.00	±	0.35
	3/31/2002	PLUTONIUM-239/240	2.67	±	2.10	0.99	±	0.78
CRATERS OF THE MOON								
	3/31/2002	CESIUM-137	948.56	±	1172.21	350.97	±	433.72
	3/31/2002	STRONTIUM-90	10.60	±	36.00	3.92	±	13.32
DUBOIS								
	3/31/2002	AMERICIUM-241	2.09	±	1.90	0.77	±	0.70
	3/31/2002	CESIUM-137	-31.63	±	261.76	-11.71	±	96.85
	3/31/2002	PLUTONIUM-238	0.23	±	0.81	0.08	±	0.30
	3/31/2002	PLUTONIUM-239/240	1.72	±	1.70	0.64	±	0.63
IDAHO FALLS								
	3/31/2002	CESIUM-137	-34.82	±	305.01	-12.88	±	112.85
	3/31/2002	STRONTIUM-90	0.31	±	44.00	0.11	±	16.28
REXBURG, CMS								
	3/31/2002	CESIUM-137	942.35	±	1328.70	348.67	±	491.62
	3/31/2002	STRONTIUM-90	12.40	±	43.00	4.59	±	15.91
INEEL								
EFS								
	3/31/2002	CESIUM-137	-247.47	±	620.40	-91.56	±	229.55
	3/31/2002	STRONTIUM-90	16.60	±	39.00	6.14	±	14.43

Sample Group and Location	Collect Date	Analyte	Result ± Uncertainty(2s) (x 10^{-18} μCi/mL)			Result ± Uncertainty(2s) (x 10^{-13} Bq/mL)		
MAIN GATE								
	3/31/2002	AMERICIUM-241	1.06	±	1.50	0.39	±	0.56
	3/31/2002	CESIUM-137	1242.70	±	1149.47	459.80	±	425.30
	3/31/2002	PLUTONIUM-238	0.00	±	1.20	0.00	±	0.44
	3/31/2002	PLUTONIUM-239/240	-0.59	±	0.68	-0.22	±	0.25
VAN BUREN								
	3/31/2002	CESIUM-137	854.70	±	1133.11	316.24	±	419.25
	3/31/2002	STRONTIUM-90	23.40	±	33.00	8.66	±	12.21
OUT OF STATE								
JACKSON, WYOMING								
	3/31/2002	AMERICIUM-241	1.60	±	1.80	0.59	±	0.67
	3/31/2002	CESIUM-137	-20.35	±	701.22	-7.53	±	259.45
	3/31/2002	PLUTONIUM-238	-0.17	±	0.33	-0.06	±	0.12
	3/31/2002	PLUTONIUM-239/240	0.58	±	1.60	0.21	±	0.59

TABLE C-4: Tritium Concentrations in Atmospheric Moisture

Location		Start Date	Collect Date	Result ± Uncertainty(2s) (x 10^{-13} μCi/mL $_{Air}$)			Result ± Uncertainty(2s) (x 10^{-8} Bq /mL $_{Air}$)			Media Type Collection Medium
ATOMIC CITY		12/19/2001	1/16/2002	0.56	±	0.13	0.21	±	0.05	DRIERITE
		12/26/2001	1/16/2002	3.23	±	0.72	1.20	±	0.27	SILICA GEL
	*	1/16/2002	2/6/2002	4.80	±	0.75	1.78	±	0.28	DRIERITE
		1/16/2002	2/6/2002	1.25	±	0.61	0.46	±	0.23	SILICA GEL
		2/6/2002	3/15/2002	1.87	±	0.60	0.69	±	0.22	DRIERITE
		2/6/2002	3/15/2002	2.47	±	0.60	0.92	±	0.22	SILICA GEL
BLACKFOOT, CMS		12/26/2001	1/16/2002	1.31	±	0.57	0.48	±	0.21	SILICA GEL
		1/16/2002	2/6/2002	5.11	±	0.69	1.89	±	0.25	DRIERITE
IDAHO FALLS		12/18/2001	1/16/2002	4.90	±	1.79	1.81	±	0.66	DRIERITE
		12/18/2001	1/16/2002	1.27	±	1.08	0.47	±	0.40	SILICA GEL
		1/16/2002	2/6/2002	0.56	±	0.96	0.21	±	0.35	DRIERITE
	*	1/16/2002	2/6/2002	2.25	±	1.28	0.83	±	0.47	SILICA GEL
		2/6/2002	3/13/2002	3.48	±	1.18	1.29	±	0.44	DRIERITE
		2/6/2002	3/13/2002	2.71	±	1.08	1.00	±	0.40	SILICA GEL
REXBURG, CMS		12/26/2001	1/16/2002	3.42	±	1.54	1.27	±	0.57	SILICA GEL
	*	1/16/2002	2/6/2002	8.68	±	0.76	3.21	±	0.28	DRIERITE
		2/6/2002	3/20/2002	0.52	±	0.59	0.19	±	0.22	DRIERITE

* Sample volume collected < 9 mL. The laboratory requires a minimum volume of 9 mL. The results are thus questionable.

Table C-5: PM10 Concentrations at Atomic City, Blackfoot CMS, and Rexburg CMS

Location	*Sampling Date*	*Concentration ($\mu g/m^3$)*	*Comments*
ATOMIC CITY			
	1/1/2002	5.66	
	1/7/2002	5.74	
	1/13/2002	4.81	
	1/19/2002		Invalid Sample
	1/25/2002		Invalid Sample
	1/31/2002		Invalid Sample
	2/6/2002		Invalid Sample
	2/12/2002		Invalid Sample
	2/18/2002	23.35	
	2/24/2002	10.90	
	3/2/2002		Invalid Sample
	3/8/2002	14.76	
	3/14/2002	5.60	
	3/20/2002	6.38	
	3/26/2002	0.78	
BLACKFOOT, CMS			
	1/1/2002	10.63	
	1/7/2002	8.99	
	1/13/2002		Invalid Sample
	1/19/2002		Invalid Sample
	1/25/2002	28.21	
	1/31/2002	12.57	
	2/6/2002	1.80	
	2/12/2002	12.43	
	2/18/2002	1.81	
	2/24/2002		Invalid Sample
	3/2/2002	2.81	
	3/8/2002		Invalid Sample
	3/14/2002	0.53	
	3/20/2002		Invalid Sample
	3/26/2002		Invalid Sample

Location	Sampling Date	Concentration (mg/m3)	Comments
REXBURG, CMS			
	1/1/2002		Invalid Sample
	1/7/2002	12.49	
	1/13/2002		Invalid Sample
	1/19/2002	8.55	
	1/25/2002	19.82	
	1/31/2002	19.80	
	2/6/2002	31.25	
	2/12/2002	37.36	
	2/18/2002	31.54	
	2/24/2002		Invalid Sample
	3/2/2002		Invalid Sample
	3/8/2002		Invalid Sample
	3/14/2002	2.81	
	3/20/2002	8.57	
	3/26/2002	10.58	

Table C-6. Monthly and Weekly Tritium Concentrations in Precipitation

Location	Start Date	End Date	Concentration ± Uncertainty(2s) (pCi/L)			Concentration ± Uncertainty(2s) (Bq/L)		
CFA								
	1/1/2002	2/4/2002	56.7	±	65.6	2.1	±	2.4
	3/1/2002	3/31/2002	46.3	±	58.8	1.7	±	2.2
EFS								
	1/2/2002	1/9/2002	33.9	±	65.1	1.3	±	2.4
	1/16/2002	1/23/2002	-31.6	±	64.1	-1.2	±	2.4
	2/6/2002	2/13/2002	57.6	±	60.0	2.1	±	2.2
	2/13/2002	2/20/2002	86.8	±	60.4	3.2	±	2.2
	3/6/2002	3/13/2002	19.4	±	58.9	0.7	±	2.2
	3/13/2002	3/20/2002	46.1	±	59.2	1.7	±	2.2
IDAHO FALLS								
	1/1/2002	2/4/2002	-10.7	±	64.3	-0.4	±	2.4
	2/4/2002	2/28/2002	94.7	±	61.0	3.5	±	2.3
	2/28/2002	3/31/2002	46.1	±	58.8	1.7	±	2.2

Table C-7: Weekly and Monthly Iodine-131 & Cesium-137 Concentrations in Milk

Location	Analyte	Sampling Date	Results ± Uncertainty(2s) pCi/L			Results ± Uncertainty(2s) x 10^{-2} Bq/L		
ARCO								
	CESIUM-137	1/16/2002	2.16	±	2.80	8.00	±	10.37
	IODINE-131	1/16/2002	-0.26	±	2.72	-0.96	±	10.07
	CESIUM-137	2/5/2002	-1.56	±	2.80	-5.78	±	10.37
	IODINE-131	2/5/2002	2.45	±	3.90	9.07	±	14.44
	CESIUM-137	3/5/2002	3.47	±	7.22	12.85	±	26.74
	IODINE-131	3/5/2002	-1.94	±	6.56	-7.19	±	24.30
BLACKFOOT								
	CESIUM-137	1/8/2002	-1.67	±	2.74	-6.19	±	10.15
	IODINE-131	1/8/2002	-2.45	±	3.04	-9.07	±	11.26
	CESIUM-137	2/5/2002	-3.75	±	7.36	-13.89	±	27.26
	IODINE-131	2/5/2002	-0.33	±	8.08	-1.22	±	29.93
	CESIUM-137	3/5/2002	-1.81	±	3.08	-6.70	±	11.41
	IODINE-131	3/5/2002	-0.07	±	3.62	-0.27	±	13.41
CAREY								
	CESIUM-137	1/8/2002	4.35	±	7.08	16.11	±	26.22
	IODINE-131	1/8/2002	-2.09	±	7.96	-7.74	±	29.48
	CESIUM-137	2/5/2002	0.65	±	1.59	2.40	±	5.90
	IODINE-131	2/5/2002	-2.89	±	2.38	-10.70	±	8.81
	CESIUM-137	3/5/2002	1.09	±	1.52	4.04	±	5.61
	IODINE-131	3/5/2002	0.85	±	1.93	3.14	±	7.16
DIETRICH								
	CESIUM-137	1/8/2002	-0.67	±	1.52	-2.47	±	5.63
	IODINE-131	1/8/2002	0.16	±	1.97	0.60	±	7.28
	CESIUM-137	2/5/2002	-1.98	±	7.48	-7.33	±	27.70
	IODINE-131	2/5/2002	-0.47	±	6.86	-1.73	±	25.41
	CESIUM-137	3/5/2002	1.79	±	7.48	6.63	±	27.70
	IODINE-131	3/5/2002	4.38	±	6.02	16.22	±	22.30
HOWE								
	CESIUM-137	1/8/2002	-0.82	±	7.20	-3.03	±	26.67
	IODINE-131	1/8/2002	4.51	±	6.20	16.70	±	22.96
	CESIUM-137	2/5/2002	1.42	±	7.22	5.26	±	26.74
	IODINE-131	2/5/2002	-12.80	±	10.32	-47.41	±	38.22
	CESIUM-137	3/5/2002	-1.07	±	2.70	-3.96	±	10.00
	IODINE-131	3/5/2002	0.12	±	4.62	0.44	±	17.11
IDAHO FALLS								
	CESIUM-137	1/2/2002	0.09	±	7.16	0.33	±	26.52
	IODINE-131	1/2/2002	2.00	±	6.42	7.41	±	23.78
	CESIUM-137	1/9/2002	-0.07	±	2.76	-0.26	±	10.22
	IODINE-131	1/9/2002	1.20	±	3.42	4.44	±	12.67
	CESIUM-137	1/16/2002	1.57	±	1.49	5.81	±	5.53
	IODINE-131	1/16/2002	-0.55	±	0.02	-2.03	±	0.06

Location	Analyte	Sampling Date	Results ± Uncertainty(2s) pCi/L			Results ± Uncertainty(2s) x 10^{-2} Bq/L		
IDAHO FALLS Continued	CESIUM-137	1/23/2002	0.33	±	7.42	1.22	±	27.48
	IODINE-131	1/23/2002	1.19	±	5.94	4.41	±	22.00
	CESIUM-137	1/30/2002	-2.82	±	7.30	-10.44	±	27.04
	IODINE-131	1/30/2002	3.53	±	5.72	13.07	±	21.19
	CESIUM-137	2/5/2002	0.71	±	1.55	2.64	±	5.73
	IODINE-131	2/5/2002	0.47	±	2.14	1.73	±	7.93
	CESIUM-137	2/13/2002	4.19	±	7.42	15.52	±	27.48
	IODINE-131	2/13/2002	0.55	±	5.96	2.05	±	22.07
	CESIUM-137	2/20/2002	-3.94	±	7.38	-14.59	±	27.33
	IODINE-131	2/20/2002	-0.72	±	5.28	-2.67	±	19.56
	CESIUM-137	2/27/2002	-1.16	±	7.22	-4.30	±	26.74
	IODINE-131	2/27/2002	1.63	±	5.46	6.04	±	20.22
	CESIUM-137	3/5/2002	1.30	±	1.55	4.81	±	5.73
	IODINE-131	3/5/2002	0.24	±	1.67	0.87	±	6.20
	CESIUM-137	3/13/2002	3.18	±	7.18	11.78	±	26.59
	IODINE-131	3/13/2002	1.65	±	5.56	6.11	±	20.59
	CESIUM-137	3/20/2002	-0.33	±	7.44	-1.22	±	27.56
	IODINE-131	3/20/2002	-3.71	±	5.40	-13.74	±	20.00
	CESIUM-137	3/27/2002	1.32	±	7.38	4.89	±	27.33
	IODINE-131	3/27/2002	1.06	±	5.40	3.93	±	20.00
MORELAND								
	CESIUM-137	1/8/2002	0.18	±	1.56	0.68	±	5.78
	IODINE-131	1/8/2002	-0.67	±	1.87	-2.48	±	6.93
	CESIUM-137	2/5/2002	-1.16	±	2.78	-4.30	±	10.30
	IODINE-131	2/5/2002	1.95	±	3.12	7.22	±	11.56
	CESIUM-137	3/5/2002	-0.10	±	1.64	-0.38	±	6.07
	IODINE-131	3/5/2002	0.78	±	1.83	2.89	±	6.76
ROBERTS								
	CESIUM-137	1/8/2002	-0.89	±	1.56	-3.29	±	5.76
	IODINE-131	1/8/2002	-0.77	±	1.69	-2.86	±	6.26
	CESIUM-137	2/5/2002	0.33	±	7.24	1.22	±	26.81
	IODINE-131	2/5/2002	-0.41	±	6.28	-1.53	±	23.26
	CESIUM-137	3/5/2002	1.14	±	2.62	4.22	±	9.70
	IODINE-131	3/5/2002	0.39	±	3.10	1.44	±	11.48
RUPERT								
	CESIUM-137	1/8/2002	0.61	±	2.84	2.24	±	10.52
	IODINE-131	1/8/2002	1.27	±	3.18	4.70	±	11.78
	CESIUM-137	2/5/2002	1.32	±	7.38	4.89	±	27.33
	IODINE-131	2/5/2002	-0.67	±	8.06	-2.50	±	29.85
	CESIUM-137	3/5/2002	-0.13	±	1.59	-0.48	±	5.87
	IODINE-131	3/5/2002	-0.67	±	2.22	-2.50	±	8.22

Location	Analyte	Sampling Date	Results ± Uncertainty(2s) pCi/L			Results ± Uncertainty(2s) x 10^{-2} Bq/L		
TERRETON								
	CESIUM-137	1/8/2002	1.4	±	7.0	5.04	±	25.85
	IODINE-131	1/8/2002	2.6	±	5.6	9.56	±	20.89
	CESIUM-137	2/5/2002	0.6	±	2.7	2.24	±	9.93
	IODINE-131	2/5/2002	-3.9	±	3.7	-14.30	±	13.56
	CESIUM-137	3/5/2002	-1.7	±	7.3	-6.41	±	26.96
	IODINE-131	3/5/2002	-1.6	±	7.5	-5.93	±	27.93

Table C-8: Cesium-137 and Iodine-131 Concentrations in Game Animals

Species	Tissue	Analyte	Sampling Date	Results ± Uncertainty(2s) (pCi/kg wet weight)			Results ± Uncertainty(2s) Bq/kg wet weight)		
MULE DEER									
	LIVER								
		CESIUM-137	1/23/2002	0.74	±	12.82	0.03	±	0.50
		IODINE-131	1/23/2002	-24.18	±	28.47	-0.90	±	1.10
	MUSCLE								
		CESIUM-137	1/23/2002	-4.42	±	9.26	-0.16	±	0.30
		IODINE-131	1/23/2002	11.12	±	15.03	0.41	±	0.60
MULE DEER									
	LIVER								
		CESIUM-137	1/28/2002	-0.39	±	10.40	-0.01	±	0.40
		IODINE-131	1/28/2002	-0.63	±	7.51	-0.02	±	0.30
	MUSCLE								
		CESIUM-137	1/28/2002	-5.87	±	9.64	-0.22	±	0.40
		IODINE-131	1/28/2002	1.31	±	8.60	0.05	±	0.30
	THYROID								
		CESIUM-137	1/28/2002	-44.94	±	655.56	-1.66	±	24.30
		IODINE-131	1/28/2002	-32.83	±	892.22	-1.22	±	33.00
MULE DEER									
	LIVER								
		CESIUM-137	2/7/2002	-7.70	±	13.18	-0.29	±	0.50
		IODINE-131	2/7/2002	-0.19	±	15.86	-0.01	±	0.60
	MUSCLE								
		CESIUM-137	2/7/2002	-11.51	±	9.48	-0.43	±	0.40
		IODINE-131	2/7/2002	3.24	±	8.84	0.12	±	0.30
	THYROID								
		CESIUM-137	2/7/2002	185.00	±	5266.67	6.85	±	194.90
		IODINE-131	2/7/2002	2666.67	±	5500.00	98.67	±	203.50

	Tissue	Analyte	Sampling Date	Results ± Uncertainty(2s) (pCi/kg wet weight)			Results ± Uncertainty(2s) Bq/kg wet weight)		
MULE DEER									
	LIVER								
		CESIUM-137	2/14/2002	1.18	±	2.68	0.04	±	0.10
		IODINE-131	2/14/2002	0.48	±	2.90	0.02	±	0.10
	MUSCLE								
		CESIUM-137	2/14/2002	1.00	±	2.17	0.04	±	0.10
		IODINE-131	2/14/2002	0.98	±	2.34	0.04	±	0.10
	THYROID								
		CESIUM-137	2/14/2002	-41.18	±	905.88	-1.52	±	33.50
		IODINE-131	2/14/2002	266.77	±	717.65	9.87	±	26.60
MULE DEER									
	LIVER								
		CESIUM-137	2/22/2002	2.74	±	13.32	0.10	±	0.50
		IODINE-131	2/22/2002	-4.51	±	32.11	-0.17	±	1.20
	MUSCLE								
		CESIUM-137	2/22/2002	2.96	±	3.24	0.11	±	0.10
		IODINE-131	2/22/2002	1.52	±	6.97	0.06	±	0.30
	THYROID								
		CESIUM-137	2/22/2002	-1518.18	±	2818.18	-56.17	±	104.30
		IODINE-131	2/22/2002	523.64	±	2800.00	19.38	±	103.60
MULE DEER									
	LIVER								
		CESIUM-137	2/28/2002	-4.43	±	16.67	-0.16	±	0.60
		IODINE-131	2/28/2002	-6.75	±	15.97	-0.25	±	0.60
	MUSCLE								
		CESIUM-137	2/28/2002	-7.23	±	10.66	-0.27	±	0.40
		IODINE-131	2/28/2002	-2.96	±	7.86	-0.11	±	0.30
	THYROID								
		CESIUM-137	2/28/2002	55.00	±	258.33	2.04	±	9.60
		IODINE-131	2/28/2002	-327.08	±	302.92	-12.10	±	11.20

	Tissue	Analyte	Sampling Date	Results ± Uncertainty(2s) (pCi/kg wet weight)			Results ± Uncertainty(2s) Bq/kg wet weight)		
PRONGHORN									
	LIVER								
		CESIUM-137	3/4/2002	0.20	±	14.12	0.01	±	0.50
		IODINE-131	3/4/2002	4.21	±	24.53	0.16	±	0.90
	MUSCLE								
		CESIUM-137	3/4/2002	2.34	±	2.51	0.09	±	0.10
		IODINE-131	3/4/2002	0.94	±	5.84	0.04	±	0.20
	THYROID								
		CESIUM-137	3/4/2002	-672.41	±	1055.17	-24.88	±	39.00
		IODINE-131	3/4/2002	-92.22	±	2033.33	-3.41	±	75.20
PRONGHORN									
	LIVER								
		CESIUM-137	3/4/2002	-10.05	±	15.65	-0.37	±	0.60
		IODINE-131	3/4/2002	2.58	±	8.12	0.10	±	0.30
	MUSCLE								
		CESIUM-137	3/4/2002	0.20	±	12.54	0.01	±	0.50
		IODINE-131	3/4/2002	9.83	±	14.39	0.36	±	0.50
	THYROID								
		CESIUM-137	3/4/2002	2533.33	±	3322.22	93.73	±	122.90
		IODINE-131	3/4/2002	-72.27	±	585.46	-2.67	±	21.70
PRONGHORN									
	LIVER								
		CESIUM-137	3/4/2002	0.78	±	3.52	0.03	±	0.10
		IODINE-131	3/4/2002	1.77	±	25.45	0.07	±	0.90
	MUSCLE								
		CESIUM-137	3/4/2002	-0.57	±	10.27	-0.02	±	0.40
		IODINE-131	3/4/2002	9.06	±	17.85	0.34	±	0.70
	THYROID								
		CESIUM-137	3/4/2002	-321.82	±	544.55	-11.91	±	20.10
		IODINE-131	3/4/2002	20.97	±	806.90	0.78	±	29.90

	Tissue	Analyte	Sampling Date	Results ± Uncertainty(2s) (pCi/kg wet weight)			Results ± Uncertainty(2s) Bq/kg wet weight)		
PRONGHORN									
	LIVER								
		CESIUM-137	3/5/2002	-4.78	±	10.94	-0.18	±	0.40
		IODINE-131	3/5/2002	-9.91	±	23.14	-0.37	±	0.90
	MUSCLE								
		CESIUM-137	3/5/2002	1.32	±	2.90	0.05	±	0.10
		IODINE-131	3/5/2002	-4.20	±	6.23	-0.16	±	0.20
	THYROID								
		CESIUM-137	3/5/2002	43.85	±	519.23	1.62	±	19.20
		IODINE-131	3/5/2002	-96.29	±	534.29	-3.56	±	19.80
PRONGHORN									
	LIVER								
		CESIUM-137	3/5/2002	-3.23	±	13.18	-0.12	±	0.50
		IODINE-131	3/5/2002	3.18	±	15.42	0.12	±	0.60
	MUSCLE								
		CESIUM-137	3/5/2002	3.18	±	2.43	0.12	±	0.10
		IODINE-131	3/5/2002	-0.49	±	7.18	-0.02	±	0.30
	THYROID								
		CESIUM-137	3/5/2002	578.57	±	874.29	21.41	±	32.30
		IODINE-131	3/5/2002	-193.08	±	876.92	-7.14	±	32.40
PRONGHORN									
	LIVER								
		CESIUM-137	3/6/2002	-2.70	±	14.77	-0.10	±	0.50
		IODINE-131	3/6/2002	2.23	±	25.56	0.08	±	0.90
	MUSCLE								
		CESIUM-137	3/6/2002	3.19	±	2.88	0.12	±	0.10
		IODINE-131	3/6/2002	-0.31	±	8.23	-0.01	±	0.30
	THYROID								
		CESIUM-137	3/6/2002	1210.81	±	1637.84	44.80	±	60.60
		IODINE-131	3/6/2002	859.46	±	1551.35	31.80	±	57.40

	Tissue	Analyte	Sampling Date	Results ± Uncertainty(2s) (pCi/kg wet weight)			Results ± Uncertainty(2s) Bq/kg wet weight)		
PRONGHORN									
	LIVER								
		CESIUM-137	3/6/2002	-1.02	±	15.48	-0.04	±	0.60
		IODINE-131	3/6/2002	-3.12	±	21.45	-0.12	±	0.80
	MUSCLE								
		CESIUM-137	3/6/2002	0.30	±	3.42	0.01	±	0.10
		IODINE-131	3/6/2002	4.16	±	7.78	0.15	±	0.30
	THYROID								
		CESIUM-137	3/6/2002	1692.86	±	2178.57	62.64	±	80.60
		IODINE-131	3/6/2002	122.86	±	1785.71	4.55	±	66.10
PRONGHORN									
	LIVER								
		CESIUM-137	3/28/2002	-9.45	±	58.86	-0.35	±	2.20
		IODINE-131	3/28/2002	97.47	±	102.11	3.61	±	3.80
		IODINE-131	3/28/2002	18.04	±	28.69	0.67	±	1.10
	MUSCLE								
		CESIUM-137	3/28/2002	0.57	±	13.39	0.02	±	0.50
		IODINE-131	3/28/2002	9.94	±	20.11	0.37	±	0.70
	THYROID								
		CESIUM-137	3/28/2002	-173.33	±	608.57	-6.41	±	22.50
		IODINE-131	3/28/2002	79.05	±	627.62	2.93	±	23.20