



Idaho National Laboratory Site Environmental Surveillance Program Report: Third Quarter 2022

October 2023

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October 2023

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EXECUTIVE SUMMARY

Some human-made radionuclides were detected in samples collected during the third quarter of 2022. None of the radionuclides detected in samples collected during the third quarter of 2022 could be directly linked with INL Site activities. All detected radionuclide concentrations were well below standards 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.

This report for the third quarter of 2022 contains results from the Idaho National Laboratory (INL) Site environmental surveillance program's monitoring of the U.S. Department of Energy's INL Site's onsite, boundary and offsite location environment, July 1 through September 30, 2022. All sample types (media) and the sampling schedule followed during 2022 are listed in Appendix A. This report contains results for the following sample types:

- Air, including particulate air filters, charcoal cartridges, and atmospheric moisture
- Precipitation
- Milk
- Lettuce
- Grain
- Large Game Animal Sampling.

Table ES-1. Summary of results for the third quarter of 2022.

Media	Sample Type	Analysis	Results
Air	Particulate Filters	Gross alpha, gross beta	<p>There were no statistically significant differences for the quarter, August and September for gross alpha and gross beta concentrations. In addition, statistically significant differences were not observed for gross alpha concentrations for July, however, gross beta data measured during July had statistically significant differences. No result exceeded the Derived Concentration Standard (DCS) for gross alpha or gross beta activity in air. Gross alpha results that exceeded the 99%/95% upper tolerance limit (UTL) appear to be due to naturally higher concentrations during periods of seasonal fluctuations due to agricultural activities.</p>
	Quarterly Composite	Gamma-emitting radionuclides, strontium-90, actinides (americium, plutonium, and uranium)	<p>Strontium-90 results for seven composite samples were elevated compared to what was expected. Three of the samples (which includes a duplicate location) were re-prepped and analyzed resulting in activity concentrations less than 3-sigma. For this reason, strontium-90 results for Blackfoot, Idaho Falls, Highway 26 Rest Area, and INTEC (westside) are considered invalid. Strontium-90 was not found in other sample locations.</p> <p>Several quarterly air composite samples had detections of uranium-233/234 and uranium-238. Insufficient data is available to calculate a UTL requiring more data to be collected. The United Nations Scientific committee on the Effects of Atomic Radiation lists uranium-238 air concentrations in the United States to be between 2.43×10^{-17} $\mu\text{Ci/ml}$ to 1.35×10^{-16} $\mu\text{Ci/ml}$ (UNSCEAR 2000). Uranium results were less than the DOE DCS values.</p> <p>Human-made gamma-emitting radionuclides (e.g., cesium-137), americium-241, plutonium-238, and plutonium-239/240 were not detected in any of the third quarter composite air samples.</p>

Table ES-1. continued.

Media	Sample Type	Analysis	Results
	Charcoal Cartridge	Iodine-131	Iodine-131 was not detected in any of the batches of charcoal cartridges counted during the quarter.
Atmospheric Moisture	Liquid	Tritium	Four of twenty-one results showed tritium concentrations greater than the 3s uncertainty during the quarter. No sample result exceeded the UTL or DCS for tritium in air.
Precipitation	Liquid	Tritium	A total of 19 samples were collected during the third quarter. Four of the tritium results were greater than the 3s uncertainty. None of the results exceeded the UTL or DCS for tritium in water.
Milk	Liquid	Iodine-131, other gamma-emitting radionuclides	Forty-two milk samples were collected at seven locations (including the offsite control sample from Colorado and two duplicates). No ¹³¹ I was detected, however, two milk samples (one collected in July and one in August) indicated ¹³⁷ Cs was present. Additional review of the data determined ¹³⁷ Cs was not present in the samples.
Lettuce	Vegetation	Gamma-emitting radionuclides, strontium-90	No human-made gamma emitting radionuclides or Strontium-90 were found in any of the nine samples collected.
Grain	Vegetation	Gamma-emitting radionuclides, strontium-90	No human-made gamma-emitting radionuclides or ⁹⁰ Sr were found in any of the 12 grain samples collected.
Large game animals	Tissue	Gamma-emitting radionuclides	No human-made gamma-emitting radionuclides were found in any of the tissue samples collected in third quarter.

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ACRONYMS

ATR	Advanced Test Reactor
BEA	Battelle Energy Alliance
CFA	Central Facilities Area
DCS	Derived Concentration Standard
DOE	U.S. Department of Energy
EBR I	Experimental Breeder Reactor I
EFS	Experimental Field Station
EPA	Environmental Protection Agency
ESER	Environmental Surveillance, Education, and Research
FAA	Federal Aviation Administration
HWY	Highway
ICP	Idaho Cleanup Project
INL	Idaho National Laboratory
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
ISU-EAL	Idaho State University-Environmental Assessments Laboratory
MAPEP	Mixed Analyte Performance Evaluation Program
MDC	minimum detectable concentration
MFC	Materials and Fuels Complex
NRF	Naval Reactors Facility
NRTS	National Reactor Testing Station
PE	performance evaluation
RHLLW	Remote-handled Low-level Waste
RWMC	Radioactive Waste Management Complex
SMC	Specific Manufacturing Capability
UTL	upper tolerance limit

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UNITS

Bq	becquerel
Ci	curie
g	gram
L	liter
μ Ci	microcurie
ml	milliliter
mrem	millirem
mR	milliroentgen
pCi	picocurie

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1. INL Contractor Program Description

Operations at the Idaho National Laboratory (INL) Site are conducted under requirements imposed by the U.S. Department of Energy (DOE) under authority of the Atomic Energy Act and the Environmental Protection Agency (EPA) under several acts (e.g., the Clean Air Act and Safe Drinking Water Act). The requirements imposed by DOE are specified in DOE Orders. These requirements include those to monitor the effects of DOE activities both inside and outside the boundaries of DOE facilities (DOE 2011, DOE 2015a).

During calendar year 2022, environmental surveillance within the INL Site boundaries was primarily the responsibility of the INL and Idaho Cleanup Project (ICP) contractors. The INL contractor also provides surveillance off the INL Site.

In December 2020, DOE initiated transition of the Environmental Surveillance, Education, and Research (ESER) Program from DOE management to the INL contract managed by Battelle Energy Alliance, LLC (BEA). A team composed of DOE, BEA and the ESER Program contractor, Veolia Nuclear Solutions – Federal Services, successfully transitioned the program on September 30, 2021. It is now called the Environmental Monitoring and Natural Resource Services. The ESER Program environmental surveillance scope has been integrated into the INL environmental surveillance program. Sampling activities conducted prior to September 30, 2021, were performed by Veolia Nuclear Solutions – Federal Services while sampling activities conducted after September 30, 2021, were performed under BEA.

This report contains surveillance monitoring results from the INL contractor for samples collected during the third quarter of 2022 (July 1 – September 30, 2022).

The INL environmental surveillance program is designed to satisfy the following 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 INL Site
- assess the potential radiation dose to members of the public from INL Site effluents
- present laboratory data which has been reviewed using an EPA quality assurance process.

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 42 low-volume air samplers (four of which are used as replicate samplers) at 32 locations on and around the INL Site
- atmospheric moisture at two INL Site locations and at four locations off the INL Site
- precipitation collected at one INL Site location and three locations off the INL Site
- drinking water collected from eight locations off the INL Site
- surface water collected from three springs located downgradient of the INL Site and from five locations along the Big Lost River, when it is flowing, on the INL Site
- agricultural products, including milk at six dairies around the INL Site, potatoes from at least eight regional producers, alfalfa from three locations off the INL Site, grain (wheat and barley) from

approximately nine regional producers, and lettuce from approximately seven home-owned and portable gardens on and around the INL Site

- soil from 29 locations on and around the INL Site biennially
- environmental dosimeters from 191 (includes duplicates) locations semi-annually
- various numbers of wildlife including bats, big game (pronghorn, mule deer, and elk) and waterfowl sampled from the INL Site.

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

Four laboratories were used to perform analyses on routine environmental samples collected during the quarter identified in this report. The INL Environmental Services In Situ Gamma Laboratory was used to scan charcoal cartridges for gamma-emitting radionuclides. The Idaho State University Environmental Assessment Laboratory performed routine gross alpha, gross beta, tritium, and gamma spectrometry analyses. ALS Fort Collins performed routine gross alpha, gross beta, and for gamma-emitting radionuclides, such as: cobalt-60 (^{60}Co), cesium-134, cesium-137 (^{137}Cs), europium-152, and antimony-125. Sample analysis at ALS Fort Collins ceased in mid-August 2022 due to closure of the analytical lab. As a result, GEL Laboratories performed routine gross alpha, gross beta, tritium, and gamma spectroscopy analysis. In addition, analyses requiring radiochemistry including strontium-90 (^{90}Sr), plutonium-238 (^{238}Pu), plutonium-239/240 ($^{239/240}\text{Pu}$), and ^{241}Am were performed by GEL Laboratories.

In the event of non-routine occurrences, such as suspected releases of radioactive material, the INL contractor 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 is thoroughly investigated to determine if an INL Site 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 or the 2011 Fukushima accident, the EPA may request additional sampling be performed through RadNet. RadNet is a nationwide environmental radiation monitoring system that monitors the nation's air, precipitation, and drinking water for radiation. The INL contractor currently operates a high-volume air sampler and collects precipitation and drinking water in Idaho Falls for this national program and routinely sends samples to EPA's Eastern Environmental Radiation Facility for analyses. The RadNet data collected at Idaho Falls are not reported by the INL contractor but are available through the EPA RadNet website (<https://www.epa.gov/radnet>).

Once samples have been collected and analyzed, the INL contractor has the responsibility for quality control of the data, entry into databases, and reporting in quarterly reports. The quarterly reports are then consolidated into the INL Site Environmental Report for each calendar year. The annual report also includes data collected by other INL Site 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 INL Site releases, meteorological data, and worldwide events that might conceivably affect the INL Site environment. First, field collection and laboratory information are reviewed to determine identifiable errors that would invalidate or limit use of the data. Examples of such limitations 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.

Results are presented in this report with an analytical uncertainty term, s , where 's' is the estimated sample standard deviation (σ), assuming a Gaussian or normal distribution. All results are reported in this document, even those that do not necessarily represent detections. The term 'detected,' 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 measured at a concentration sufficient for the analytical instrument to record a value that is statistically different from background. Laboratory measurements involve the analysis of a target sample and the analysis of a prepared laboratory blank (i.e., a sample which is identical to the sample collected in the environment, except that the radionuclide of interest is absent). In order to conclude that a radionuclide has been detected, it is essential to consider two fundamental aspects of the problem of detection: (1) the instrument signal for the sample must be greater than that observed for the blank before the decision can be made that the radionuclide has been detected; and (2) an estimate must be made of the minimum radionuclide concentration that will yield a sufficiently large observed signal before the correct decision can be made for detection or non-detection. Each laboratory currently defines a detection of radioactivity in an individual sample if the result exceeds a detection level calculated by the laboratory after the analysis of a background sample, based on calculations derived by Currie (1984). The minimum detectable concentration (MDC) is defined as the concentration at which there is a 95% confidence that an analyte signal will be distinguishable from an analyte-free sample.

In addition, the INL contractor uses three standard deviation criterion to minimize the chance that a potentially false positive result is included in the data set. A false positive result is indicated when the range encompassing the result, plus or minus the total uncertainty at three standard deviations, includes zero (e.g., 2.5 +/- 1.0; range of -0.5 to 5.5). Statistically, the probability that a result can exceed the absolute value of its total uncertainty at three standard deviations by chance alone is less than 1%. A result that is greater than three times the total uncertainty of the measurement represents a statistically positive detection with over 99% confidence (DOE 2015b). The INL contractor reports measured radionuclide concentrations greater than or equal to their respective 3s uncertainties as being detected with confidence.

Concentrations between 2s and 3s are reported as questionably detected. That is, the radionuclide may be present in the sample; however, the probability that a result can exceed the absolute value of its total uncertainty at two standard deviations by chance alone may be as high as 5%. Measurements made between 2s and 3s are examined further to determine if they are a part of a pattern (temporal or spatial) that might warrant further investigation or recounting. For example, if a radionuclide is routinely detected at > 3s at a specific location, a sample result between 2s and 3s might be considered detected.

If a result is less than or equal to 2s there is even less statistical confidence that the radionuclide is present in the sample. Analytical results in this report are presented as the result value \pm one standard deviation (1s) for reporting consistency with the annual report. To obtain the 2s or 3s values simply multiply the uncertainty term by 2 or 3.

Data are also compared to historical measurements using the upper tolerance limit (UTL). The 99%/95% UTL is a value such that 99% of the population (in this case, all valid measurements made between 2011-2020) is less than the UTL with 95% confidence (EPA 2015). With a 99%/95% UTL it is expected that approximately 1% of the measurements will exceed the UTL if the concentration of a radionuclide is within the normal range. This means that if a concentration exceeds the UTL it does not necessarily indicate that the site is outside of the normal range. Rather, it indicates that the measurement should be closely examined to determine if it is unusually high.

For more information concerning the INL environmental surveillance program, please email scott.lee@inl.gov, or visit <https://idahoeser.inl.gov/>.

2. INL Site

The INL Site is a nuclear energy and homeland security research and environmental management facility. It is owned and administered by the DOE, Idaho Operations Office and occupies about 890 mi² (2,300 km²) of the upper Snake River Plain in Southeastern Idaho (Figure 1). The history of the INL Site 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, 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 Atomic Energy Commission. By the end of 1951, a reactor at the NRTS became the first to produce useful amounts of electricity. Over time the site has operated 52 various types of reactors, associated research centers, and waste handling areas. The NRTS was renamed the Idaho National Engineering Laboratory in 1974, and the Idaho National Engineering and Environmental Laboratory (INEEL) in January 1997. With renewed interest in nuclear power the DOE announced in 2003 that Argonne National Laboratory and the INEEL would be the lead laboratories for development of the next generation of power reactors. On February 1, 2005, the INEEL and Argonne National Laboratory-West became the INL. The INL is committed to providing international nuclear leadership for the 21st Century, developing and demonstrating compelling national security technologies, and delivering excellence in science and technology as one of the DOE's multi-program national laboratories. Battelle Energy Alliance, LLC, is responsible for the management and operations of the INL.

The ICP Core is a separately managed effort. The ICP Core is charged with safely and cost-effectively completing the majority of cleanup work from past laboratory missions in an ongoing process. The Idaho Environmental Coalition, LLC, is responsible for the ICP Core.

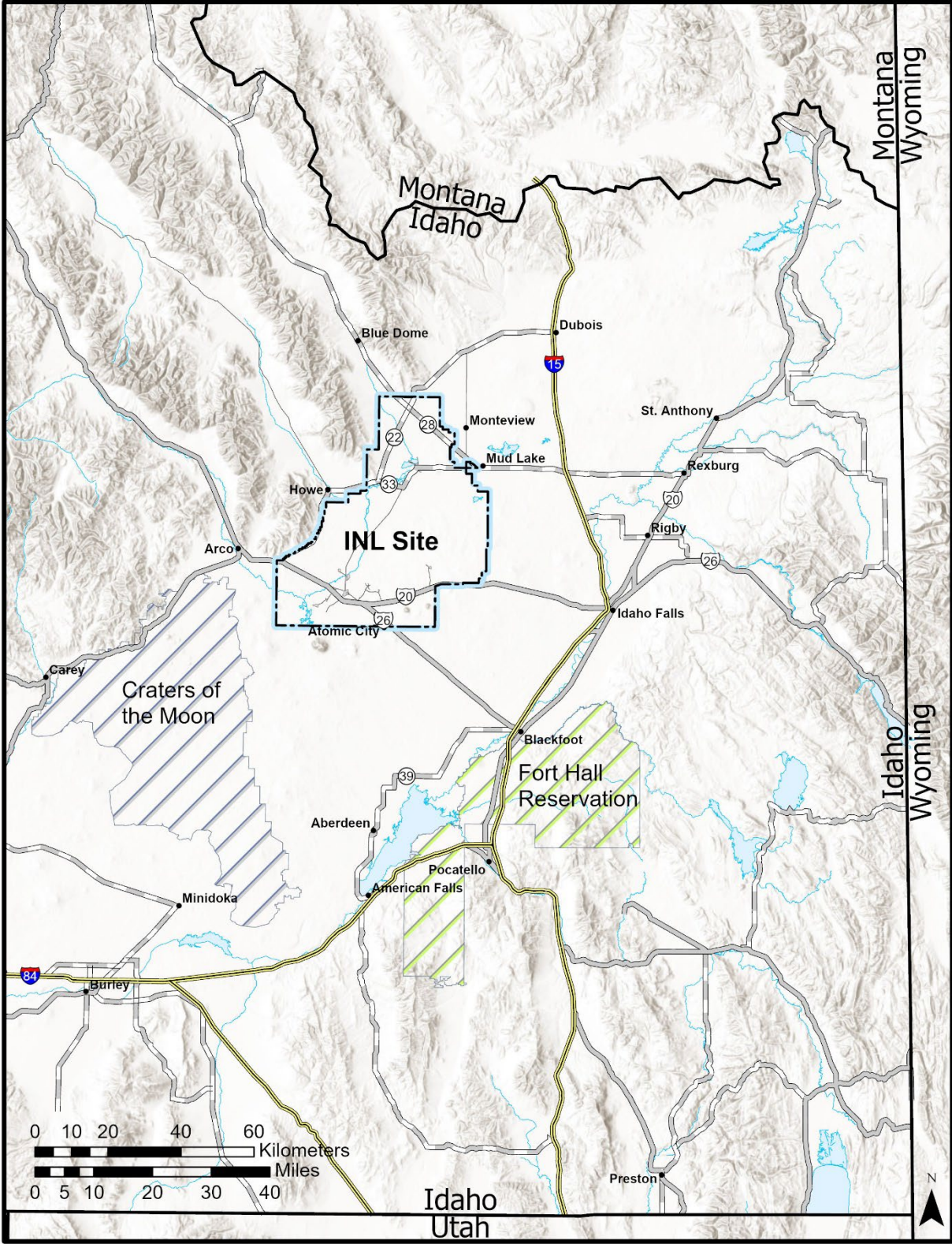


Figure 1. Location of the INL Site.

3. Air Sampling

The primary pathway by which radionuclides can move off the INL Site is through the air and for this reason the air pathway is the primary focus of monitoring on and around the INL Site. Samples for particulates and iodine-131 (^{131}I) gas in air were collected weekly for the duration of the quarter at 32 locations using low-volume air samplers. Moisture in the atmosphere was sampled at seven locations around the INL Site and analyzed for tritium. Air sampling activities and results for the third quarter of 2022 are discussed below. A summary of approximate MDCs for radiological analyses and DOE Derived Concentration Standard (DCS) (DOE 2021) values is provided in Appendix B.

3.1 Low-volume Air Sampling

Radioactivity associated with airborne particulates was monitored continuously by 42 low-volume air samplers (four of which are used as replicate samplers) at 32 locations during the third quarter of 2022 (Figure 2). Seventeen of these samplers are located onsite, seven are situated off the INL Site near the boundary, and eight have been placed at locations off the INL Site. Currently, several locations have two samplers as a result of the ESER program being transferred to BEA. The locations include: Blackfoot, Craters of the Moon, Experimental Field Station (EFS), Idaho Falls, Sugar City, and Van Buren. One sampler at each location is being scheduled for deactivation since duplicate samplers are already in place. Samplers are divided into onsite, boundary, and offsite groups to determine if there is a gradient of radionuclide concentrations, increasing towards the INL Site. Each replicate sampler is relocated every other year to a new location. During the third quarter 2022, replicate samplers were located at Dubois (offsite location), Idaho Nuclear Technology and Engineering Complex (INTEC) – west side (onsite location), Radioactive Waste Management Complex (RWMC) (onsite location), and Van Buren (onsite location). Particulates in air were collected on membrane particulate filters (1.2 μm pore size), whereas gases passing through the filter were collected with an activated charcoal cartridge.

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 shorter-lived naturally-occurring daughter products of radon and thorium to decay.

The weekly particulate filters collected during the quarter for each location were composited and analyzed for gamma-emitting radionuclides. Selected composites were also analyzed by location for ^{90}Sr , ^{238}Pu , $^{239/240}\text{Pu}$, and ^{241}Am as determined by a rotating quarterly schedule. Monitoring for uranium isotopes and chlorine-36 was initiated in the third quarter 2022 as a result of uranium-238 (^{238}U), uranium-234, and chlorine-36 being identified as significant contributors to the estimated potential dose to the maximally exposed individual (INL 2022b).

Charcoal cartridges were analyzed for gamma-emitting radionuclides, specifically for ^{131}I , using two methods. Cartridges analyzed by Idaho State University Environmental Assessment Laboratory are done in batches as an initial scan. If the scan results in ^{131}I activity above 3-sigma, the cartridges are split into smaller batches and analyzed to identify the cartridge which contains the radioanalyte above 3-sigma. Cartridges which are analyzed by the INL Environmental Services In Situ Gamma Laboratory are scanned individually. If the scan of an individual cartridge results in a positive detection, the cartridge is shipped to ALS Laboratories for analysis. 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.

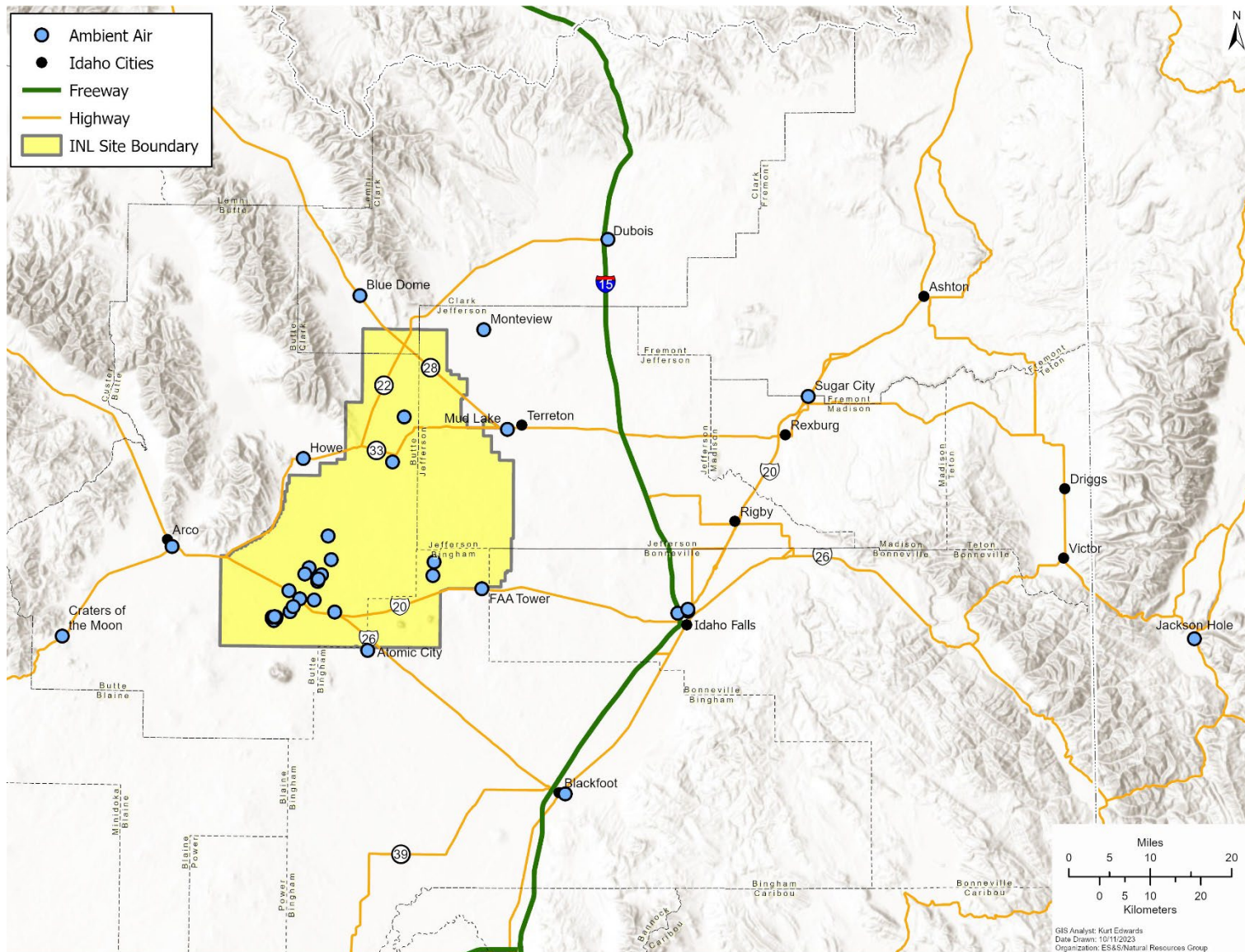


Figure 2. INL contractor air monitoring locations.

Gross alpha results are reported in Table C-1 and shown in Figures 3 through 6. Gross alpha concentrations measured in individual samples ranged from a low of $(-0.42 \pm 0.55) \times 10^{-15}$ $\mu\text{Ci/ml}$ collected at Gate 4 on July 13, 2022, to a high of $(6.6 \pm 1.8) \times 10^{-15}$ $\mu\text{Ci/ml}$ collected at Remote-handled Low-level Waste facility (RHLLW) on July 27, 2022. All results were less than the DCS of 1.1×10^{-13} $\mu\text{Ci/ml}$ for $^{239/240}\text{Pu}$ (see Table B-1 of Appendix B). In addition, the results were consistent with historical data, as represented by the 99%/95% UTL for gross alpha activity (4.8×10^{-15} $\mu\text{Ci/ml}$). Sample results above the UTL are representative of agricultural activities that occur during August and September. The UTL was determined using ten years of historical data (measured from 2011 through 2020) and the ProUCL statistical software (<https://www.epa.gov/land-research/proucl-software>). The 99%/95% UTL is a value such that 99% of the population (all possible air measurements) is less than the UTL with 95% confidence. With a 99%/95% UTL it is expected that approximately 1% of the measurements will exceed the UTL if the concentration of gross alpha is within the normal range. This means that if a concentration exceeds the UTL it does not necessarily indicate that the result is outside of the normal range. Rather, it indicates that the measurement should be closely examined to determine if it is unusually high.

Gross alpha data have been tested for distribution (normally or lognormally distributed) and generally show no consistent discernible distribution. Because there is no discernible distribution of the data, a parametric test of significance cannot be used. The nonparametric Kruskal-Wallis analysis of variance by ranks test of multiple independent groups was used to determine statistical differences between onsite, boundary, and offsite locations. The test assesses the hypothesis that the different samples in the comparison were drawn from the same distribution or from distributions with the same median. In the computation of the Kruskal-Wallis test, each of the N observations is replaced by a rank. That is, all the results from all the locations are combined and ranked in a single series with the smallest result replaced by rank 1 and the largest result replaced by rank N (i.e., the total number of results). The sum of the ranks in each location group (i.e., onsite, boundary, and offsite) is found and then averaged for each group. If the samples are from the same populations, the average ranks should be about the same, whereas if the samples are from populations with different medians, the average ranks should differ. Statistically significant difference exists between data groups if the p-value (or probability value) is less than 0.05. Values greater than 0.05 translate into a 95% confidence that the medians are statistically the same. The p-value for each comparison is shown in Table D-1. There was no statistically significant difference among groups for the quarter, July, August, and September (Table D-1). To determine if there were any differences between stations and where the differences occur, the Kruskal-Wallis analysis of variance by ranks test was used again. No differences were determined (Table D-2).

Gross beta results are presented in Table C-1 and displayed in Figures 7 through 10. Gross beta concentrations measured in individual samples ranged from a low of $(2.90 \pm 0.38) \times 10^{-15}$ $\mu\text{Ci/ml}$ collected at MFC North on September 14, 2022, to a high of $(5.47 \pm 0.13) \times 10^{-14}$ $\mu\text{Ci/ml}$ collected at Craters of the Moon on August 24, 2022. All results were less than the Derived Concentration Standard (DCS) of 9.6×10^{-12} $\mu\text{Ci/ml}$ for ^{90}Sr (see Table B-1 of Appendix B). In addition, the results were consistent with historical data, as represented by the 99%/95% UTL for gross beta activity (6.1×10^{-14} $\mu\text{Ci/ml}$). The data were tested quarterly and generally are found to be neither normally nor log-normally distributed. Box and whiskers plots were used to present the non-parametric data. Outliers and extreme values were retained in subsequent statistical analyses because they are within the range of measurements made in the past ten years, and because these values could not be attributed to mistakes in collection, analysis, or reporting procedures.

There were no statistically significant differences in the gross beta data between groups for the quarter, August, and September, yet data measured during July had statistically significant differences (Table D-1). To determine if there were any differences between stations and where the differences occur,

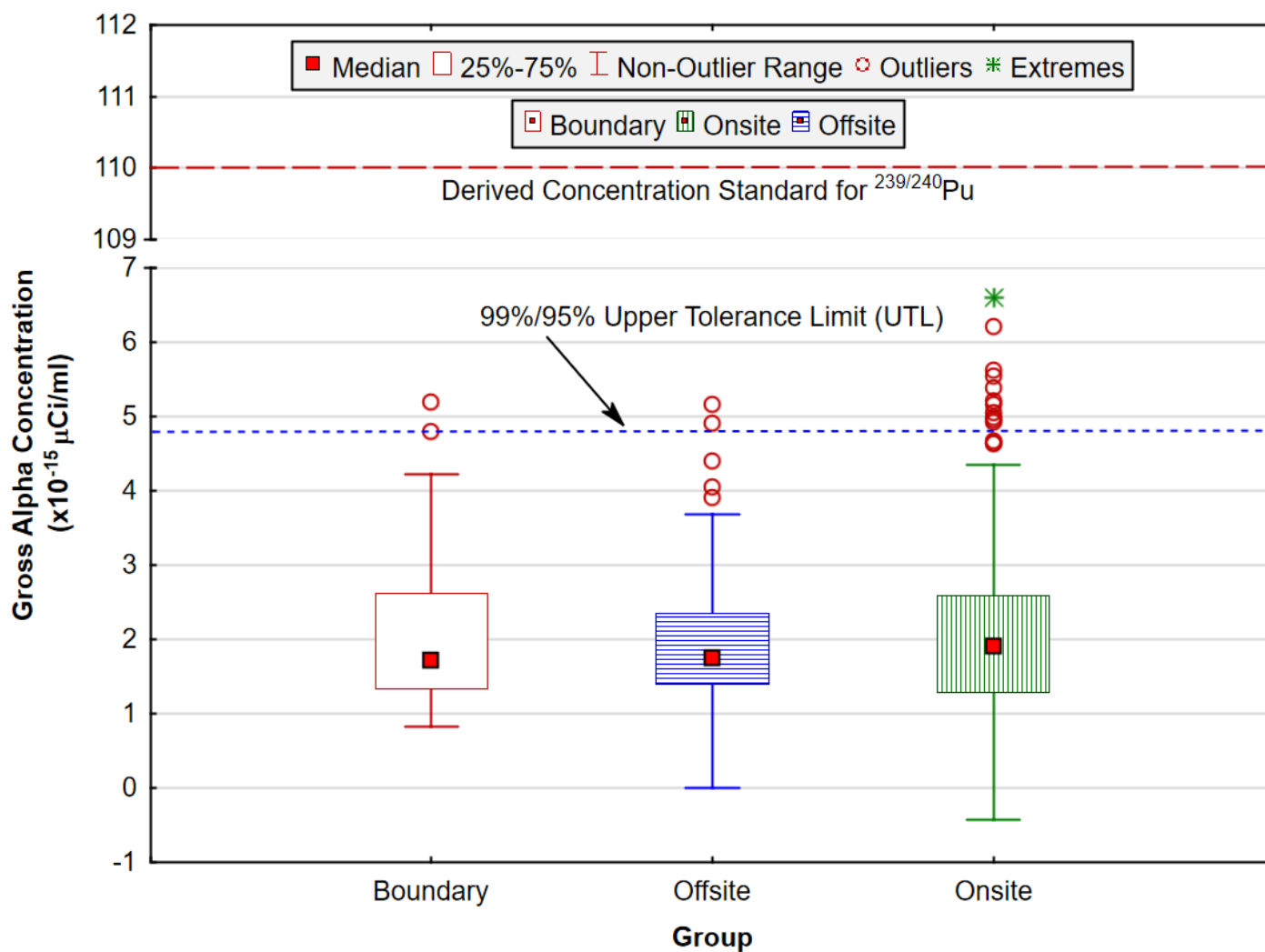


Figure 3. Gross alpha concentrations in air at onsite, boundary, and offsite locations for the third quarter of 2022. The DCS is the concentration of ^{239/240}Pu in air which, if inhaled for a year, would result in a dose of 100 mrem/yr. Because the measurements include naturally occurring radionuclides (such as ²³⁸U, ²³⁴U, ²³²Th, ²²⁶Ra, and ²¹⁰Po) in uncertain proportions, a meaningful DCS cannot be constructed for gross alpha concentrations. The DCS for ^{239/240}Pu is shown because it is the most restrictive human-made alpha emitter. The 99%/95% UTL is a value such that 99% of all possible measurements are less than the UTL with 95% confidence.

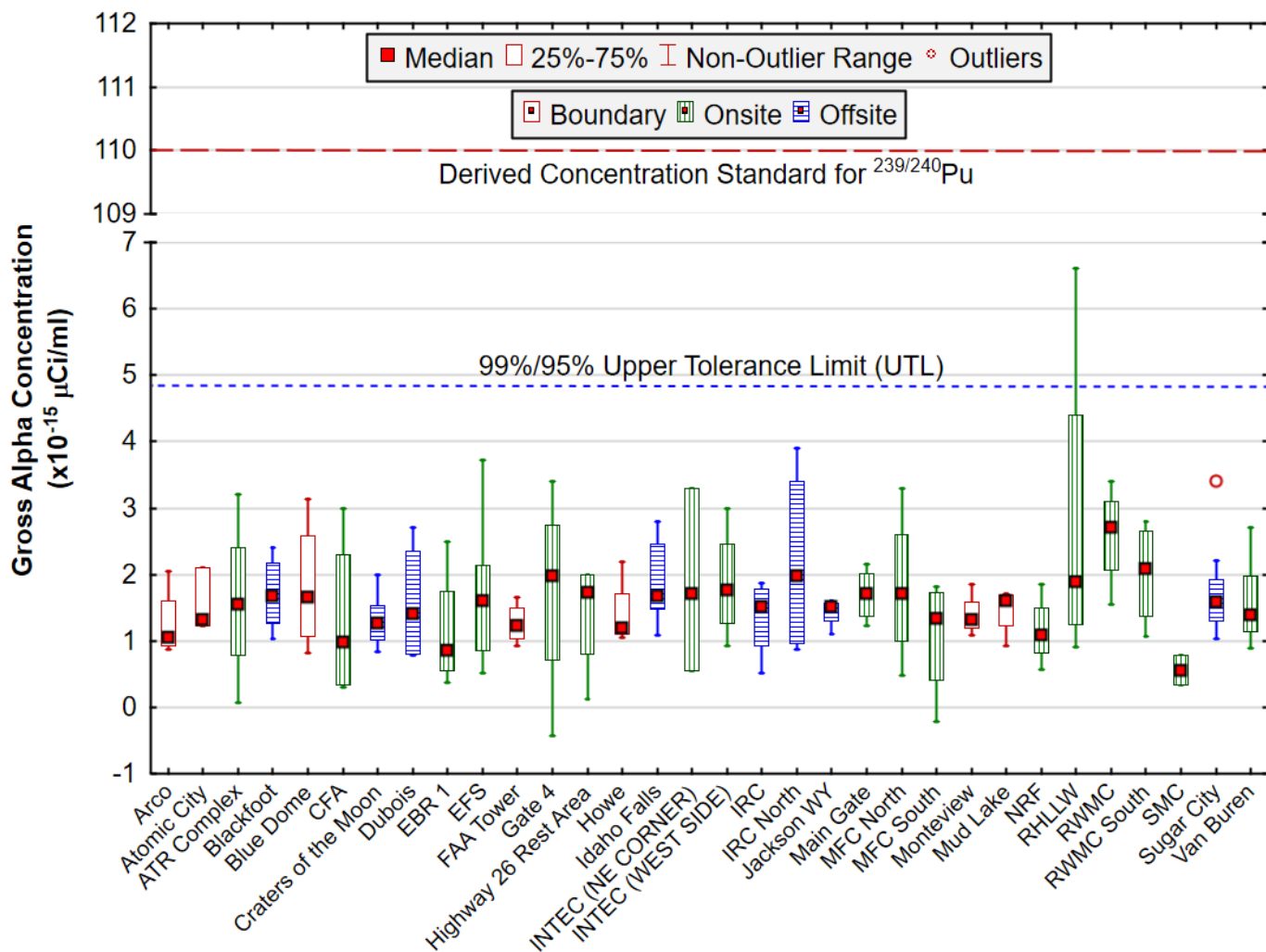


Figure 4. July 2022 gross alpha concentrations in air at onsite, boundary, and offsite locations. The DCS is the concentration of ^{239/240}Pu in air which, if inhaled for a year, would result in a dose of 100 mrem/yr. Because the measurements include naturally occurring radionuclides (such as ²³⁸U, ²³⁴U, ²³²Th, ²²⁶Ra, and ²¹⁰Po) in uncertain proportions, a meaningful DCS cannot be constructed for gross alpha concentrations. The DCS for ^{239/240}Pu is shown because it is the most restrictive human-made alpha emitter. The 99%/95% UTL is a value such that 99% of all possible measurements are less than the UTL with 95% confidence.

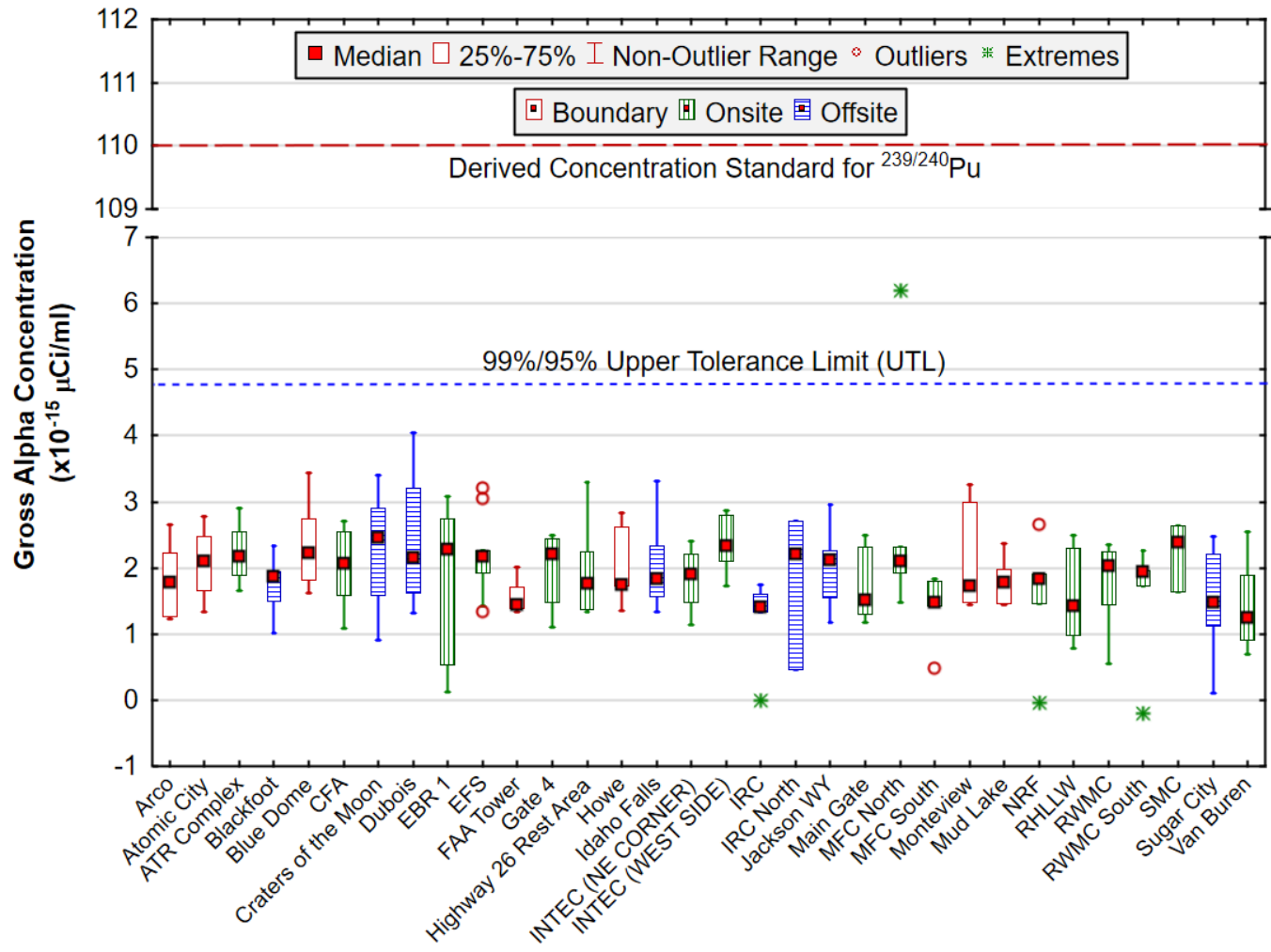


Figure 5. August 2022 gross alpha concentrations in air at onsite, boundary, and offsite locations. The DCS is the concentration of ^{239/240}Pu in air which, if inhaled for a year, would result in a dose of 100 mrem/yr. Because the measurements include naturally occurring radionuclides (such as ²³⁸U, ²³⁴U, ²³²Th, ²²⁶Ra, and ²¹⁰Po) in uncertain proportions, a meaningful DCS cannot be constructed for gross alpha concentrations. The DCS for ^{239/240}Pu is shown because it is the most restrictive human-made alpha emitter. The 99%/95% UTL is a value such that 99% of all possible measurements are less than the UTL with 95% confidence.

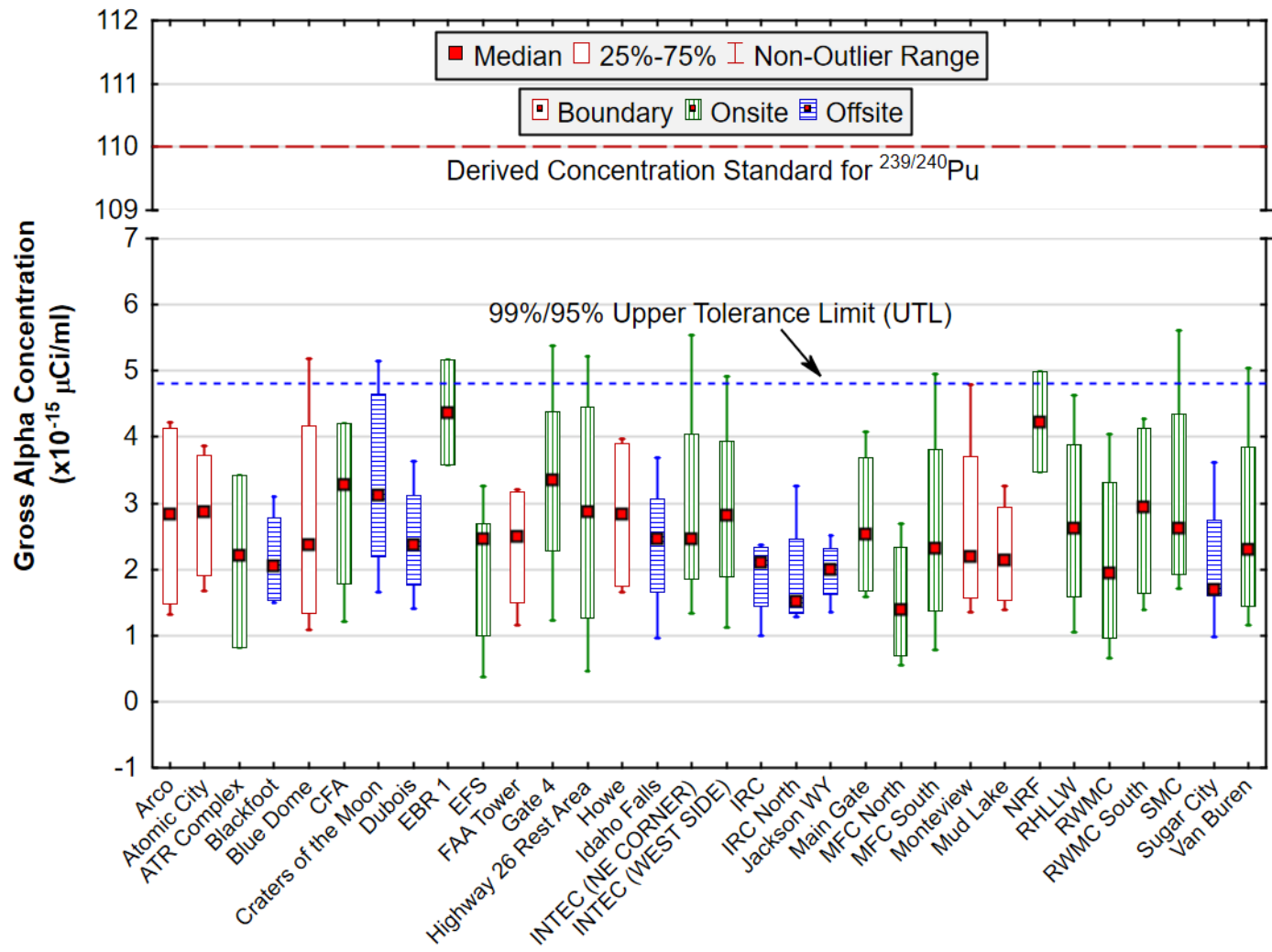


Figure 6. September 2022 gross alpha concentrations in air at onsite, boundary, and offsite locations. The DCS is the concentration of $^{239/240}\text{Pu}$ in air which, if inhaled for a year, would result in a dose of 100 mrem/yr. Because the measurements include naturally occurring radionuclides (such as ^{238}U , ^{234}U , ^{232}Th , ^{226}Ra , and ^{210}Po) in uncertain proportions, a meaningful DCS cannot be constructed for gross alpha concentrations. The DCS for $^{239/240}\text{Pu}$ is shown because it is the most restrictive human-made alpha emitter. The 99%/95% UTL is a value such that 99% of all possible measurements are less than the UTL with 95% confidence.

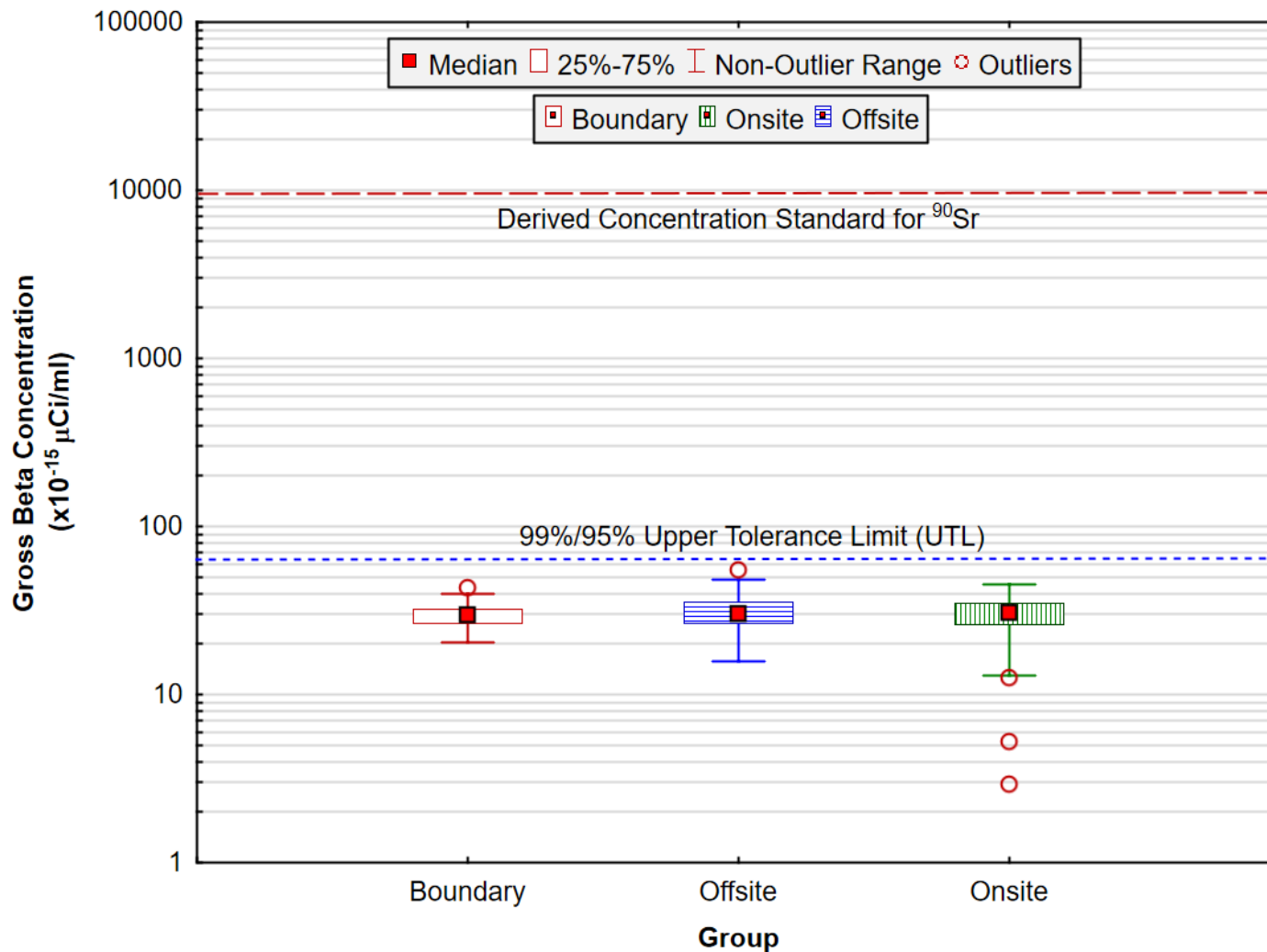


Figure 7. Gross beta concentrations in air at onsite, boundary, and offsite locations for the third quarter of 2022. The DCS is the concentration of ^{90}Sr in air which, if inhaled for a year, would result in a dose of 100 mrem/yr. Because the measurements include naturally occurring radionuclides (such as ^{40}K , ^{228}Ra , and ^{210}Pb) in uncertain proportions, a meaningful DCS cannot be constructed for gross beta concentration. The DCS for ^{90}Sr is shown because it is the most restrictive human-made beta emitter. The 99%/95% UTL is a value such that 99% of all possible measurements are less than the UTL with 95% confidence.

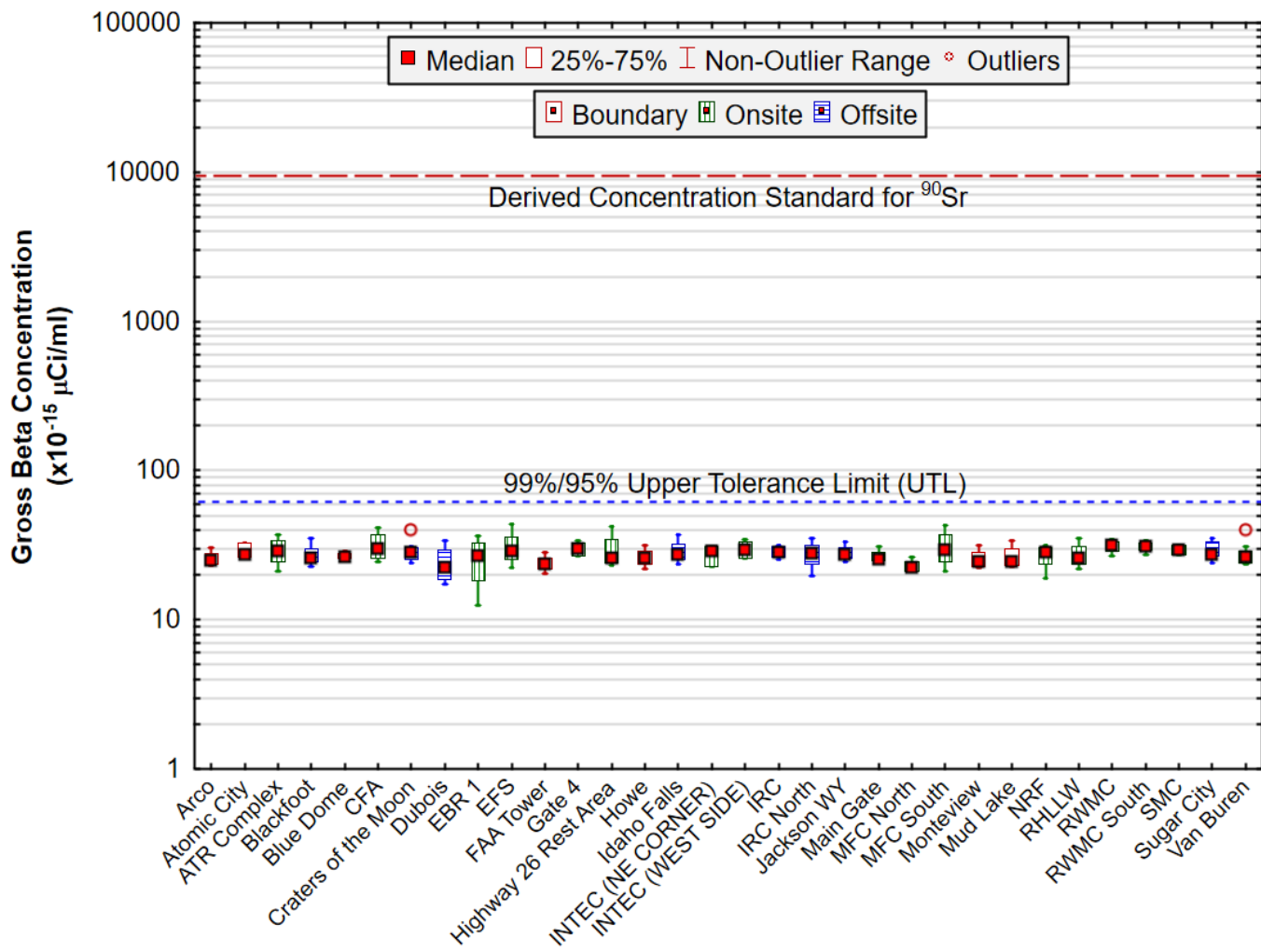


Figure 8. July 2022 gross beta concentrations in air at onsite, boundary, and offsite locations. The DCS is the concentration of ^{90}Sr in air which, if inhaled for a year, would result in a dose of 100 mrem/yr. Because the measurements include naturally occurring radionuclides (such as ^{40}K , ^{228}Ra , and ^{210}Pb) in uncertain proportions, a meaningful DCS cannot be constructed for gross beta concentrations. The DCS for ^{90}Sr is shown because it is the most restrictive human-made beta emitter. The 99%/95% UTL is a value such that 99% of all possible measurements are less than the UTL with 95% confidence.

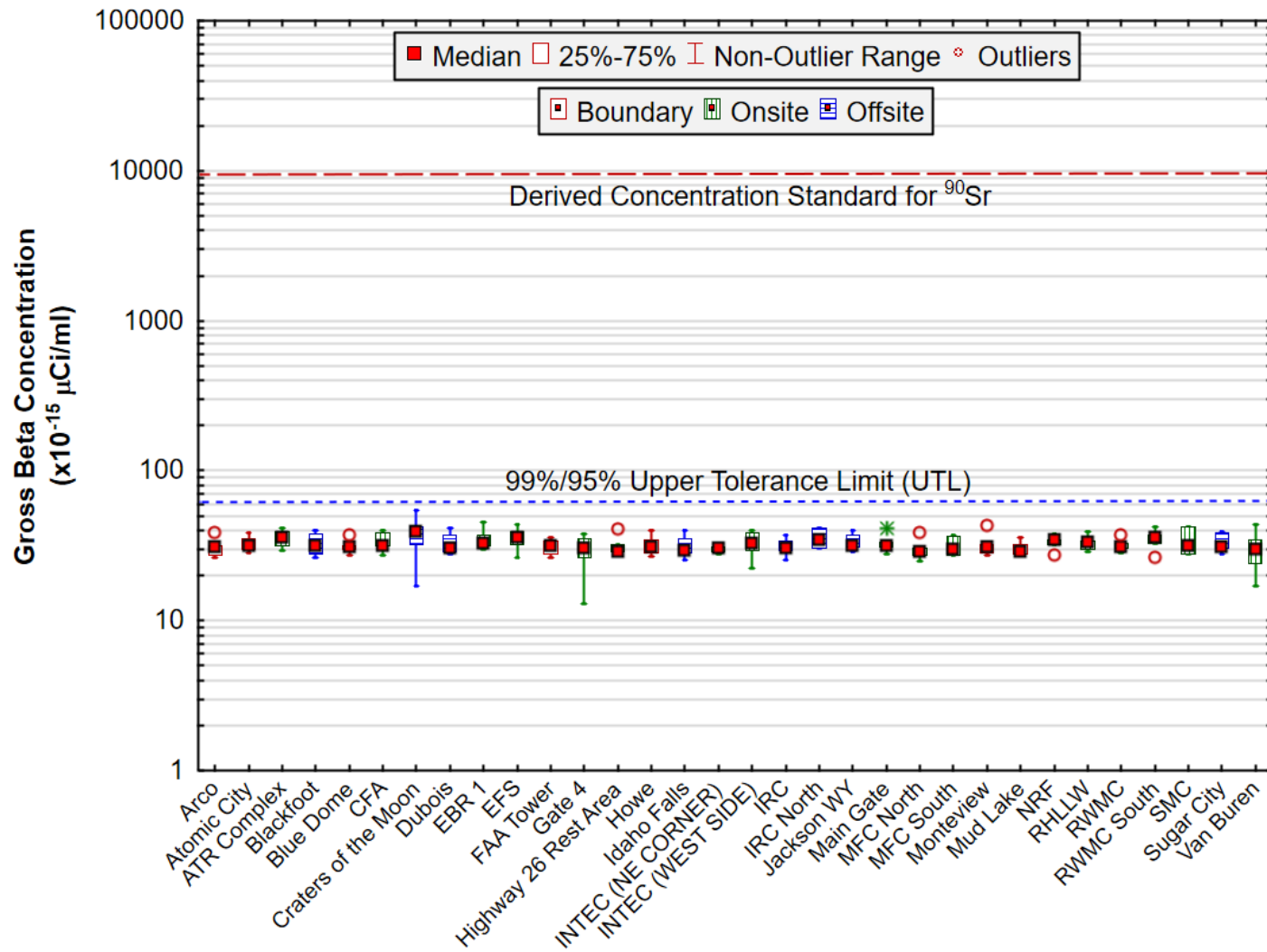


Figure 9. August 2022 gross beta concentrations in air at onsite, boundary, and offsite locations. The DCS is the concentration of ^{90}Sr in air which, if inhaled for a year, would result in a dose of 100 mrem/yr. Because the measurements include naturally occurring radionuclides (such as ^{40}K , ^{228}Ra , and ^{210}Pb) in uncertain proportions, a meaningful DCS cannot be constructed for gross beta concentrations. The DCS for ^{90}Sr is shown because it is the most restrictive human-made beta emitter. The 99%/95% UTL is a value such that 99% of all possible measurements are less than the UTL with 95% confidence.

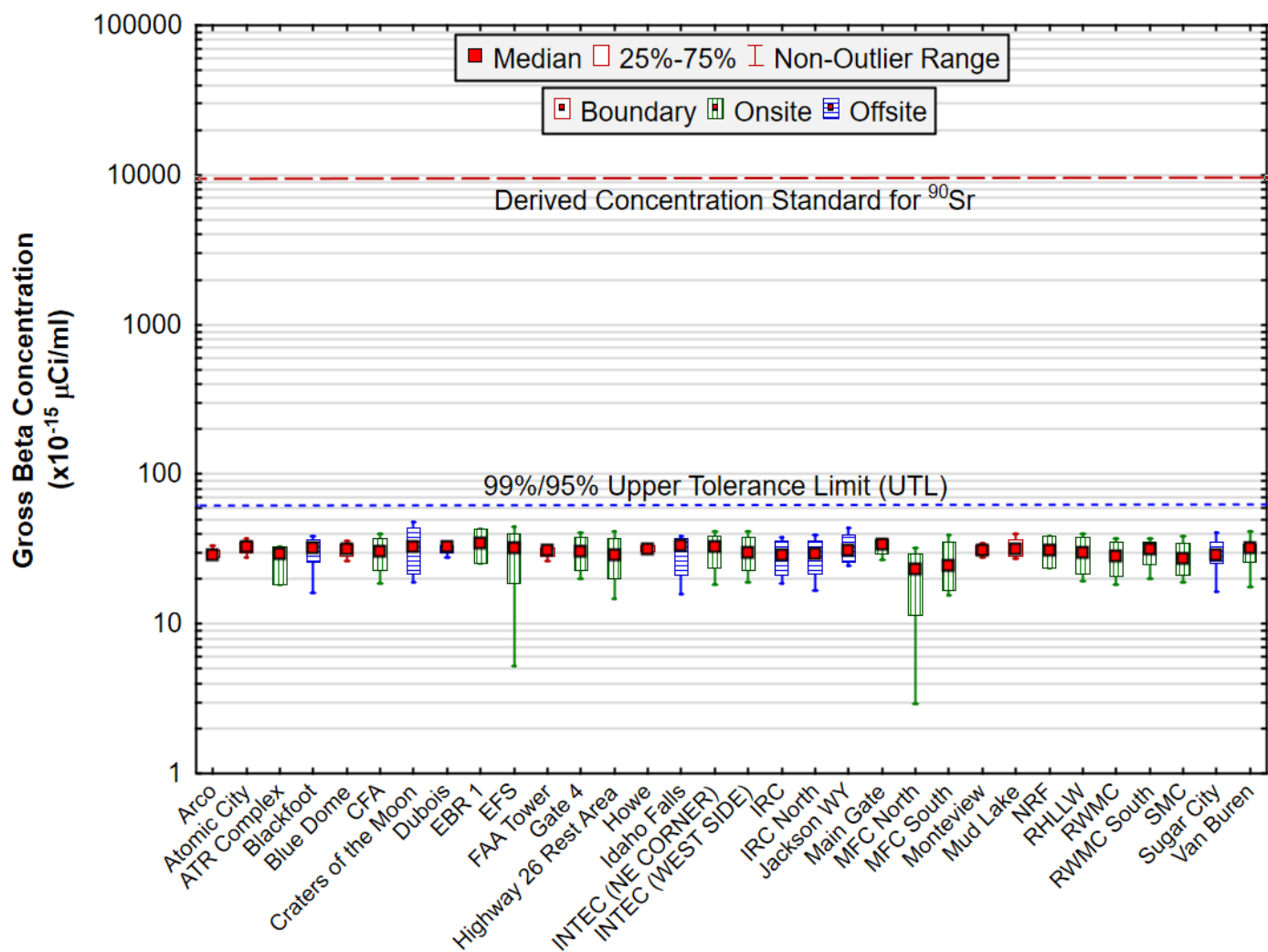


Figure 10. September 2022 gross beta concentrations in air at onsite, boundary, and offsite locations. The DCS is the concentration of ⁹⁰Sr in air which, if inhaled for a year, would result in a dose of 100 mrem/yr. Because the measurements include naturally occurring radionuclides (such as ⁴⁰K, ²²⁸Ra, and ²¹⁰Pb) in uncertain proportions, a meaningful DCS cannot be constructed for gross beta concentrations. The DCS for ⁹⁰Sr is shown because it is the most restrictive human-made beta emitter. The 99%/95% UTL is a value such that 99% of all possible measurements are less than the UTL with 95% confidence.

multiple comparisons were also made using the Kruskal-Wallis analysis of variance by ranks test between gross beta concentrations measured at all locations. No differences were determined (Table D-3).

Iodine-131 was not detected in any of the charcoal cartridges measured during the third quarter. Weekly ^{131}I results for each location are listed in Table C-2.

No ^{137}Cs or other human-made gamma-emitting radionuclides were found in quarterly air composites. Strontium-90 results for seven composite samples were elevated compared to what was expected. Three of the samples (ATR Complex, MFC South, and INTEC [west side] duplicate) had a sufficient amount of sample remaining to allow for re-preparation and analysis. The analysis results for these three samples did not confirm the results greater than 3-sigma. The INTEC (west side) sample had an unexpected ^{90}Sr result that appeared elevated however, the result for the reprepared duplicate sample was less than 3-sigma. Since the ^{90}Sr results for the re-prepared composite samples (which included a duplicate sample) were less than 3-sigma, the ^{90}Sr sample results for Blackfoot, Idaho Falls, Big Lost River Rest Area, and INTEC (west side) are considered invalid. Strontium-90 was not found at any additional locations. The DOE DCS for ^{90}Sr in air is $2.5 \times 10^{-11} \mu\text{Ci/ml}$.

Several quarterly air composite samples had detections of uranium-233/234 and ^{238}U (Table C-3). Insufficient data is available to calculate a UTL requiring more data to be collected. Uranium occurs naturally in various rocks and soil and can be suspended in the air and captured on an air filter. The United Nations Scientific committee on the Effects of Atomic Radiation lists ^{238}U air concentrations in the United States to be between $2.43 \times 10^{-17} \mu\text{Ci/ml}$ to $1.35 \times 10^{-16} \mu\text{Ci/ml}$ (UNSCEAR 2000).

Americium-241, ^{238}Pu and $^{239/240}\text{Pu}$, alpha-emitting radionuclides, were not detected in any composite sample.

3.2 Atmospheric Moisture Sampling

Atmospheric moisture is collected by pulling air through a column of absorbent material (molecular sieve material) 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.

Results were available for twenty-one atmospheric moisture samples collected at the boundary, onsite, and offsite locations during the third quarter of 2022 (Figure 11). Four of the results exceeded the 3s uncertainty level for tritium, with a maximum reported value of $(6.9 \pm 1.2) \times 10^{-13} \mu\text{Ci/mL}_{\text{air}}$ at EFS. The maximum result is below the 99%/95% UTL of $1.6 \times 10^{-12} \mu\text{Ci/mL}_{\text{air}}$. Results are similar between the sampling locations. All samples were significantly below the DOE DCS for tritium in air (as water vapor) of $1.3 \times 10^{-7} \mu\text{Ci/mL}_{\text{air}}$. Results are shown in Table C-4, Appendix C.

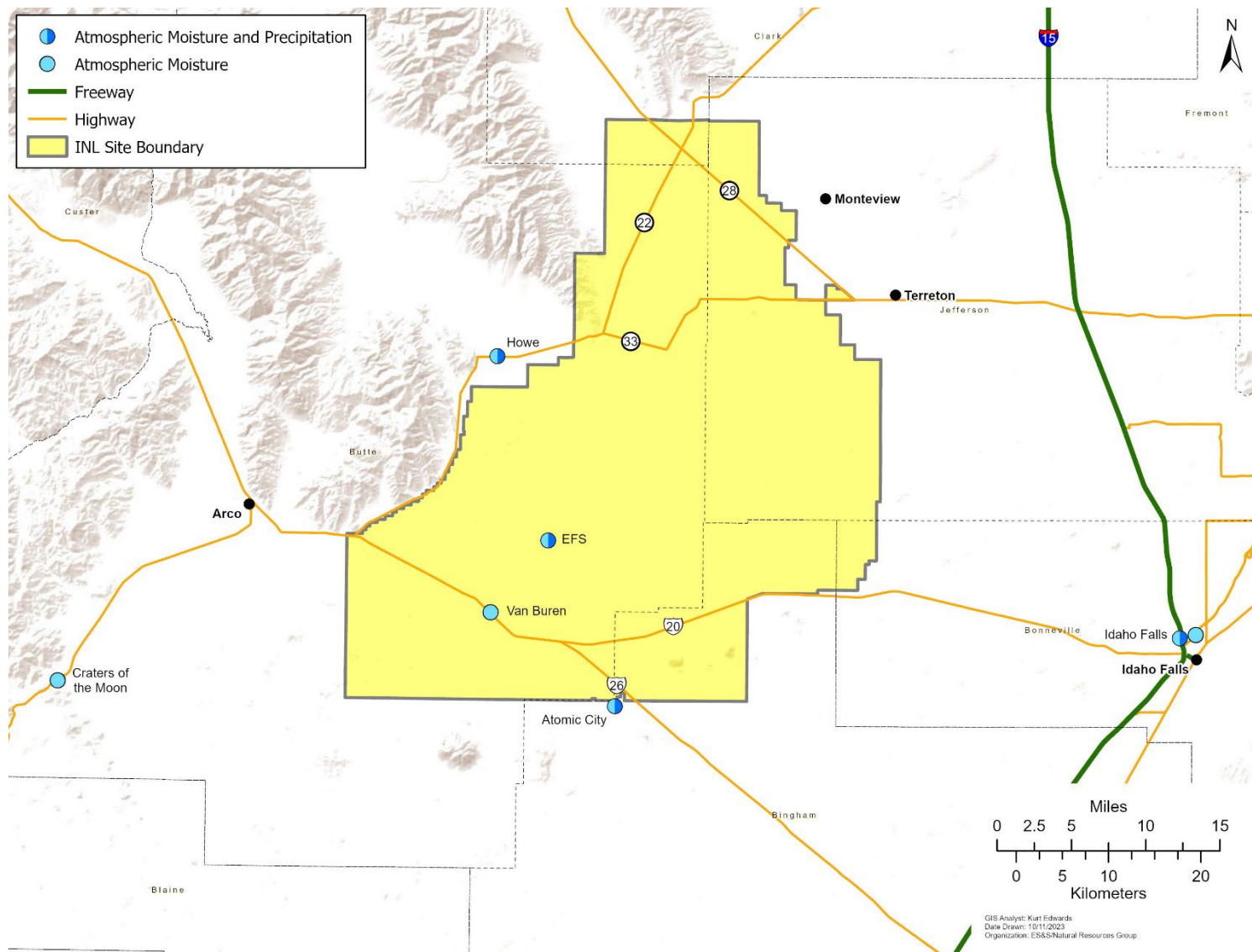


Figure 11. Atmospheric moisture and precipitation monitoring locations.

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4. Precipitation and Water Sampling

4.1 Precipitation Sampling

Precipitation samples are gathered when enough precipitation occurs to allow for the collection of the minimum sample volume of approximately 50 mL. Samples are taken of monthly composites from Idaho Falls, and weekly (when available) from the EFS (onsite) and Atomic City and Howe (boundary) (Figure 11). These are the same locations where atmospheric moisture samples are collected. Precipitation samples are analyzed for tritium. Storm events in the third quarter of 2022 produced sufficient amounts of precipitation to yield 19 samples.

Tritium was measured above the 3s values in 4 of the 19 samples. These results are listed in Table C-5 (Appendix C). 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. Long-term data collected around the globe since 1961 by the International Atomic Energy Agency suggest that tritium levels have steadily decreased since the Nuclear Test Ban Treaty in 1963 and are close to their pre-nuclear test values (Cauquoin et al. 2015) and that there are no longer remnants of fallout from weapons testing. The maximum value in the third quarter was (167 ± 31.9) pCi/L in an EFS sample collected on September 21, 2022. The result does not exceed the 99%/95% UTL of 300 pCi/L. In addition, the result is well below the DCS for tritium in water (2.6×10^6 pCi/L) and within the range of historical values (-173 to 413 pCi/L) measured from 2012-2021.

4.2 Water Sampling

Drinking water is collected in the second and fourth quarters.

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5. Agricultural Products and Wildlife

Another potential pathway for contaminants to reach humans is through the food chain. The INL contractor samples multiple agricultural products and game animals from around the INL Site and southeast Idaho. Specifically, milk, alfalfa, grain, potatoes, lettuce, large game animals, and waterfowl are sampled. Milk is sampled throughout the year. Large game animals are sampled whenever they are killed onsite from vehicle collisions. Alfalfa is collected during the second quarter, lettuce and grain are sampled during the fourth quarter, while potatoes are collected during the third or fourth quarter. Waterfowl are collected in either the third or fourth quarter. See Table A-1, Appendix A, for a sampling schedule. This section discusses results from milk, lettuce, grain, and large-game animal samples available during the third quarter of 2022.

5.1 Milk Sampling

Milk samples were collected weekly at Rigby and Terreton. Monthly samples were collected at four other locations around the INL Site (Figure 12) during the third quarter of 2022. In addition to the regional locations, commercially-available organic milk (from Colorado) was purchased as a control sample each month. All samples were analyzed for gamma emitting radionuclides, with particular emphasis on ^{131}I .

Iodine-131 was not detected in any weekly or monthly samples during the third quarter. Two samples collected in Dietrich on August 2, 2022, and in Terreton on July 6, 2022, indicated that Cesium-137 was present. Further review of the data determined these results were false positives since a confirming peak for ^{137}Cs was not present. No other human-made gamma-emitting radionuclides were found either. Data for ^{131}I and ^{137}Cs in milk samples are listed in Appendix C, Table C-6.

5.2 Lettuce Sampling

Lettuce sampling was completed during the third quarter. A total of nine samples were collected, including a commercially-available sample from a grocery store (Figure 13). Five lettuce samples were collected from portable planters at Atomic City, EFS, the Federal Aviation Administration (FAA) Tower, Howe, and Montevieu. Soil from the vicinity of the sampling locations was used in the planters. This soil was amended with potting soil as a gardener in the region would typically do when they grow their lettuce. In addition to the portable samplers, a sample was obtained from a garden in Ammon, Blackfoot, and Pocatello.

No human-made gamma-emitting radionuclides or ^{90}Sr were found in any of the samples. Data for ^{137}Cs and ^{90}Sr in all lettuce samples taken during the third quarter are listed in Appendix C, Table C-7.

5.3 Grain Sampling

Regionally grown grain (wheat and barley) was collected from ten Southeast Idaho locations and one duplicate from American Falls (Figure 13). In addition, a commercially-available sample was obtained from outside the regional area. All samples were analyzed for gamma-emitting radionuclides and ^{90}Sr .

No human-made gamma-emitting radionuclides were detected in any grain sample. None of the 12 grain samples collected in 2022 contained a detectable concentration of ^{90}Sr . Data for ^{137}Cs and ^{90}Sr in all grain samples taken during 2022 are listed in Appendix C, Table C-8.

5.4 Large Game Animal Sampling

One elk was available for sampling during the third quarter of 2022. Muscle, liver, and thyroid samples were collected from the animal. No human-made gamma-emitting radionuclides were detected in any of the tissues. Results for the tissue samples are listed in Appendix C, Table C-9.

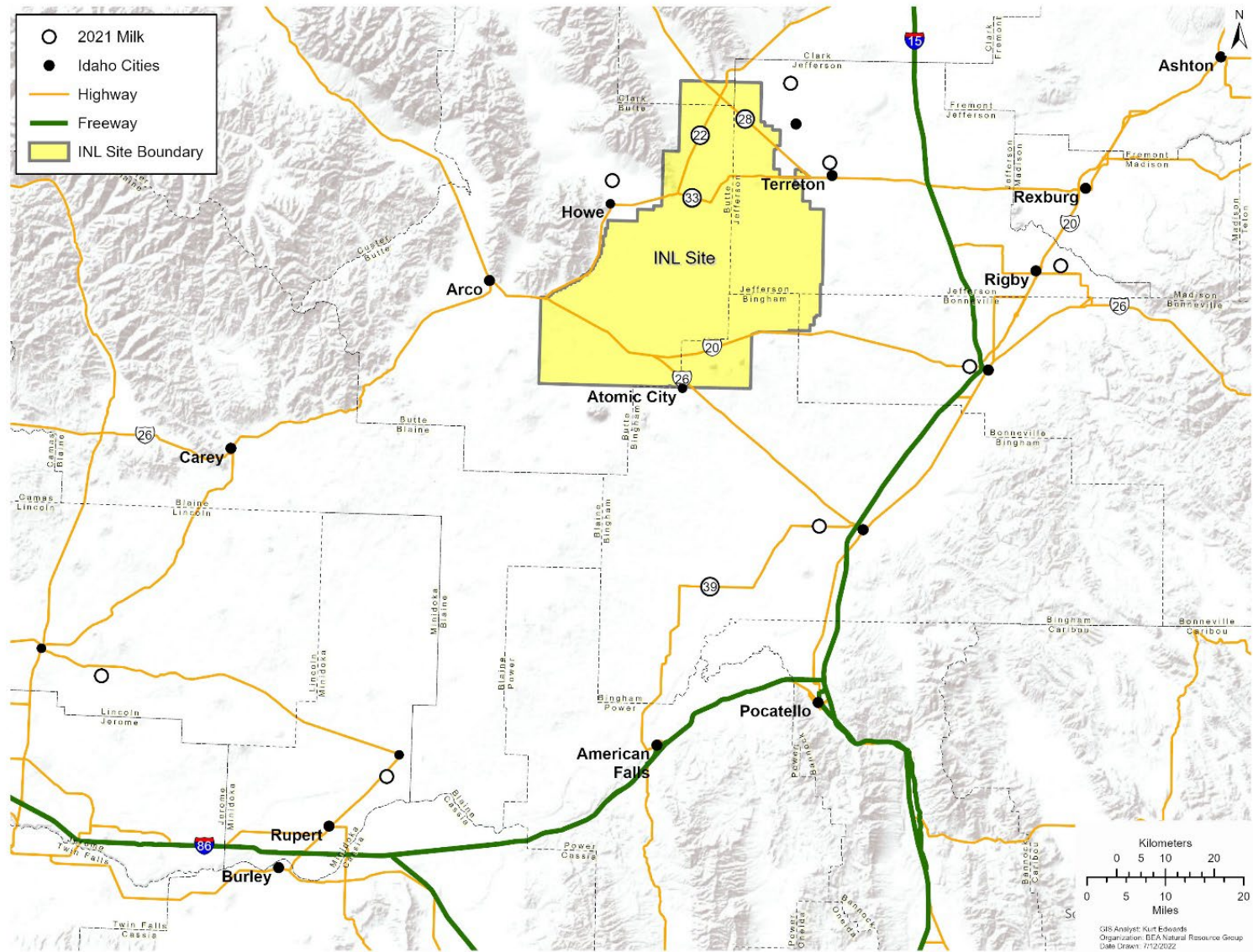


Figure 12. INL contractor milk monitoring locations.

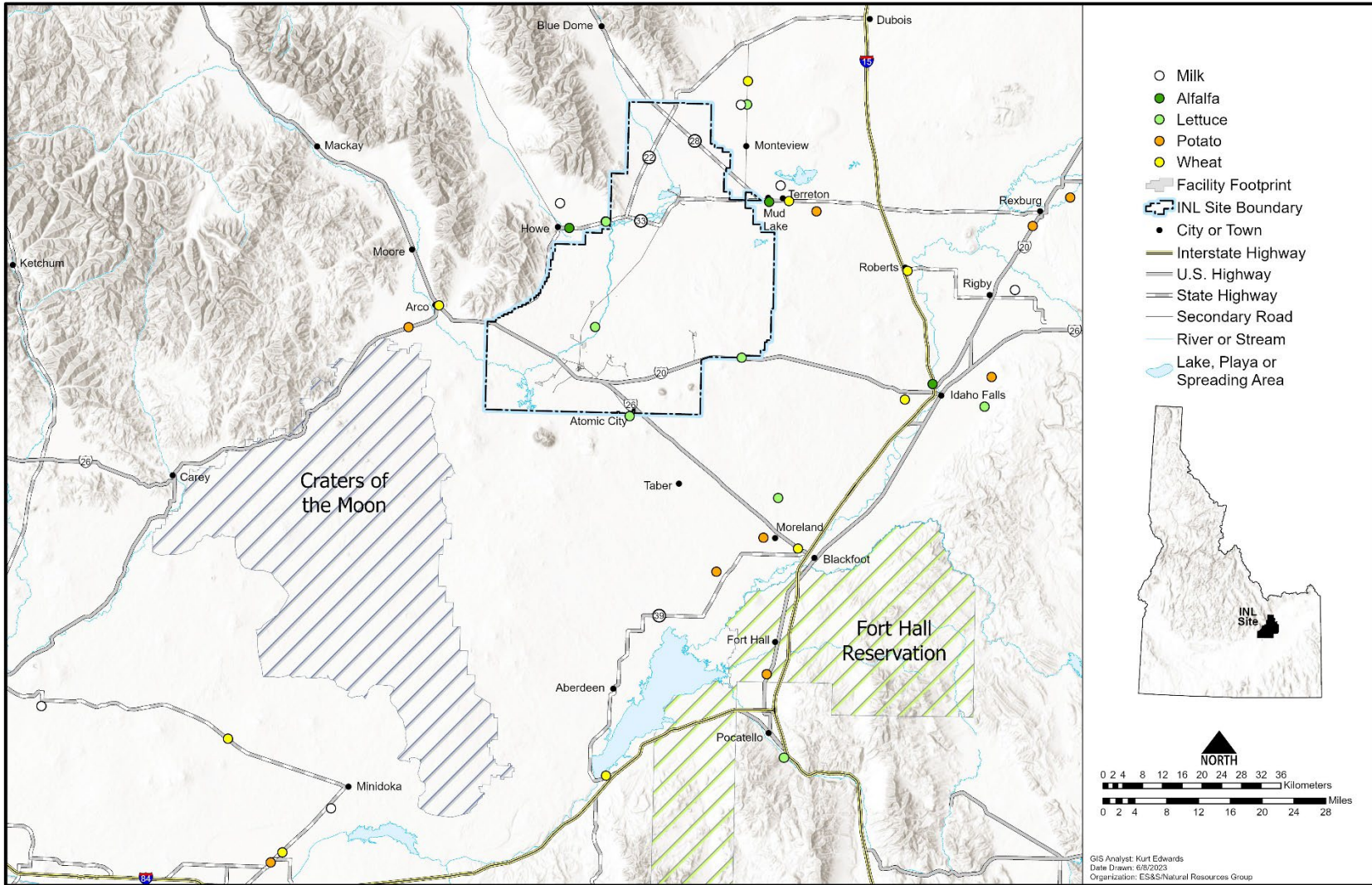


Figure 13. Locations of agricultural products samples collected.

6. External Radiation

Dosimeters are collected in the second and fourth quarters.

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7. Quality Assurance

Quality assurance (QA) consists of planned and systematic activities that give confidence in environmental surveillance program results (NCRP 2012). Environmental surveillance programs should provide data of known quality for the assessments and decisions being made. Quality assurance and quality control programs were maintained by the INL contractor and laboratories performing environmental analyses.

In addition to the QA processes implemented by the INL contractor, the laboratories also utilize trained personnel, procedures, and quality assurance processes to ensure quality data. Data quality reviews were performed by the laboratory and any unusual conditions were addressed and identified in the case narrative prior to reporting to INL.

Field sampling elements, laboratory measurements, and quality control samples were reviewed and evaluated by the INL contractor laboratories. Results are summarized in Section 7.2-7.4. Together this information was used to assess the quality of data provided to INL contractor, and to follow-up and/or conduct a corrective action to improve processes when necessary. This multi-faceted approach to quality assurance and quality control added value to the INL contractor's monitoring program by providing confidence that all laboratory data reported in this report are reliable and of acceptable quality.

The INL contractor Quality Assurance Program consists of five ongoing tasks which measure: (1) method uncertainty; (2) data completeness; (3) data accuracy, using spike, performance evaluation and laboratory control samples; (4) data precision, using split samples, duplicate samples and recounts; and (5) presence of contamination in samples, using blanks.

Sample results are compared to criteria described in the *Environmental Monitoring Services Quality Assurance Project Plan* (INL 2022a).

Assessments of the INL contractor data quality are achieved through analysis of spike, performance evaluation, and duplicate samples; through sample recounts; through analysis of blank samples; and through comparison of sample results to established method quality objectives.

Required Criteria of a Quality Program

- Quality assurance program
- Personnel training and qualification
- Quality improvement process
- Documents and records
- Established work processes
- Established standards for design and verification
- Established procurement requirements
- Inspection and acceptance testing
- Management assessment
- Independent assessment

7.1 Inter-laboratory Program Performance Testing Evaluations

The Mixed Analyte Performance Evaluation Program (MAPEP) is an inter-laboratory program that uses performance testing evaluations to test the ability of the laboratories to correctly analyze radiological, non-radiological, stable organic, and stable inorganic constituents representative of those at DOE sites. MAPEPs series are distributed to labs twice a year (January-March and July-September quarters). The MAPEP results will be reported in second and fourth quarter surveillance reports.

7.2 Blanks

The INL contractor submits field blanks along with the regular samples to test for the introduction of contamination during the process of field collection, laboratory preparation, and laboratory analysis. In the event a data quality or trending issue is identified, a LabWay assessment will be created in order to track resolutions and/or corrective actions.

No concerns were identified in blanks that would indicate data quality or trending issues with sampling, handling, shipment, or analysis by the laboratory contributed to the actual sample results. Third quarter 2022 blanks are discussed below.

ALS

A total of 12 analytes were analyzed by ALS in various media. The media analyzed were air filters.

Idaho State University-Environmental Assessment Laboratory

A total of 62 analytes were analyzed by Idaho State University-Environmental Assessments Laboratory (ISU-EAL) in various media. The media analyzed included: air filters, quarterly air filter composites, and milks.

GEL Laboratories, LLC

A total of 25 analytes were analyzed by GEL in various media. The media analyzed included: air filters, quarterly air filter composites, and atmospheric moisture.

7.3 Duplicate/Replicate Samples

The INL contractor submits field duplicate/replicate samples with the regular samples to assess field collection, homogeneity, reproducibility, laboratory preparation, laboratory analysis, and precision. In the event a data quality or trending issue is identified, a LabWay assessment will be created in order to track resolutions and/or corrective actions.

No concerns were identified in duplicate/replicates that would indicate data quality or trending issues with sampling, handling, shipment, homogeneity, reproducibility, or preparation and analysis by the laboratory contributed to the actual sample results. Third quarter 2022 duplicate/replicate samples are discussed below.

ALS

A total of 24 analytes were analyzed in various media. The media analyzed included air filters.

Idaho State University-Environmental Assessment Laboratory

A total of 65 analytes were analyzed by ISU-EAL in various media. The media analyzed included: air filters, quarterly air filter composites, milks, wheat and potatoes.

GEL Laboratories, LLC

A total of 44 analytes were analyzed by GEL Laboratories in various media. The media analyzed included: air filters, and quarterly air filter composites.

7.4 PE Samples

Performance Evaluation (PE) samples are prepared samples that contain known values of analyte(s) of interest to the specific project, INL Site contractor program, or laboratory. PE samples are used to assess analytical method specific laboratory performance and to check that the laboratory can be within criteria set by the specific project or program for known value sample recovery. The samples are matched as closely as possible to the specific media, analytes of interest, and expected concentration or activity levels appropriate for the specific project, program, or use in decision-making. In some cases, the PE sample matrix may differ from the field samples (i.e., using deionized water with a known amount of analyte to simulate an atmospheric moisture sample). The PE samples are generally submitted with batches of field samples, PE samples are processed simultaneously in the laboratory.

Idaho State University-Environmental Assessment Laboratory

A total of six alfalfa PE analytes were analyzed by ISU-EAL during the third calendar quarter of 2022. The analysis performed included: gamma spectroscopy (^{57}Co , ^{60}Co , ^{134}Cs , ^{137}Cs , ^{54}Mn , and ^{65}Zn). All six analytes received an acceptable performance evaluation.

GEL Laboratories, LLC

A total of two air filter PE analytes were analyzed by GEL during the third calendar quarter of 2022. The analysis performed included: gamma spectroscopy (^{60}Co and ^{137}Cs). Both analytes received an acceptable performance evaluation.

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8. References

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Appendix A

Summary of Sampling Schedule

Table A-1. Summary of the INL contractor's sampling schedule.

Sample Type Analysis	Collection Frequency	Locations		
		Offsite	Boundary	Onsite
Air Sampling				
<i>Low-Volume Air</i>				
Gross Alpha, Gross Beta, ¹³¹ I	weekly	Blackfoot; Craters of the Moon; Dubois; Idaho Falls; IRC, IRC – North; Jackson, WY; Sugar City	Arco, Atomic City, FAA Tower, Howe, Montevue, Mud Lake, Blue Dome	ATR Complex; CFA; EBR-I; EFS; Gate 4; Hwy 26 Rest Area; INTEC (NE corner); INTEC (west side); Main Gate; MFC – North; MFC – South; NRF; RHLLW; RWMC; RWMC – South; SMC; Van Buren
Gamma Spec	quarterly	Blackfoot; Craters of the Moon; Dubois; Idaho Falls; IRC; IRC – North, Jackson, WY; Sugar City	Arco, Atomic City, FAA Tower, Howe, Montevue, Mud Lake, Blue Dome	ATR Complex; CFA; EBR-I; EFS; Gate 4; Hwy 26 Rest Area; INTEC (NE corner); INTEC (west side); Main Gate; MFC – North; MFC – South; NRF; RHLLW; RWMC; RWMC – South; SMC; Van Buren
⁹⁰ Sr, Transuranics	quarterly	Rotating schedule	Rotating schedule	Rotating schedule
<i>Atmospheric Moisture</i>				
Tritium	2 to 13 weeks	Idaho Falls, Craters of the Moon	Atomic City, Howe	EFS, MFC, Van Buren
<i>Precipitation</i>				
Tritium	monthly	Idaho Falls	None	None
Tritium	weekly	None	Atomic City, Howe	EFS
Water Sampling				
<i>Drinking Water</i>				
Gross Alpha, Gross Beta, Tritium	semi-annually	Craters of the Moon, Idaho Falls, Minidoka, Shoshone	Atomic City, Howe, Mud Lake, Rest Area	None

Table A-1. continued.

Sample Type Analysis	Collection Frequency	Locations		
		Offsite	Boundary	Onsite
<i>Surface Water</i>				
Gross Alpha, Gross Beta, Tritium	semi-annually	Buhl, Hagerman Twin Falls	None	Big Lost River (when flowing)
External Radiation Sampling				
<i>OSLDs</i>				
Gamma Radiation	semiannual	Aberdeen; Blackfoot; Craters of the Moon; Dubois; Idaho Falls; Jackson, WY; Minidoka; Sugar City; Roberts	Arco, Atomic City, Birch Creek, Blue Dome, Howe, Monteview, Mud Lake Resident Receptor Location	Advanced Test Reactor Complex; Auxiliary Reactor Area; Central Facilities Area; Experimental Breeder Reactor I; Experimental Field Station; Gate 4; Haul E; Haul W; Highway 20; Highway 22; Highway 28; Highway 33; Idaho Nuclear Technology and Engineering Center; Lincoln Boulevard; Materials and Fuels Complex; Naval Reactors Facility; Power Burst Facility Special Power Excursion Reactor; Radioactive Waste Management Complex; Remote-handled Low-level Waste; Resident Receptor Locations; Rest Area; Test Area North, Loss-of-Fluid Test; Transient Reactor Test; Van Buren
Neutron				
Neutron Radiation	semiannual	Idaho Falls	None	Materials and Fuels Complex; Remote-handled Low-level Waste
Soil Sampling				
<i>Soil</i>				

Table A-1. continued.

Sample Type Analysis	Collection Frequency	Locations		
		Offsite	Boundary	Onsite
Gamma Spec, ⁹⁰ Sr, Transuranics	biennially	Carey, Blackfoot, St. Anthony	Butte City, Montevue, Atomic City, FAA Tower, Howe, Mud Lake (2), Birch Creek, Frenchman's Cabin	RWMC, EFS, Hwy 26 Rest Area
Agricultural Product Sampling				
<i>Milk</i>				
Gamma Spec (¹³¹ I)	weekly	Rigby	Terreton	None
Gamma Spec (¹³¹ I)	monthly	Dietrich, Minidoka, Montevue, Rigby	Howe, Terreton	None
Tritium, ⁹⁰ Sr	Semi-annually	Dietrich, Minidoka, Montevue, Rigby	Howe, Terreton	None
<i>Potatoes</i>				
Gamma Spec, ⁹⁰ Sr	annually	Varies among Blackfoot, Idaho Falls, Rupert, Shelley, Hamer, Driggs, occasional samples across the U.S.	Varies among Arco, Montevue, Mud Lake, Terreton	None
<i>Alfalfa</i>				
Gamma Spec, ⁹⁰ Sr	annually	Idaho Falls	Howe, Mud Lake	None
<i>Grain</i>				
Gamma Spec, ⁹⁰ Sr	annually	Varies among American Falls, Blackfoot, Carey, Idaho Falls, Rupert/Minidoka, Roberts	Varies among Arco, Montevue, Mud Lake, Taber, Terreton	None

Table A-1. continued.

Sample Type Analysis	Collection Frequency	Locations		
		Offsite	Boundary	Onsite
<i>Lettuce</i>				
Gamma Spec, ⁹⁰ Sr	annually	Varies among Blackfoot, Carey, Idaho Falls, Rigby, Sugar City	Varies among Arco, Atomic City, FAA Tower, Howe, Montevue	EFS
Wildlife Sampling				
<i>Big Game</i>				
Gamma Spec	varies	Occasional samples across the U.S.	Public Highways	INL Site roads
<i>Waterfowl</i>				
Gamma Spec, ⁹⁰ Sr, Transuranics	annually	Varies among: Heise, Firth, Fort Hall, Mud Lake, Market Lake, American Falls	None	INL Site wastewater disposal ponds

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Appendix B
Summary of MDCs and DCSs

Table B-1. Summary of approximate MDC for radiological analyses performed during third quarter 2022.

Sample Type	Analysis	Average MDC ^a	DCS ^b
Air (particulate filter) ^e	Gross alpha	2.0×10^{-15} $\mu\text{Ci/mL}$	1.1×10^{-13} $\mu\text{Ci/ml}^c$
	Gross beta	3.5×10^{-15} $\mu\text{Ci/mL}$	9.6×10^{-12} $\mu\text{Ci/ml}^d$
	¹³⁷ Cs	1.6×10^{-16} $\mu\text{Ci/mL}$	3.8×10^{-11} $\mu\text{Ci/ml}$
	⁹⁰ Sr	4.6×10^{-16} $\mu\text{Ci/mL}$	9.6×10^{-12} $\mu\text{Ci/ml}$
	²⁴¹ Am	3.6×10^{-17} $\mu\text{Ci/mL}$	1.3×10^{-13} $\mu\text{Ci/ml}$
	²³⁸ Pu	4.1×10^{-17} $\mu\text{Ci/mL}$	1.2×10^{-13} $\mu\text{Ci/ml}$
	^{239/240} Pu	2.9×10^{-17} $\mu\text{Ci/mL}$	1.1×10^{-13} $\mu\text{Ci/ml}$
Air (charcoal cartridge) ^e	¹³¹ I	2.7×10^{-13} $\mu\text{Ci/mL}$	4.5×10^{-10} $\mu\text{Ci/ml}$
Air (atmospheric moisture)	³ H	87 pCi/L _{water}	2.6×10^6 pCi/L _{water}
		1.4×10^{-11} $\mu\text{Ci/mL}_{\text{air}}$	1.3×10^{-7} $\mu\text{Ci/ml}_{\text{air}}$
Air (precipitation)	³ H	93 pCi/L	2.6×10^6 pCi/L
Milk	¹³¹ I	0.50 pCi/L	1.0×10^4 pCi/L
	¹³⁷ Cs	1.0 pCi/L	2.7×10^4 pCi/L

- 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. MDCs are calculated and reported by the laboratories based on actual INL contractor sample results following analysis.
- DCSs, 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.
- Based on the most restrictive human-made alpha emitter (²³⁹Pu).
- Based on the most restrictive human-made beta emitter (⁹⁰Sr).
- The approximate MDC for air is based on an average filtered air volume (pressure corrected) of 445 m³/week.

Appendix C

Sample Analysis Results

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA				GROSS BETA			
		Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)		Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)	
					Result > 3s				Result > 3s
BOUNDRY	ARCO	07/06/22	0.97 ± 0.19	3.59 ± 0.69	Yes	23.20 ± 0.71	85.84 ± 2.61	Yes	
	07/13/22	0.87 ± 0.23	3.21 ± 0.87	Yes	25.30 ± 0.83	93.61 ± 3.07	Yes		
	07/20/22	1.14 ± 0.22	4.22 ± 0.83	Yes	24.20 ± 0.77	89.54 ± 2.83	Yes		
	07/27/22	2.05 ± 0.28	7.59 ± 1.05	Yes	30.20 ± 0.85	111.74 ± 3.13	Yes		
	08/03/22	2.65 ± 0.29	9.81 ± 1.09	Yes	31.40 ± 0.82	116.18 ± 3.03	Yes		
	08/10/22	1.78 ± 0.27	6.59 ± 0.98	Yes	31.10 ± 0.84	115.07 ± 3.12	Yes		
	08/17/22	1.26 ± 0.23	4.66 ± 0.84	Yes	26.30 ± 0.78	97.31 ± 2.89	Yes		
	08/24/22	2.22 ± 0.30	8.21 ± 1.10	Yes	38.80 ± 0.97	143.56 ± 3.57	Yes		
	08/31/22	1.23 ± 0.22	4.55 ± 0.83	Yes	27.50 ± 0.79	101.75 ± 2.91	Yes		
	09/07/22	4.06 ± 0.37	15.02 ± 1.36	Yes	33.30 ± 0.86	123.21 ± 3.16	Yes		
	09/14/22	4.22 ± 0.39	15.61 ± 1.42	Yes	28.90 ± 0.86	106.93 ± 3.17	Yes		
	09/21/22	1.32 ± 0.23	4.88 ± 0.84	Yes	27.30 ± 0.76	101.01 ± 2.81	Yes		
	09/28/22	1.62 ± 0.23	5.99 ± 0.85	Yes	28.80 ± 0.75	106.56 ± 2.78	Yes		
	ATOMIC CITY	07/06/22	1.23 ± 0.21	4.55 ± 0.78	Yes	26.10 ± 0.76	96.57 ± 2.82	Yes	
		07/13/22	1.31 ± 0.27	4.85 ± 0.98	Yes	27.40 ± 0.87	101.38 ± 3.22	Yes	
		a 07/20/22	0.00 ± 0.00	0.00 ± 0.00	No	0.00 ± 0.00	0.00 ± 0.00	No	
07/27/22		2.10 ± 0.33	7.77 ± 1.20	Yes	32.50 ± 0.98	120.25 ± 3.62	Yes		
08/03/22		2.10 ± 0.28	7.77 ± 1.05	Yes	34.90 ± 0.90	129.13 ± 3.34	Yes		
08/10/22		1.66 ± 0.25	6.14 ± 0.91	Yes	29.80 ± 0.79	110.26 ± 2.92	Yes		
08/17/22		1.34 ± 0.23	4.96 ± 0.85	Yes	28.10 ± 0.80	103.97 ± 2.95	Yes		
08/24/22		2.77 ± 0.31	10.25 ± 1.15	Yes	38.80 ± 0.93	143.56 ± 3.44	Yes		
08/31/22		2.47 ± 0.29	9.14 ± 1.07	Yes	31.80 ± 0.83	117.66 ± 3.07	Yes		
09/07/22		3.87 ± 0.35	14.32 ± 1.31	Yes	36.80 ± 0.87	136.16 ± 3.23	Yes		
09/14/22		3.57 ± 0.33	13.21 ± 1.22	Yes	31.40 ± 0.81	116.18 ± 3.00	Yes		
09/21/22		1.67 ± 0.24	6.18 ± 0.90	Yes	28.00 ± 0.76	103.60 ± 2.81	Yes		
09/28/22		2.15 ± 0.27	7.96 ± 1.00	Yes	34.10 ± 0.83	126.17 ± 3.07	Yes		
BLUE DOME	07/06/22	1.30 ± 0.23	4.81 ± 0.87	Yes	26.30 ± 0.83	97.31 ± 3.07	Yes		
	07/13/22	0.82 ± 0.24	3.04 ± 0.88	Yes	25.90 ± 0.86	95.83 ± 3.17	Yes		
	07/20/22	2.01 ± 0.29	7.44 ± 1.08	Yes	25.80 ± 0.86	95.46 ± 3.17	Yes		
	07/27/22	3.14 ± 0.36	11.62 ± 1.32	Yes	29.00 ± 0.90	107.30 ± 3.33	Yes		
	08/03/22	2.74 ± 0.32	10.14 ± 1.17	Yes	31.20 ± 0.87	115.44 ± 3.21	Yes		
	08/10/22	1.82 ± 0.28	6.73 ± 1.04	Yes	31.80 ± 0.89	117.66 ± 3.31	Yes		
	08/17/22	1.62 ± 0.27	5.99 ± 1.00	Yes	27.50 ± 0.87	101.75 ± 3.21	Yes		
	08/24/22	3.44 ± 0.32	12.73 ± 1.18	Yes	37.30 ± 0.85	138.01 ± 3.16	Yes		
	08/31/22	2.22 ± 0.28	8.21 ± 1.02	Yes	29.80 ± 0.81	110.26 ± 3.00	Yes		
	09/07/22	3.14 ± 0.35	11.62 ± 1.30	Yes	36.10 ± 0.93	133.57 ± 3.44	Yes		
	09/14/22	5.19 ± 0.47	19.20 ± 1.72	Yes	30.50 ± 0.97	112.85 ± 3.60	Yes		
	09/21/22	1.58 ± 0.25	5.85 ± 0.91	Yes	26.50 ± 0.77	98.05 ± 2.83	Yes		
	09/28/22	1.08 ± 0.22	4.00 ± 0.81	Yes	32.40 ± 0.85	119.88 ± 3.15	Yes		
FAA TOWER	07/06/22	1.34 ± 0.22	4.96 ± 0.83	Yes	23.90 ± 0.76	88.43 ± 2.82	Yes		
	07/13/22	0.93 ± 0.23	3.43 ± 0.84	Yes	20.40 ± 0.74	75.48 ± 2.73	Yes		
	07/20/22	1.66 ± 0.26	6.14 ± 0.94	Yes	23.20 ± 0.77	85.84 ± 2.85	Yes		
	07/27/22	1.13 ± 0.24	4.18 ± 0.87	Yes	28.20 ± 0.82	104.34 ± 3.03	Yes		
	08/03/22	1.38 ± 0.24	5.11 ± 0.87	Yes	33.70 ± 0.86	124.69 ± 3.20	Yes		
	08/10/22	1.45 ± 0.25	5.37 ± 0.92	Yes	31.80 ± 0.86	117.66 ± 3.17	Yes		
	08/17/22	1.33 ± 0.24	4.92 ± 0.87	Yes	26.20 ± 0.79	96.94 ± 2.93	Yes		
	08/24/22	1.70 ± 0.26	6.29 ± 0.94	Yes	36.10 ± 0.89	133.57 ± 3.30	Yes		
	08/31/22	2.01 ± 0.27	7.44 ± 1.00	Yes	27.60 ± 0.80	102.12 ± 2.95	Yes		
	09/07/22	3.14 ± 0.34	11.62 ± 1.26	Yes	32.40 ± 0.87	119.88 ± 3.20	Yes		
	09/14/22	3.21 ± 0.33	11.88 ± 1.21	Yes	30.40 ± 0.83	112.48 ± 3.08	Yes		
	09/21/22	1.16 ± 0.23	4.29 ± 0.84	Yes	26.50 ± 0.79	98.05 ± 2.91	Yes		
	09/28/22	1.83 ± 0.26	6.77 ± 0.96	Yes	31.60 ± 0.83	116.92 ± 3.07	Yes		
HOWE	07/06/22	1.17 ± 0.21	4.33 ± 0.78	Yes	25.80 ± 0.78	95.46 ± 2.87	Yes		
	07/13/22	1.05 ± 0.23	3.89 ± 0.85	Yes	21.80 ± 0.75	80.66 ± 2.77	Yes		
	07/20/22	1.23 ± 0.24	4.55 ± 0.90	Yes	25.50 ± 0.83	94.35 ± 3.06	Yes		
	07/27/22	2.19 ± 0.29	8.10 ± 1.09	Yes	31.80 ± 0.88	117.66 ± 3.24	Yes		
	08/03/22	2.83 ± 0.31	10.47 ± 1.14	Yes	34.60 ± 0.87	128.02 ± 3.23	Yes		
	08/10/22	1.36 ± 0.25	5.03 ± 0.93	Yes	28.20 ± 0.84	104.34 ± 3.10	Yes		
	08/17/22	1.75 ± 0.30	6.48 ± 1.10	Yes	26.80 ± 0.92	99.16 ± 3.40	Yes		

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA					GROSS BETA				
		Result ± 1s Uncertainty		Result ± 1s Uncertainty		Result > 3s	Result ± 1s Uncertainty		Result ± 1s Uncertainty		Result > 3s
		(x 10 ⁻¹⁵ µCi/mL)		(x 10 ⁻¹¹ Bq/mL)			(x 10 ⁻¹⁵ µCi/mL)		(x 10 ⁻¹¹ Bq/mL)		
	08/24/22	2.61	± 0.34	9.66	± 1.26	Yes	39.90	± 1.05	147.63	± 3.89	Yes
	08/31/22	1.72	± 0.29	6.36	± 1.07	Yes	31.20	± 0.95	115.44	± 3.50	Yes
	09/07/22	3.82	± 0.37	14.13	± 1.38	Yes	32.50	± 0.88	120.25	± 3.26	Yes
	09/14/22	3.98	± 0.38	14.73	± 1.42	Yes	29.90	± 0.89	110.63	± 3.28	Yes
	09/21/22	1.66	± 0.28	6.14	± 1.04	Yes	30.80	± 0.90	113.96	± 3.34	Yes
	09/28/22	1.83	± 0.27	6.77	± 1.00	Yes	33.60	± 0.87	124.32	± 3.22	Yes
MONTEVIEW	07/06/22	1.32	± 0.22	4.88	± 0.80	Yes	23.60	± 0.73	87.32	± 2.71	Yes
	07/13/22	1.08	± 0.24	4.00	± 0.89	Yes	22.20	± 0.78	82.14	± 2.87	Yes
	07/20/22	1.86	± 0.27	6.88	± 1.00	Yes	25.20	± 0.80	93.24	± 2.97	Yes
	07/27/22	1.31	± 0.25	4.85	± 0.91	Yes	31.60	± 0.86	116.92	± 3.16	Yes
	08/03/22	3.25	± 0.33	12.03	± 1.21	Yes	32.30	± 0.85	119.51	± 3.14	Yes
	08/10/22	1.73	± 0.26	6.40	± 0.95	Yes	31.00	± 0.83	114.70	± 3.06	Yes
	08/17/22	1.45	± 0.24	5.37	± 0.90	Yes	28.20	± 0.82	104.34	± 3.02	Yes
	08/24/22	2.99	± 0.50	11.06	± 1.85	Yes	43.10	± 1.51	159.47	± 5.59	Yes
	08/31/22	1.48	± 0.23	5.48	± 0.85	Yes	27.40	± 0.76	101.38	± 2.80	Yes
	09/07/22	2.61	± 0.32	9.66	± 1.20	Yes	34.80	± 0.91	128.76	± 3.35	Yes
	09/14/22	4.79	± 0.44	17.72	± 1.61	Yes	29.80	± 0.93	110.26	± 3.46	Yes
	09/21/22	1.77	± 0.26	6.55	± 0.97	Yes	27.90	± 0.80	103.23	± 2.95	Yes
	09/28/22	1.36	± 0.23	5.03	± 0.85	Yes	32.40	± 0.83	119.88	± 3.07	Yes
MUD LAKE	07/06/22	1.52	± 0.23	5.62	± 0.83	Yes	23.80	± 0.72	88.06	± 2.68	Yes
	07/13/22	0.92	± 0.22	3.40	± 0.83	Yes	22.80	± 0.76	84.36	± 2.82	Yes
	07/20/22	1.71	± 0.26	6.33	± 0.95	Yes	25.50	± 0.79	94.35	± 2.92	Yes
	07/27/22	1.67	± 0.27	6.18	± 1.00	Yes	33.80	± 0.89	125.06	± 3.30	Yes
	08/03/22	2.37	± 0.28	8.77	± 1.03	Yes	32.40	± 0.82	119.88	± 3.05	Yes
	08/10/22	1.46	± 0.25	5.40	± 0.91	Yes	29.00	± 0.81	107.30	± 3.01	Yes
	08/17/22	1.44	± 0.24	5.33	± 0.87	Yes	27.30	± 0.79	101.01	± 2.92	Yes
	08/24/22	1.97	± 0.26	7.29	± 0.95	Yes	35.60	± 0.85	131.72	± 3.13	Yes
	08/31/22	1.79	± 0.25	6.62	± 0.91	Yes	28.00	± 0.76	103.60	± 2.80	Yes
	09/07/22	2.61	± 0.30	9.66	± 1.09	Yes	39.70	± 0.88	146.89	± 3.24	Yes
	09/14/22	3.26	± 0.38	12.06	± 1.41	Yes	29.70	± 0.96	109.89	± 3.54	Yes
	09/21/22	1.39	± 0.24	5.14	± 0.87	Yes	27.40	± 0.78	101.38	± 2.87	Yes
	09/28/22	1.67	± 0.25	6.18	± 0.93	Yes	33.30	± 0.83	123.21	± 3.07	Yes
OFFSITE											
BLACKFOOT	07/06/22	1.67	± 0.25	6.18	± 0.92	Yes	27.10	± 0.81	100.27	± 2.99	Yes
	07/06/22	1.95	± 0.99	7.22	± 3.66	No	22.70	± 3.10	83.99	± 11.47	Yes
	07/13/22	1.04	± 0.24	3.85	± 0.87	Yes	25.10	± 0.81	92.87	± 2.98	Yes
	07/13/22	2.40	± 1.10	8.88	± 4.07	No	25.80	± 3.40	95.46	± 12.58	Yes
	07/20/22	1.31	± 0.25	4.85	± 0.94	Yes	26.10	± 0.86	96.57	± 3.16	Yes
	07/20/22	1.68	± 0.93	6.22	± 3.44	No	24.30	± 3.10	89.91	± 11.47	Yes
	07/27/22	1.20	± 0.25	4.44	± 0.94	Yes	35.30	± 0.93	130.61	± 3.45	Yes
	07/27/22	2.40	± 1.20	8.88	± 4.44	No	33.20	± 3.90	122.84	± 14.43	Yes
	08/03/22	1.67	± 0.25	6.18	± 0.94	Yes	35.40	± 0.89	130.98	± 3.28	Yes
	08/03/22	1.50	± 1.00	5.55	± 3.70	No	39.80	± 4.50	147.26	± 16.65	Yes
	08/10/22	1.84	± 0.27	6.81	± 0.98	Yes	29.20	± 0.82	108.04	± 3.02	Yes
	08/10/22	1.48	± 0.96	5.48	± 3.55	No	27.70	± 3.40	102.49	± 12.58	Yes
	08/17/22	1.01	± 0.21	3.74	± 0.79	Yes	27.70	± 0.80	102.49	± 2.97	Yes
	08/17/22	1.89	± 0.33	6.99	± 1.20	Yes	26.50	± 0.91	98.05	± 3.36	Yes
	08/24/22	2.33	± 0.29	8.62	± 1.07	Yes	39.90	± 0.93	147.63	± 3.44	Yes
	08/24/22	1.95	± 0.43	7.22	± 1.57	Yes	38.10	± 1.15	140.97	± 4.26	Yes
	08/31/22	1.92	± 0.26	7.10	± 0.98	Yes	31.00	± 0.83	114.70	± 3.07	Yes
	08/31/22	2.19	± 0.36	8.10	± 1.31	Yes	31.60	± 0.96	116.92	± 3.53	Yes
	09/07/22	2.14	± 0.29	7.92	± 1.09	Yes	36.80	± 0.91	136.16	± 3.35	Yes
	09/07/22	3.09	± 0.41	11.43	± 1.53	Yes	38.20	± 1.10	141.34	± 4.07	Yes
	09/14/22	2.78	± 0.32	10.29	± 1.18	Yes	36.20	± 0.92	133.94	± 3.40	Yes
	09/14/22	1.50	± 0.32	5.55	± 1.18	Yes	24.90	± 0.98	92.13	± 3.61	Yes
	09/21/22	1.56	± 0.25	5.77	± 0.92	Yes	26.40	± 0.77	97.68	± 2.86	Yes
	09/21/22	1.49	± 0.29	5.51	± 1.08	Yes	16.20	± 0.71	59.94	± 2.62	Yes
	09/28/22	1.95	± 0.25	7.22	± 0.93	Yes	33.20	± 0.81	122.84	± 3.00	Yes
	09/28/22	2.77	± 0.40	10.25	± 1.46	Yes	30.90	± 1.25	114.33	± 4.63	Yes

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA				GROSS BETA			
		Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)		Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)	
CRATERS OF THE MOON	07/06/22	1.41 ± 0.23	5.22 ± 0.86	Yes	26.60 ± 0.80	98.42 ± 2.97	Yes		
	07/06/22	0.83 ± 0.77	3.07 ± 2.85	No	23.90 ± 3.10	88.43 ± 11.47	Yes		
	07/13/22	1.21 ± 0.24	4.48 ± 0.89	Yes	24.40 ± 0.78	90.28 ± 2.89	Yes		
	07/13/22	1.09 ± 0.95	4.03 ± 3.52	No	30.30 ± 3.70	112.11 ± 13.69	Yes		
	07/20/22	1.30 ± 0.24	4.81 ± 0.89	Yes	27.70 ± 0.83	102.49 ± 3.06	Yes		
	07/20/22	0.93 ± 0.92	3.44 ± 3.40	No	29.00 ± 3.60	107.30 ± 13.32	Yes		
	07/27/22	1.65 ± 0.27	6.11 ± 1.01	Yes	30.90 ± 0.88	114.33 ± 3.24	Yes		
	07/27/22	2.00 ± 1.10	7.40 ± 4.07	No	39.60 ± 4.50	146.52 ± 16.65	Yes		
	08/03/22	3.41 ± 0.36	12.62 ± 1.33	Yes	40.00 ± 1.00	148.00 ± 3.70	Yes		
	08/03/22	3.10 ± 1.30	11.47 ± 4.81	No	36.00 ± 4.30	133.20 ± 15.91	Yes		
	08/10/22	2.23 ± 0.36	8.25 ± 1.31	Yes	41.00 ± 1.14	151.70 ± 4.22	Yes		
	08/10/22	0.91 ± 0.81	3.37 ± 3.00	No	32.10 ± 3.90	118.77 ± 14.43	Yes		
	08/17/22	2.05 ± 0.31	7.59 ± 1.14	Yes	38.20 ± 1.02	141.34 ± 3.77	Yes		
	08/17/22	1.58 ± 0.29	5.85 ± 1.08	Yes	17.00 ± 0.76	62.90 ± 2.81	Yes		
	08/24/22	2.70 ± 0.37	9.99 ± 1.36	Yes	54.70 ± 1.27	202.39 ± 4.70	Yes		
	08/24/22	1.51 ± 0.34	5.59 ± 1.24	Yes	42.50 ± 1.23	157.25 ± 4.55	Yes		
	08/31/22	2.91 ± 0.35	10.77 ± 1.29	Yes	44.00 ± 1.07	162.80 ± 3.96	Yes		
	08/31/22	2.70 ± 0.41	9.99 ± 1.53	Yes	32.20 ± 1.07	119.14 ± 3.96	Yes		
	09/07/22	4.90 ± 0.54	18.13 ± 1.99	Yes	48.10 ± 1.34	177.97 ± 4.96	Yes		
	09/07/22	5.15 ± 0.81	19.06 ± 2.99	Yes	34.50 ± 1.70	127.65 ± 6.29	Yes		
	09/14/22	4.39 ± 0.40	16.24 ± 1.49	Yes	30.40 ± 0.90	112.48 ± 3.34	Yes		
	09/14/22	3.24 ± 0.51	11.99 ± 1.87	Yes	23.40 ± 1.00	86.58 ± 3.70	Yes		
	09/21/22	2.98 ± 0.43	11.03 ± 1.58	Yes	41.00 ± 1.24	151.70 ± 4.59	Yes		
	09/21/22	2.02 ± 0.41	7.47 ± 1.51	Yes	19.10 ± 0.97	70.67 ± 3.58	Yes		
09/28/22	2.35 ± 0.31	8.70 ± 1.15	Yes	47.20 ± 1.06	174.64 ± 3.92	Yes			
09/28/22	1.65 ± 0.32	6.11 ± 1.18	Yes	19.40 ± 0.86	71.78 ± 3.17	Yes			
DUBOIS	07/06/22	0.83 ± 0.17	3.06 ± 0.62	Yes	19.90 ± 0.63	73.63 ± 2.33	Yes		
	07/13/22	0.78 ± 0.23	2.87 ± 0.86	Yes	17.30 ± 0.75	64.01 ± 2.76	Yes		
	07/20/22	1.99 ± 0.30	7.36 ± 1.09	Yes	24.80 ± 0.86	91.76 ± 3.17	Yes		
	07/27/22	2.71 ± 0.33	10.03 ± 1.22	Yes	34.20 ± 0.94	126.54 ± 3.47	Yes		
	08/03/22	2.37 ± 0.30	8.77 ± 1.12	Yes	31.80 ± 0.89	117.66 ± 3.30	Yes		
	a 08/10/22	± 0.00 ± 0.00	No	± 0.00 ± 0.00	No	± 0.00 ± 0.00	No		
	08/17/22	1.32 ± 0.27	4.88 ± 1.00	Yes	27.90 ± 0.93	103.23 ± 3.45	Yes		
	08/24/22	4.05 ± 0.38	14.99 ± 1.40	Yes	41.80 ± 1.00	154.66 ± 3.69	Yes		
	08/31/22	1.93 ± 0.26	7.14 ± 0.97	Yes	29.40 ± 0.81	108.78 ± 2.99	Yes		
	09/07/22	2.61 ± 0.32	9.66 ± 1.20	Yes	33.20 ± 0.89	122.84 ± 3.29	Yes		
	09/14/22	3.63 ± 0.36	13.43 ± 1.32	Yes	33.30 ± 0.89	123.21 ± 3.30	Yes		
	09/21/22	1.40 ± 0.25	5.18 ± 0.93	Yes	27.70 ± 0.83	102.49 ± 3.06	Yes		
	09/28/22	2.13 ± 0.30	7.88 ± 1.11	Yes	31.90 ± 0.92	118.03 ± 3.40	Yes		
	DUBOIS (QA)	07/06/22	1.74 ± 0.25	6.44 ± 0.92	Yes	24.00 ± 0.76	88.80 ± 2.82	Yes	
07/13/22		1.01 ± 0.23	3.74 ± 0.85	Yes	19.40 ± 0.72	71.78 ± 2.68	Yes		
07/20/22		1.49 ± 0.25	5.51 ± 0.93	Yes	24.70 ± 0.80	91.39 ± 2.95	Yes		
07/27/22		1.65 ± 0.26	6.11 ± 0.95	Yes	31.60 ± 0.84	116.92 ± 3.10	Yes		
08/03/22		2.34 ± 0.28	8.66 ± 1.03	Yes	32.00 ± 0.82	118.40 ± 3.05	Yes		
08/10/22		1.66 ± 0.25	6.14 ± 0.92	Yes	28.60 ± 0.79	105.82 ± 2.92	Yes		
08/17/22		1.37 ± 0.24	5.07 ± 0.87	Yes	29.80 ± 0.83	110.26 ± 3.06	Yes		
08/24/22		1.97 ± 0.27	7.29 ± 0.98	Yes	36.60 ± 0.88	135.42 ± 3.26	Yes		
08/31/22		1.30 ± 0.23	4.81 ± 0.84	Yes	26.50 ± 0.77	98.05 ± 2.85	Yes		
09/07/22		2.64 ± 0.32	9.77 ± 1.20	Yes	36.80 ± 0.93	136.16 ± 3.43	Yes		
09/14/22		3.37 ± 0.32	12.47 ± 1.19	Yes	28.80 ± 0.78	106.56 ± 2.90	Yes		
09/21/22		1.52 ± 0.25	5.62 ± 0.93	Yes	25.20 ± 0.78	93.24 ± 2.88	Yes		
09/28/22		1.88 ± 0.27	6.96 ± 1.00	Yes	30.60 ± 0.84	113.22 ± 3.11	Yes		
IDAHO FALLS	07/06/22	1.53 ± 0.24	5.66 ± 0.89	Yes	25.80 ± 0.80	95.46 ± 2.96	Yes		
	07/06/22	1.74 ± 0.94	6.44 ± 3.48	No	26.00 ± 3.40	96.20 ± 12.58	Yes		
	07/13/22	1.09 ± 0.25	4.03 ± 0.94	Yes	23.80 ± 0.83	88.06 ± 3.07	Yes		
	07/13/22	2.80 ± 1.20	10.36 ± 4.44	No	28.20 ± 3.50	104.34 ± 12.95	Yes		
	07/20/22	1.41 ± 0.25	5.22 ± 0.93	Yes	25.20 ± 0.82	93.24 ± 3.03	Yes		
	07/20/22	2.10 ± 1.00	7.77 ± 3.70	No	30.20 ± 3.70	111.74 ± 13.69	Yes		
	07/27/22	1.61 ± 0.27	5.96 ± 0.99	Yes	34.00 ± 0.90	125.80 ± 3.32	Yes		
	07/27/22	2.80 ± 1.30	10.36 ± 4.81	No	37.00 ± 4.30	136.90 ± 15.91	Yes		

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA						GROSS BETA								
		Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result ± 1s Uncertainty					
		(x 10 ⁻¹⁵ µCi/mL)			(x 10 ⁻¹¹ Bq/mL)		Result > 3s	(x 10 ⁻¹⁵ µCi/mL)			(x 10 ⁻¹¹ Bq/mL)		Result > 3s			
a	08/03/22	2.36	±	0.41	8.73	±	1.52	Yes	33.10	±	1.23	122.47	±	4.55	Yes	
	08/03/22	1.54	±	0.95	5.70	±	3.52	No	35.40	±	4.10	130.98	±	15.17	Yes	
	08/10/22		±		0.00	±	0.00	No		±		0.00	±	0.00	No	
	08/10/22	1.74	±	0.97	6.44	±	3.59	No	28.20	±	3.40	104.34	±	12.58	Yes	
	08/17/22	1.85	±	0.30	6.85	±	1.10	Yes	25.50	±	0.88	94.35	±	3.25	Yes	
	08/17/22	1.84	±	0.33	6.81	±	1.20	Yes	28.00	±	1.10	103.60	±	4.07	Yes	
	08/24/22	3.31	±	0.35	12.25	±	1.28	Yes	39.60	±	0.97	146.52	±	3.59	Yes	
	08/24/22	1.33	±	0.30	4.92	±	1.09	Yes	37.00	±	1.35	136.90	±	5.00	Yes	
	08/31/22	1.57	±	0.26	5.81	±	0.96	Yes	29.50	±	0.86	109.15	±	3.17	Yes	
	08/31/22	2.34	±	0.34	8.66	±	1.27	Yes	29.10	±	0.94	107.67	±	3.47	Yes	
	09/07/22	2.73	±	0.34	10.10	±	1.27	Yes	38.90	±	0.99	143.93	±	3.65	Yes	
	09/07/22	3.21	±	0.43	11.88	±	1.58	Yes	38.70	±	1.18	143.19	±	4.37	Yes	
	09/14/22	3.68	±	0.41	13.62	±	1.52	Yes	35.70	±	1.06	132.09	±	3.92	Yes	
	09/14/22	1.36	±	0.32	5.03	±	1.17	Yes	15.90	±	0.81	58.83	±	3.00	Yes	
	09/21/22	1.94	±	0.28	7.18	±	1.05	Yes	26.30	±	0.82	97.31	±	3.03	Yes	
	09/21/22	0.97	±	0.25	3.57	±	0.91	Yes	16.40	±	0.72	60.68	±	2.65	Yes	
	09/28/22	2.19	±	0.29	8.10	±	1.07	Yes	31.90	±	0.87	118.03	±	3.22	Yes	
	09/28/22	2.91	±	0.40	10.77	±	1.49	Yes	34.80	±	1.14	128.76	±	4.22	Yes	
	IRC	07/06/22	1.34	±	0.87	4.96	±	3.22	No	25.60	±	3.20	94.72	±	11.84	Yes
		07/13/22	0.51	±	0.79	1.89	±	2.92	No	30.00	±	3.70	111.00	±	13.69	Yes
07/20/22		1.87	±	0.95	6.92	±	3.52	No	27.10	±	3.30	100.27	±	12.21	Yes	
07/27/22		1.70	±	1.00	6.29	±	3.70	No	31.60	±	3.80	116.92	±	14.06	Yes	
08/03/22		1.34	±	0.95	4.96	±	3.52	No	33.90	±	3.90	125.43	±	14.43	Yes	
08/10/22		0.00	±	0.61	0.00	±	2.26	No	29.20	±	3.50	108.04	±	12.95	Yes	
08/17/22		1.60	±	0.32	5.92	±	1.17	Yes	25.40	±	0.92	93.98	±	3.40	Yes	
08/24/22		1.40	±	0.29	5.18	±	1.07	Yes	37.20	±	1.38	137.64	±	5.11	Yes	
08/31/22		1.75	±	0.33	6.48	±	1.22	Yes	30.30	±	1.23	112.11	±	4.55	Yes	
09/07/22		2.37	±	0.36	8.77	±	1.32	Yes	37.70	±	1.07	139.49	±	3.96	Yes	
09/14/22		2.30	±	0.39	8.51	±	1.43	Yes	23.70	±	0.93	87.69	±	3.42	Yes	
09/21/22		0.99	±	0.26	3.67	±	0.95	Yes	18.50	±	0.76	68.45	±	2.79	Yes	
09/28/22		1.89	±	0.33	6.99	±	1.23	Yes	34.00	±	1.16	125.80	±	4.29	Yes	
IRC NORTH	07/06/22	1.04	±	0.83	3.85	±	3.07	No	27.50	±	3.40	101.75	±	12.58	Yes	
	07/13/22	0.87	±	0.88	3.22	±	3.26	No	28.20	±	3.50	104.34	±	12.95	Yes	
	07/20/22	3.90	±	1.30	14.43	±	4.81	No	19.60	±	2.70	72.52	±	9.99	Yes	
	07/27/22	2.90	±	1.30	10.73	±	4.81	No	35.00	±	4.10	129.50	±	15.17	Yes	
	08/03/22	2.70	±	1.20	9.99	±	4.44	No	41.40	±	4.60	153.18	±	17.02	Yes	
	08/10/22	0.47	±	0.77	1.74	±	2.85	No	34.70	±	4.00	128.39	±	14.80	Yes	
	08/17/22	2.21	±	0.50	8.18	±	1.86	Yes	30.60	±	1.27	113.22	±	4.70	Yes	
	08/24/22		±		0.00	±	0.00	No		±		0.00	±	0.00	No	
	08/31/22		±		0.00	±	0.00	No		±		0.00	±	0.00	No	
	09/07/22	3.26	±	0.51	12.06	±	1.88	Yes	39.10	±	1.32	144.67	±	4.88	Yes	
	09/14/22	1.29	±	0.31	4.77	±	1.14	Yes	26.00	±	1.02	96.20	±	3.77	Yes	
	09/21/22	1.37	±	0.31	5.07	±	1.14	Yes	16.80	±	0.74	62.16	±	2.75	Yes	
	09/28/22	1.66	±	0.41	6.14	±	1.52	Yes	32.90	±	1.06	121.73	±	3.92	Yes	
JACKSON, WY	07/06/22	1.49	±	0.25	5.51	±	0.91	Yes	24.30	±	0.80	89.91	±	2.97	Yes	
	07/13/22	1.10	±	0.26	4.07	±	0.98	Yes	27.30	±	0.90	101.01	±	3.33	Yes	
	07/20/22	1.60	±	0.28	5.92	±	1.04	Yes	27.50	±	0.90	101.75	±	3.34	Yes	
	07/27/22	1.55	±	0.29	5.74	±	1.08	Yes	33.50	±	0.98	123.95	±	3.62	Yes	
	08/03/22	2.27	±	0.30	8.40	±	1.11	Yes	37.00	±	0.95	136.90	±	3.50	Yes	
	08/10/22	1.54	±	0.27	5.70	±	0.98	Yes	30.80	±	0.88	113.96	±	3.26	Yes	
	08/17/22	1.17	±	0.24	4.33	±	0.89	Yes	29.00	±	0.87	107.30	±	3.23	Yes	
	08/24/22	2.95	±	0.34	10.92	±	1.24	Yes	40.00	±	0.99	148.00	±	3.64	Yes	
	08/31/22	2.12	±	0.29	7.84	±	1.08	Yes	31.50	±	0.89	116.55	±	3.30	Yes	
	09/07/22	2.11	±	0.31	7.81	±	1.13	Yes	43.60	±	1.01	161.32	±	3.74	Yes	
	09/14/22	2.51	±	0.31	9.29	±	1.14	Yes	34.50	±	0.91	127.65	±	3.35	Yes	
	09/21/22	1.36	±	0.25	5.03	±	0.91	Yes	24.30	±	0.78	89.91	±	2.88	Yes	
	09/28/22	1.88	±	0.27	6.96	±	1.00	Yes	27.40	±	0.79	101.38	±	2.92	Yes	
SUGAR CITY	07/06/22	1.63	±	0.24	6.03	±	0.89	Yes	27.30	±	0.79	101.01	±	2.93	Yes	
	07/06/22	1.34	±	0.88	4.96	±	3.26	No	33.00	±	3.90	122.10	±	14.43	Yes	
	07/13/22	1.25	±	0.26	4.63	±	0.94	Yes	23.90	±	0.81	88.43	±	3.01	Yes	

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA						GROSS BETA							
		Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result ± 1s Uncertainty				
		(x 10 ⁻¹⁵ μCi/mL)			(x 10 ⁻¹¹ Bq/mL)		Result > 3s	(x 10 ⁻¹⁵ μCi/mL)			(x 10 ⁻¹¹ Bq/mL)		Result > 3s		
	07/13/22	1.03	±	0.95	3.81	±	3.52	No	27.10	±	3.40	100.27	±	12.58	Yes
	07/20/22	1.58	±	0.26	5.85	±	0.97	Yes	26.90	±	0.85	99.53	±	3.13	Yes
	07/20/22	3.40	±	1.30	12.58	±	4.81	No	27.60	±	3.40	102.12	±	12.58	Yes
	07/27/22	1.59	±	0.27	5.88	±	1.01	Yes	33.80	±	0.92	125.06	±	3.40	Yes
	07/27/22	2.20	±	1.10	8.14	±	4.07	No	35.50	±	4.10	131.35	±	15.17	Yes
	08/03/22	2.48	±	0.29	9.18	±	1.09	Yes	34.40	±	0.87	127.28	±	3.23	Yes
	08/03/22	2.20	±	1.10	8.14	±	4.07	No	39.40	±	4.50	145.78	±	16.65	Yes
	08/10/22	1.12	±	0.22	4.14	±	0.83	Yes	30.50	±	0.82	112.85	±	3.04	Yes
	08/10/22	0.11	±	0.62	0.41	±	2.29	No	31.10	±	3.60	115.07	±	13.32	Yes
	08/17/22	1.12	±	0.22	4.14	±	0.82	Yes	30.20	±	0.83	111.74	±	3.08	Yes
	08/17/22	1.62	±	0.30	5.99	±	1.12	Yes	27.90	±	0.96	103.23	±	3.53	Yes
	08/24/22	2.29	±	0.29	8.47	±	1.08	Yes	39.30	±	0.94	145.41	±	3.48	Yes
	08/24/22	1.39	±	0.32	5.14	±	1.17	Yes	38.80	±	1.10	143.56	±	4.07	Yes
a	08/31/22		±		0.00	±	0.00	No		±		110.26	±	0.00	Yes
	08/31/22	1.47	±	0.24	5.44	±	0.90	Yes	29.80	±	0.83	150.96	±	3.07	Yes
	09/07/22	2.05	±	0.29	7.59	±	1.06	Yes	40.80	±	0.94	143.93	±	3.46	Yes
	09/07/22	3.62	±	0.43	13.39	±	1.59	Yes	38.90	±	1.10	119.14	±	4.07	Yes
	09/14/22	3.44	±	0.39	12.73	±	1.44	Yes	32.20	±	0.98	91.76	±	3.64	Yes
	09/14/22	1.74	±	0.33	6.44	±	1.22	Yes	24.80	±	0.92	96.94	±	3.40	Yes
	09/21/22	1.62	±	0.25	5.99	±	0.92	Yes	26.20	±	0.77	60.31	±	2.83	Yes
	09/21/22	0.98	±	0.24	3.62	±	0.90	Yes	16.30	±	0.81	101.01	±	2.98	Yes
	09/28/22	1.63	±	0.25	6.03	±	0.93	Yes	30.70	±	0.81	0.00	±	3.00	No
	09/28/22	1.58	±	0.29	5.85	±	1.09	Yes	27.30	±	0.87	78.81	±	3.23	Yes
ONSITE															
ATR COMPLEX	07/06/22	1.60	±	1.30	5.92	±	4.81	No	21.30	±	3.90	78.81	±	14.43	Yes
	07/13/22	0.07	±	0.71	0.26	±	2.63	No	30.90	±	3.70	114.33	±	13.69	Yes
	07/20/22	1.51	±	0.94	5.59	±	3.48	No	27.30	±	3.40	101.01	±	12.58	Yes
	07/27/22	3.20	±	1.30	11.84	±	4.81	No	37.10	±	4.30	137.27	±	15.91	Yes
	08/03/22	2.90	±	1.20	10.73	±	4.44	No	37.40	±	4.20	138.38	±	15.54	Yes
	08/10/22	2.20	±	1.10	8.14	±	4.07	No	34.20	±	3.90	126.54	±	14.43	Yes
	08/17/22	1.66	±	0.35	6.14	±	1.28	Yes	29.20	±	0.97	108.04	±	3.57	Yes
	08/24/22	2.13	±	0.37	7.88	±	1.36	Yes	41.10	±	1.29	152.07	±	4.77	Yes
a	08/31/22		±		0.00	±	0.00	No		±		0.00	±	0.00	No
a	09/07/22		±		0.00	±	0.00	No		±		0.00	±	0.00	No
	09/14/22	3.42	±	0.47	12.65	±	1.74	Yes	29.50	±	1.10	109.15	±	4.07	Yes
	09/21/22	0.83	±	0.23	3.06	±	0.87	Yes	18.20	±	0.79	67.34	±	2.93	Yes
	09/28/22	2.21	±	0.37	8.18	±	1.36	Yes	32.60	±	1.05	120.62	±	3.89	Yes
CFA	07/06/22	0.36	±	0.62	1.33	±	2.29	No	27.30	±	3.40	101.01	±	12.58	Yes
	07/13/22	0.31	±	0.69	1.15	±	2.55	No	24.50	±	3.10	90.65	±	11.47	Yes
	07/20/22	1.60	±	1.00	5.92	±	3.70	No	32.10	±	3.90	118.77	±	14.43	Yes
	07/27/22	3.00	±	1.30	11.10	±	4.81	No	41.70	±	4.70	154.29	±	17.39	Yes
	08/03/22	2.70	±	1.20	9.99	±	4.44	No	38.90	±	4.40	143.93	±	16.28	Yes
	08/10/22	1.08	±	0.82	4.00	±	3.03	No	31.30	±	3.70	115.81	±	13.69	Yes
	08/17/22	1.58	±	0.32	5.85	±	1.17	Yes	27.40	±	1.11	101.38	±	4.11	Yes
	08/24/22	2.55	±	0.40	9.44	±	1.47	Yes	39.90	±	1.11	147.63	±	4.11	Yes
	08/31/22	2.07	±	0.34	7.66	±	1.24	Yes	31.60	±	0.99	116.92	±	3.65	Yes
	09/07/22	4.20	±	0.50	15.54	±	1.86	Yes	39.90	±	1.17	147.63	±	4.33	Yes
	09/14/22	4.19	±	0.54	15.50	±	1.99	Yes	26.30	±	1.03	97.31	±	3.81	Yes
	09/21/22	1.21	±	0.27	4.48	±	0.99	Yes	18.80	±	0.74	69.56	±	2.72	Yes
	09/28/22	2.35	±	0.34	8.70	±	1.27	Yes	34.20	±	0.97	126.54	±	3.60	Yes
EBR 1	07/06/22	0.99	±	0.71	3.66	±	2.63	No	12.50	±	2.10	46.25	±	7.77	Yes
	07/13/22	0.38	±	0.83	1.41	±	3.07	No	29.50	±	3.70	109.15	±	13.69	Yes
	07/20/22	0.72	±	0.83	2.66	±	3.07	No	24.20	±	3.20	89.54	±	11.84	Yes
	07/27/22	2.50	±	1.20	9.25	±	4.44	No	36.50	±	4.30	135.05	±	15.91	Yes
	08/03/22	0.12	±	0.78	0.44	±	2.89	No	37.10	±	4.30	137.27	±	15.91	Yes
	08/10/22	0.54	±	0.80	2.00	±	2.96	No	32.70	±	3.80	120.99	±	14.06	Yes
	08/17/22	2.28	±	0.44	8.44	±	1.63	Yes	29.90	±	1.18	110.63	±	4.37	Yes
	08/24/22	2.74	±	0.59	10.14	±	2.18	Yes	45.10	±	1.81	166.87	±	6.70	Yes
	08/31/22	3.08	±	0.43	11.40	±	1.59	Yes	31.40	±	0.98	116.18	±	3.61	Yes
	09/07/22	5.16	±	0.55	19.09	±	2.05	Yes	43.30	±	1.35	160.21	±	5.00	Yes

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA						GROSS BETA							
		Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result ± 1s Uncertainty				
		(x 10 ⁻¹⁵ µCi/mL)			(x 10 ⁻¹¹ Bq/mL)			(x 10 ⁻¹⁵ µCi/mL)			(x 10 ⁻¹¹ Bq/mL)				
	09/14/22	3.58	±	0.49	13.25	±	1.82	Yes	25.50	±	1.02	94.35	±	3.77	Yes
	a 09/21/22		±		0.00	±	0.00	No		±		0.00	±	0.00	No
	a 09/28/22		±		0.00	±	0.00	No		±		0.00	±	0.00	No
EFS	07/06/22	1.52	±	0.27	5.62	±	1.01	Yes	35.30	±	1.02	130.61	±	3.77	Yes
	07/06/22	0.87	±	0.72	3.22	±	2.66	No	22.50	±	2.90	83.25	±	10.73	Yes
	07/13/22	1.77	±	0.34	6.55	±	1.27	Yes	36.20	±	1.12	133.94	±	4.14	Yes
	07/13/22	0.84	±	0.76	3.11	±	2.81	No	23.10	±	2.90	85.47	±	10.73	Yes
	07/20/22	1.68	±	0.34	6.22	±	1.26	Yes	27.90	±	1.08	103.23	±	4.00	Yes
	07/20/22	0.51	±	0.95	1.89	±	3.52	No	29.80	±	4.00	110.26	±	14.80	Yes
	07/27/22	3.73	±	0.47	13.80	±	1.75	Yes	43.70	±	1.30	161.69	±	4.81	Yes
	07/27/22	2.50	±	1.10	9.25	±	4.07	No	28.20	±	3.50	104.34	±	12.95	Yes
	08/03/22	3.04	±	0.32	11.25	±	1.19	Yes	36.80	±	0.91	136.16	±	3.35	Yes
	08/03/22	3.20	±	1.20	11.84	±	4.44	No	43.50	±	4.70	160.95	±	17.39	Yes
	08/10/22	2.27	±	0.32	8.40	±	1.20	Yes	43.30	±	1.07	160.21	±	3.96	Yes
	08/10/22	1.33	±	0.92	4.92	±	3.40	No	32.30	±	3.70	119.51	±	13.69	Yes
	08/17/22	2.06	±	0.29	7.62	±	1.08	Yes	35.30	±	0.94	130.61	±	3.47	Yes
	08/17/22	1.42	±	0.30	5.25	±	1.10	Yes	26.20	±	0.90	96.94	±	3.32	Yes
	08/24/22	2.14	±	0.28	7.92	±	1.03	Yes	32.70	±	0.86	120.99	±	3.17	Yes
	08/24/22	1.93	±	0.34	7.14	±	1.25	Yes	38.20	±	1.12	141.34	±	4.14	Yes
	08/31/22	2.20	±	0.30	8.14	±	1.09	Yes	39.40	±	0.97	145.78	±	3.58	Yes
	08/31/22	2.21	±	0.35	8.18	±	1.29	Yes	32.20	±	1.02	119.14	±	3.77	Yes
	09/07/22	3.26	±	0.37	12.06	±	1.35	Yes	34.40	±	0.94	127.28	±	3.47	Yes
	09/07/22	2.69	±	0.43	9.95	±	1.60	Yes	30.40	±	1.14	112.48	±	4.22	Yes
		a 09/14/22		±		0.00	±	0.00	No		±		0.00	±	0.00
	09/14/22	0.37	±	0.18	1.35	±	0.68	No	5.20	±	0.53	19.24	±	1.97	Yes
	09/21/22	2.48	±	0.32	9.18	±	1.17	Yes	40.20	±	0.98	148.74	±	3.63	Yes
	09/21/22	1.00	±	0.24	3.70	±	0.89	Yes	18.50	±	0.80	68.45	±	2.96	Yes
	09/28/22	2.43	±	0.36	8.99	±	1.33	Yes	44.30	±	1.18	163.91	±	4.37	Yes
	a 09/28/22		±		0.00	±	0.00	No		±		0.00	±	0.00	No
GATE4	07/06/22	1.84	±	0.94	6.81	±	3.48	No	26.70	±	3.30	98.79	±	12.21	Yes
	07/13/22	-0.42	±	0.55	-1.55	±	2.04	No	32.10	±	3.80	118.77	±	14.06	Yes
	07/20/22	2.10	±	1.00	7.77	±	3.70	No	27.20	±	3.40	100.64	±	12.58	Yes
	07/27/22	3.40	±	1.30	12.58	±	4.81	No	33.70	±	4.00	124.69	±	14.80	Yes
	08/03/22	2.20	±	1.10	8.14	±	4.07	No	37.60	±	4.30	139.12	±	15.91	Yes
	08/10/22	2.50	±	1.10	9.25	±	4.07	No	35.30	±	4.00	130.61	±	14.80	Yes
	08/17/22	1.10	±	0.25	4.07	±	0.91	Yes	12.90	±	0.62	47.73	±	2.31	Yes
	08/24/22	1.48	±	0.28	5.48	±	1.04	Yes	26.20	±	0.96	96.94	±	3.54	Yes
	08/31/22	2.44	±	0.34	9.03	±	1.26	Yes	30.40	±	0.90	112.48	±	3.32	Yes
	09/07/22	5.38	±	0.53	19.91	±	1.94	Yes	40.50	±	1.37	149.85	±	5.07	Yes
	09/14/22	3.39	±	0.47	12.54	±	1.72	Yes	25.10	±	0.95	92.87	±	3.52	Yes
	09/21/22	1.23	±	0.26	4.55	±	0.97	Yes	20.10	±	0.84	74.37	±	3.09	Yes
	09/28/22	3.32	±	0.40	12.28	±	1.47	Yes	35.80	±	1.19	132.46	±	4.40	Yes
	HIGHWAY 26 REST AREA	07/06/22	0.13	±	0.57	0.48	±	2.11	No	26.90	±	3.30	99.53	±	12.21
07/13/22		1.47	±	0.88	5.44	±	3.26	No	25.00	±	3.20	92.50	±	11.84	Yes
07/20/22		2.00	±	1.00	7.40	±	3.70	No	23.20	±	3.10	85.84	±	11.47	Yes
07/27/22		2.00	±	1.10	7.40	±	4.07	No	42.10	±	4.70	155.77	±	17.39	Yes
08/03/22		3.30	±	1.20	12.21	±	4.44	No	40.90	±	4.50	151.33	±	16.65	Yes
08/10/22		1.77	±	0.93	6.55	±	3.44	No	28.60	±	3.50	105.82	±	12.95	Yes
08/17/22		1.33	±	0.28	4.92	±	1.02	Yes	28.00	±	1.03	103.60	±	3.81	Yes
08/24/22		1.37	±	0.34	5.07	±	1.24	Yes	28.60	±	0.96	105.82	±	3.56	Yes
08/31/22		2.24	±	0.40	8.29	±	1.48	Yes	32.10	±	1.01	118.77	±	3.74	Yes
09/07/22		5.21	±	0.56	19.28	±	2.07	Yes	41.40	±	1.50	153.18	±	5.55	Yes
09/14/22		3.68	±	0.51	13.62	±	1.89	Yes	25.20	±	0.98	93.24	±	3.62	Yes
09/21/22		0.47	±	0.22	1.74	±	0.82	No	14.80	±	0.73	54.76	±	2.70	Yes
09/28/22		2.04	±	0.33	7.55	±	1.23	Yes	32.70	±	1.19	120.99	±	4.40	Yes
INTEC		07/06/22	0.56	±	0.74	2.07	±	2.74	No	22.80	±	3.10	84.36	±	11.47
	07/13/22	1.70	±	1.00	6.29	±	3.70	No	31.10	±	3.80	115.07	±	14.06	Yes
	07/20/22	3.30	±	1.20	12.21	±	4.44	No	28.70	±	3.60	106.19	±	13.32	Yes
	a 07/27/22		±		0.00	±	0.00	No		±		0.00	±	0.00	No
	08/03/22	2.00	±	1.10	7.40	±	4.07	No	31.40	±	4.00	116.18	±	14.80	Yes

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA				GROSS BETA			
		Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)		Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)	
a	08/10/22	2.40 ± 1.10	8.88 ± 4.07	No	30.20 ± 3.60	111.74 ± 13.32	Yes		
	08/17/22	1.14 ± 0.28	4.22 ± 1.03	Yes	27.90 ± 0.91	103.23 ± 3.35	Yes		
	08/24/22	± 0.00 ± 0.00	± 0.00 ± 0.00	No	± 0.00 ± 0.00	± 0.00 ± 0.00	No		
	08/31/22	1.81 ± 0.39	6.70 ± 1.46	Yes	30.70 ± 1.03	113.59 ± 3.81	Yes		
	09/07/22	5.54 ± 0.59	20.50 ± 2.16	Yes	41.50 ± 1.22	153.55 ± 4.51	Yes		
	09/14/22	2.35 ± 0.40	8.70 ± 1.48	Yes	29.20 ± 1.23	108.04 ± 4.55	Yes		
	09/21/22	1.34 ± 0.28	4.96 ± 1.03	Yes	18.20 ± 0.76	67.34 ± 2.79	Yes		
	09/28/22	2.56 ± 0.38	9.47 ± 1.39	Yes	35.90 ± 1.05	132.83 ± 3.89	Yes		
	INTEC (WEST SIDE)	07/06/22	1.61 ± 0.87	5.96 ± 3.22	No	26.10 ± 3.20	96.57 ± 11.84	Yes	
07/13/22		0.93 ± 0.79	3.44 ± 2.92	No	32.40 ± 3.80	119.88 ± 14.06	Yes		
07/20/22		1.90 ± 1.00	7.03 ± 3.70	No	25.90 ± 3.20	95.83 ± 11.84	Yes		
07/27/22		3.00 ± 1.20	11.10 ± 4.44	No	34.50 ± 4.10	127.65 ± 15.17	Yes		
08/03/22		2.80 ± 1.10	10.36 ± 4.07	No	40.20 ± 4.40	148.74 ± 16.28	Yes		
08/10/22		1.72 ± 0.94	6.36 ± 3.48	No	32.70 ± 3.80	120.99 ± 14.06	Yes		
08/17/22		2.33 ± 0.38	8.62 ± 1.39	Yes	22.40 ± 0.91	82.88 ± 3.38	Yes		
08/24/22		2.11 ± 0.35	7.81 ± 1.28	Yes	38.90 ± 1.13	143.93 ± 4.18	Yes		
08/31/22		2.86 ± 0.42	10.58 ± 1.54	Yes	29.40 ± 0.98	108.78 ± 3.63	Yes		
09/07/22		4.91 ± 0.54	18.17 ± 2.00	Yes	41.60 ± 1.36	153.92 ± 5.03	Yes		
09/14/22		2.96 ± 0.49	10.95 ± 1.82	Yes	26.20 ± 1.01	96.94 ± 3.74	Yes		
09/21/22		1.13 ± 0.26	4.18 ± 0.96	Yes	19.10 ± 0.90	70.67 ± 3.31	Yes		
09/28/22		2.66 ± 0.40	9.84 ± 1.48	Yes	33.80 ± 1.05	125.06 ± 3.89	Yes		
INTEC (QA)	07/06/22	1.79 ± 0.95	6.62 ± 3.52	No	29.20 ± 3.50	108.04 ± 12.95	Yes		
	07/13/22	1.84 ± 0.95	6.81 ± 3.52	No	28.50 ± 3.40	105.45 ± 12.58	Yes		
	07/20/22	1.21 ± 0.84	4.48 ± 3.11	No	27.40 ± 3.30	101.38 ± 12.21	Yes		
	07/27/22	2.10 ± 1.10	7.77 ± 4.07	No	39.30 ± 4.50	145.41 ± 16.65	Yes		
	08/03/22	2.13 ± 0.97	7.88 ± 3.59	No	35.30 ± 4.00	130.61 ± 14.80	Yes		
	08/10/22	3.10 ± 1.20	11.47 ± 4.44	No	24.20 ± 3.10	89.54 ± 11.47	Yes		
	08/17/22	1.12 ± 0.27	4.14 ± 0.98	Yes	15.40 ± 0.74	56.98 ± 2.72	Yes		
	08/24/22	1.10 ± 0.24	4.07 ± 0.90	Yes	27.60 ± 0.92	102.12 ± 3.42	Yes		
	08/31/22	2.19 ± 0.37	8.10 ± 1.35	Yes	30.60 ± 1.24	113.22 ± 4.59	Yes		
	09/07/22	4.66 ± 0.53	17.24 ± 1.94	Yes	40.90 ± 1.37	151.33 ± 5.07	Yes		
	09/14/22	3.40 ± 0.46	12.58 ± 1.71	Yes	23.60 ± 1.04	87.32 ± 3.85	Yes		
	09/21/22	1.06 ± 0.25	3.92 ± 0.94	Yes	19.10 ± 0.75	70.67 ± 2.78	Yes		
	09/28/22	2.34 ± 0.38	8.66 ± 1.42	Yes	34.60 ± 1.03	128.02 ± 3.81	Yes		
MAIN GATE	07/06/22	1.22 ± 0.21	4.51 ± 0.78	Yes	25.90 ± 0.77	95.83 ± 2.83	Yes		
	07/13/22	1.53 ± 0.26	5.66 ± 0.97	Yes	24.60 ± 0.80	91.02 ± 2.96	Yes		
	07/20/22	1.87 ± 0.27	6.92 ± 0.99	Yes	25.30 ± 0.80	93.61 ± 2.94	Yes		
	07/27/22	2.16 ± 0.28	7.99 ± 1.05	Yes	30.80 ± 0.84	113.96 ± 3.11	Yes		
	08/03/22	2.31 ± 0.28	8.55 ± 1.04	Yes	33.60 ± 0.85	124.32 ± 3.15	Yes		
	08/10/22	1.18 ± 0.23	4.37 ± 0.85	Yes	31.40 ± 0.84	116.18 ± 3.10	Yes		
	08/17/22	1.30 ± 0.23	4.81 ± 0.85	Yes	27.70 ± 0.80	102.49 ± 2.95	Yes		
	08/24/22	2.49 ± 0.31	9.21 ± 1.14	Yes	41.80 ± 0.99	154.66 ± 3.65	Yes		
	08/31/22	1.51 ± 0.25	5.59 ± 0.91	Yes	30.90 ± 0.84	114.33 ± 3.11	Yes		
	09/07/22	3.29 ± 0.35	12.17 ± 1.28	Yes	35.90 ± 0.91	132.83 ± 3.35	Yes		
	09/14/22	4.08 ± 0.39	15.10 ± 1.44	Yes	32.00 ± 0.91	118.40 ± 3.38	Yes		
	09/21/22	1.77 ± 0.25	6.55 ± 0.91	Yes	26.60 ± 0.74	98.42 ± 2.75	Yes		
	09/28/22	1.59 ± 0.25	5.88 ± 0.93	Yes	36.70 ± 0.89	135.79 ± 3.29	Yes		
MFC NORTH	07/06/22	1.51 ± 0.91	5.59 ± 3.37	No	21.00 ± 3.00	77.70 ± 11.10	Yes		
	07/13/22	3.30 ± 1.20	12.21 ± 4.44	No	23.30 ± 3.10	86.21 ± 11.47	Yes		
	07/20/22	0.48 ± 0.80	1.78 ± 2.96	No	21.50 ± 3.10	79.55 ± 11.47	Yes		
	07/27/22	1.90 ± 1.10	7.03 ± 4.07	No	26.10 ± 3.50	96.57 ± 12.95	Yes		
	08/03/22	2.10 ± 1.00	7.77 ± 3.70	No	30.20 ± 3.70	111.74 ± 13.69	Yes		
	08/10/22	6.20 ± 1.90	22.94 ± 7.03	Yes	29.10 ± 4.00	107.67 ± 14.80	Yes		
	08/17/22	1.92 ± 0.34	7.10 ± 1.25	Yes	25.00 ± 1.01	92.50 ± 3.74	Yes		
	08/24/22	1.47 ± 0.33	5.44 ± 1.20	Yes	38.60 ± 1.12	142.82 ± 4.14	Yes		
	08/31/22	2.31 ± 0.34	8.55 ± 1.26	Yes	27.10 ± 0.99	100.27 ± 3.64	Yes		
	09/07/22	2.69 ± 0.38	9.95 ± 1.39	Yes	26.30 ± 0.89	97.31 ± 3.28	Yes		
	09/14/22	0.54 ± 0.21	2.01 ± 0.76	No	2.90 ± 0.38	10.73 ± 1.41	Yes		
	09/21/22	0.83 ± 0.21	3.06 ± 0.79	Yes	19.80 ± 0.79	73.26 ± 2.92	Yes		
	09/28/22	1.96 ± 0.31	7.25 ± 1.15	Yes	32.10 ± 1.15	118.77 ± 4.26	Yes		

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA						GROSS BETA					
		Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)		Result > 3s	Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)		Result > 3s		
MFC SOUTH	07/06/22	1.65 ± 0.94	6.11 ± 3.48	No	27.40 ± 3.40	101.38 ± 12.58	Yes						
	07/13/22	1.82 ± 0.99	6.73 ± 3.66	No	30.90 ± 3.80	114.33 ± 14.06	Yes						
	07/20/22	-0.21 ± 0.54	-0.78 ± 2.00	No	21.30 ± 2.90	78.81 ± 10.73	Yes						
	07/27/22	1.03 ± 0.91	3.81 ± 3.37	No	42.90 ± 4.80	158.73 ± 17.76	Yes						
	08/03/22	1.80 ± 1.10	6.66 ± 4.07	No	36.60 ± 4.20	135.42 ± 15.54	Yes						
	08/10/22	0.48 ± 0.75	1.78 ± 2.78	No	29.90 ± 3.50	110.63 ± 12.95	Yes						
	08/17/22	1.47 ± 0.29	5.44 ± 1.08	Yes	27.40 ± 0.90	101.38 ± 3.31	Yes						
	08/24/22	1.43 ± 0.30	5.29 ± 1.10	Yes	37.20 ± 1.10	137.64 ± 4.07	Yes						
	08/31/22	1.84 ± 0.32	6.81 ± 1.17	Yes	27.30 ± 1.08	101.01 ± 4.00	Yes						
	09/07/22	4.95 ± 0.50	18.32 ± 1.83	Yes	39.20 ± 1.16	145.04 ± 4.29	Yes						
	09/14/22	1.97 ± 0.32	7.29 ± 1.18	Yes	15.50 ± 0.68	57.35 ± 2.52	Yes						
	09/21/22	0.78 ± 0.29	2.89 ± 1.05	No	17.80 ± 0.84	65.86 ± 3.12	Yes						
	09/28/22	2.67 ± 0.36	9.88 ± 1.34	Yes	30.70 ± 0.97	113.59 ± 3.58	Yes						
NRF	07/06/22	1.86 ± 0.94	6.88 ± 3.48	No	27.70 ± 3.40	102.49 ± 12.58	Yes						
	07/13/22	0.57 ± 0.78	2.11 ± 2.89	No	29.10 ± 3.50	107.67 ± 12.95	Yes						
	07/20/22	1.13 ± 0.76	4.18 ± 2.81	No	19.10 ± 2.60	70.67 ± 9.62	Yes						
	07/27/22	1.05 ± 0.93	3.89 ± 3.44	No	31.40 ± 3.80	116.18 ± 14.06	Yes						
	08/03/22	1.90 ± 1.00	7.03 ± 3.70	No	34.30 ± 4.00	126.91 ± 14.80	Yes						
	08/10/22	-0.03 ± 0.66	-0.11 ± 2.44	No	34.60 ± 4.00	128.02 ± 14.80	Yes						
	08/17/22	1.83 ± 0.37	6.77 ± 1.35	Yes	27.30 ± 0.94	101.01 ± 3.49	Yes						
	08/24/22	1.46 ± 0.30	5.40 ± 1.09	Yes	38.10 ± 1.27	140.97 ± 4.70	Yes						
	08/31/22	2.66 ± 0.39	9.84 ± 1.45	Yes	31.90 ± 1.19	118.03 ± 4.40	Yes						
	09/07/22	4.98 ± 0.52	18.43 ± 1.92	Yes	38.50 ± 1.17	142.45 ± 4.33	Yes						
	09/14/22	3.48 ± 0.49	12.88 ± 1.82	Yes	23.40 ± 1.01	86.58 ± 3.74	Yes						
	a 09/21/22	±	0.00 ± 0.00	No	±	0.00 ± 0.00	No						
	a 09/28/22	±	0.00 ± 0.00	No	±	0.00 ± 0.00	No						
RHLLW	07/06/22	1.57 ± 0.86	5.81 ± 3.18	No	25.40 ± 3.20	93.98 ± 11.84	Yes						
	07/13/22	2.20 ± 1.10	8.14 ± 4.07	No	26.20 ± 3.30	96.94 ± 12.21	Yes						
	07/20/22	0.91 ± 0.79	3.37 ± 2.92	No	21.90 ± 2.90	81.03 ± 10.73	Yes						
	07/27/22	6.60 ± 1.80	24.42 ± 6.66	Yes	35.40 ± 4.20	130.98 ± 15.54	Yes						
	08/03/22	2.30 ± 1.10	8.51 ± 4.07	No	33.20 ± 3.90	122.84 ± 14.43	Yes						
	08/10/22	0.78 ± 0.83	2.89 ± 3.07	No	34.20 ± 3.90	126.54 ± 14.43	Yes						
	08/17/22	1.42 ± 0.30	5.25 ± 1.09	Yes	29.00 ± 0.98	107.30 ± 3.62	Yes						
	08/24/22	0.98 ± 0.32	3.62 ± 1.20	Yes	39.20 ± 1.13	145.04 ± 4.18	Yes						
	08/31/22	2.50 ± 0.41	9.25 ± 1.53	Yes	29.80 ± 1.04	110.26 ± 3.85	Yes						
	09/07/22	4.63 ± 0.53	17.13 ± 1.95	Yes	40.20 ± 1.36	148.74 ± 5.03	Yes						
	09/14/22	3.13 ± 0.46	11.58 ± 1.69	Yes	23.80 ± 1.12	88.06 ± 4.14	Yes						
	09/21/22	1.05 ± 0.27	3.89 ± 1.00	Yes	19.50 ± 0.77	72.15 ± 2.83	Yes						
	09/28/22	2.12 ± 0.33	7.84 ± 1.23	Yes	35.50 ± 1.05	131.35 ± 3.89	Yes						
RWMC	07/06/22	2.80 ± 1.70	10.36 ± 6.29	No	26.80 ± 4.60	99.16 ± 17.02	Yes						
	07/13/22	1.54 ± 0.94	5.70 ± 3.48	No	31.30 ± 3.70	115.81 ± 13.69	Yes						
	07/20/22	2.60 ± 1.10	9.62 ± 4.07	No	32.00 ± 3.80	118.40 ± 14.06	Yes						
	07/27/22	3.40 ± 1.30	12.58 ± 4.81	No	34.80 ± 4.10	128.76 ± 15.17	Yes						
	08/03/22	0.55 ± 0.81	2.04 ± 3.00	No	32.90 ± 3.90	121.73 ± 14.43	Yes						
	08/10/22	1.45 ± 0.91	5.37 ± 3.37	No	30.60 ± 3.60	113.22 ± 13.32	Yes						
	08/17/22	2.35 ± 0.35	8.70 ± 1.29	Yes	28.40 ± 0.99	105.08 ± 3.64	Yes						
	08/24/22	2.03 ± 0.33	7.51 ± 1.21	Yes	37.10 ± 1.20	137.27 ± 4.44	Yes						
	08/31/22	2.25 ± 0.32	8.33 ± 1.17	Yes	30.90 ± 1.03	114.33 ± 3.81	Yes						
	09/07/22	4.04 ± 0.48	14.95 ± 1.79	Yes	37.20 ± 1.16	137.64 ± 4.29	Yes						
	09/14/22	2.60 ± 0.46	9.62 ± 1.71	Yes	23.00 ± 0.95	85.10 ± 3.50	Yes						
	09/21/22	0.66 ± 0.25	2.43 ± 0.93	No	18.40 ± 0.75	68.08 ± 2.76	Yes						
	09/28/22	1.27 ± 0.27	4.70 ± 1.01	Yes	33.70 ± 1.01	124.69 ± 3.74	Yes						
RWMC (QA)	07/06/22	1.50 ± 1.40	5.55 ± 5.18	No	28.30 ± 4.70	104.71 ± 17.39	Yes						
	07/13/22	0.30 ± 0.68	1.11 ± 2.52	No	31.40 ± 3.70	116.18 ± 13.69	Yes						
	07/20/22	1.27 ± 0.96	4.70 ± 3.55	No	28.70 ± 3.50	106.19 ± 12.95	Yes						
	07/27/22	3.10 ± 1.20	11.47 ± 4.44	No	34.80 ± 4.10	128.76 ± 15.17	Yes						
	08/03/22	1.60 ± 1.00	5.92 ± 3.70	No	37.00 ± 4.20	136.90 ± 15.54	Yes						
	08/10/22	2.40 ± 1.00	8.88 ± 3.70	No	27.80 ± 3.40	102.86 ± 12.58	Yes						
	08/17/22	0.96 ± 0.23	3.56 ± 0.85	Yes	15.50 ± 0.69	57.35 ± 2.55	Yes						
	08/24/22	1.88 ± 0.32	6.96 ± 1.18	Yes	24.70 ± 0.91	91.39 ± 3.36	Yes						

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA					GROSS BETA				
		Result ± 1s Uncertainty		Result ± 1s Uncertainty		Result > 3s	Result ± 1s Uncertainty		Result ± 1s Uncertainty		Result > 3s
		(x 10 ⁻¹⁵ µCi/mL)		(x 10 ⁻¹¹ Bq/mL)			(x 10 ⁻¹⁵ µCi/mL)		(x 10 ⁻¹¹ Bq/mL)		
	08/31/22	1.88	± 0.37	6.96	± 1.37	Yes	32.40	± 1.06	119.88	± 3.92	Yes
	09/07/22	3.50	± 0.45	12.95	± 1.66	Yes	39.50	± 1.11	146.15	± 4.11	Yes
	09/14/22	3.50	± 0.48	12.95	± 1.78	Yes	25.20	± 0.99	93.24	± 3.65	Yes
	09/21/22	1.37	± 0.26	5.07	± 0.97	Yes	19.50	± 0.74	72.15	± 2.72	Yes
	09/28/22	2.46	± 0.37	9.10	± 1.37	Yes	34.20	± 1.20	126.54	± 4.44	Yes
RWMC SOUTH	07/06/22	1.68	± 0.97	6.22	± 3.59	No	27.50	± 3.50	101.75	± 12.95	Yes
	07/13/22	1.06	± 0.86	3.92	± 3.18	No	30.80	± 3.80	113.96	± 14.06	Yes
	07/20/22	2.50	± 1.20	9.25	± 4.44	No	31.50	± 3.80	116.55	± 14.06	Yes
	07/27/22	2.80	± 1.20	10.36	± 4.44	No	34.10	± 4.00	126.17	± 14.80	Yes
	08/03/22	-0.19	± 0.71	-0.70	± 2.63	No	36.90	± 4.20	136.53	± 15.54	Yes
	08/10/22	1.96	± 0.94	7.25	± 3.48	No	32.70	± 3.80	120.99	± 14.06	Yes
	08/17/22	1.94	± 0.33	7.18	± 1.23	Yes	26.10	± 1.10	96.57	± 4.07	Yes
	08/24/22	1.73	± 0.32	6.40	± 1.18	Yes	42.50	± 1.27	157.25	± 4.70	Yes
	08/31/22	2.27	± 0.40	8.40	± 1.49	Yes	35.90	± 1.27	132.83	± 4.70	Yes
	09/07/22	4.27	± 0.56	15.80	± 2.06	Yes	37.30	± 1.48	138.01	± 5.48	Yes
	09/14/22	4.00	± 0.58	14.80	± 2.15	Yes	29.60	± 1.22	109.52	± 4.51	Yes
	09/21/22	1.38	± 0.37	5.11	± 1.38	Yes	20.20	± 0.90	74.74	± 3.33	Yes
	09/28/22	1.89	± 0.38	6.99	± 1.39	Yes	33.20	± 1.14	122.84	± 4.22	Yes
SMC	07/06/22	0.79	± 0.75	2.92	± 2.78	No	27.40	± 3.30	101.38	± 12.21	Yes
	07/13/22	0.33	± 0.71	1.22	± 2.63	No	31.80	± 3.80	117.66	± 14.06	Yes
	a 07/20/22		±	0.00	± 0.00	No		±	0.00	± 0.00	No
	a 07/27/22		±	0.00	± 0.00	No		±	0.00	± 0.00	No
	a 08/03/22		±	0.00	± 0.00	No		±	0.00	± 0.00	No
	a 08/10/22		±	0.00	± 0.00	No		±	0.00	± 0.00	No
	08/17/22	1.64	± 0.32	6.07	± 1.18	Yes	27.60	± 0.89	102.12	± 3.29	Yes
	08/24/22	2.38	± 0.36	8.81	± 1.33	Yes	41.90	± 1.14	155.03	± 4.22	Yes
	08/31/22	2.64	± 0.40	9.77	± 1.47	Yes	31.70	± 1.03	117.29	± 3.81	Yes
	09/07/22	5.62	± 0.59	20.79	± 2.20	Yes	38.50	± 1.17	142.45	± 4.33	Yes
	09/14/22	3.09	± 0.44	11.43	± 1.64	Yes	23.80	± 0.93	88.06	± 3.46	Yes
	09/21/22	1.71	± 0.31	6.33	± 1.13	Yes	18.90	± 0.75	69.93	± 2.76	Yes
	09/28/22	2.15	± 0.34	7.96	± 1.26	Yes	30.80	± 0.97	113.96	± 3.60	Yes
VAN BUREN	07/06/22	1.38	± 0.22	5.11	± 0.81	Yes	26.00	± 0.76	96.20	± 2.80	Yes
	07/06/22	1.02	± 0.81	3.77	± 3.00	No	24.00	± 3.10	88.80	± 11.47	Yes
	07/13/22	0.89	± 0.22	3.30	± 0.80	Yes	24.40	± 0.77	90.28	± 2.83	Yes
	07/13/22	1.56	± 0.94	5.77	± 3.48	No	26.50	± 3.30	98.05	± 12.21	Yes
	07/20/22	1.39	± 0.24	5.14	± 0.87	Yes	23.80	± 0.76	88.06	± 2.81	Yes
	07/20/22	2.40	± 1.10	8.88	± 4.07	No	26.60	± 3.40	98.42	± 12.58	Yes
	07/27/22	1.27	± 0.24	4.70	± 0.87	Yes	30.80	± 0.83	113.96	± 3.05	Yes
	07/27/22	2.70	± 1.20	9.99	± 4.44	No	40.20	± 4.60	148.74	± 17.02	Yes
	08/03/22	2.44	± 0.30	9.03	± 1.12	Yes	34.60	± 0.91	128.02	± 3.36	Yes
	08/03/22	1.04	± 0.97	3.85	± 3.59	No	38.90	± 4.50	143.93	± 16.65	Yes
	08/10/22	0.91	± 0.22	3.36	± 0.82	Yes	28.50	± 0.84	105.45	± 3.12	Yes
	08/10/22	0.70	± 0.81	2.59	± 3.00	No	29.20	± 3.60	108.04	± 13.32	Yes
	08/17/22	1.41	± 0.37	5.22	± 1.37	Yes	21.30	± 1.13	78.81	± 4.18	Yes
	08/17/22	0.85	± 0.22	3.16	± 0.81	Yes	17.00	± 0.72	62.90	± 2.68	Yes
	08/24/22	2.54	± 0.37	9.40	± 1.35	Yes	43.50	± 1.18	160.95	± 4.37	Yes
	08/24/22	1.09	± 0.24	4.03	± 0.87	Yes	23.90	± 0.94	88.43	± 3.47	Yes
	08/31/22	1.89	± 0.26	6.99	± 0.97	Yes	30.50	± 0.82	112.85	± 3.05	Yes
	08/31/22	1.59	± 0.31	5.88	± 1.14	Yes	31.50	± 1.24	116.55	± 4.59	Yes
	09/07/22	2.58	± 0.31	9.55	± 1.15	Yes	35.10	± 0.88	129.87	± 3.26	Yes
	09/07/22	5.04	± 0.51	18.65	± 1.88	Yes	41.60	± 1.22	153.92	± 4.51	Yes
	09/14/22	4.35	± 0.37	16.10	± 1.38	Yes	31.40	± 0.84	116.18	± 3.12	Yes
	09/14/22	3.33	± 0.46	12.32	± 1.69	Yes	23.90	± 1.02	88.43	± 3.77	Yes
	09/21/22	1.54	± 0.24	5.70	± 0.88	Yes	28.10	± 0.77	103.97	± 2.84	Yes
	09/21/22	1.33	± 0.27	4.92	± 1.01	Yes	17.80	± 0.85	65.86	± 3.14	Yes
	09/28/22	1.16	± 0.22	4.29	± 0.81	Yes	33.20	± 0.83	122.84	± 3.07	Yes
	09/28/22	2.03	± 0.33	7.51	± 1.22	Yes	33.00	± 0.98	122.10	± 3.64	Yes
VAN BUREN (QA)	07/06/22	0.78	± 0.18	2.90	± 0.67	Yes	25.00	± 0.76	92.50	± 2.79	Yes
	07/13/22	1.08	± 0.23	4.00	± 0.87	Yes	25.90	± 0.80	95.83	± 2.96	Yes
	07/20/22	1.88	± 0.27	6.96	± 0.98	Yes	24.80	± 0.79	91.76	± 2.92	Yes

Table C-1. Weekly gross alpha and gross beta concentrations in air.

Sampling Group and Location	Sampling Date	GROSS ALPHA				GROSS BETA			
		Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)		Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)	
	07/27/22	1.87	± 0.27	6.92	± 1.00	30.50	± 0.83	112.85	± 3.08
	08/03/22	2.50	± 0.31	9.25	± 1.15	35.10	± 0.93	129.87	± 3.45
	08/10/22	1.24	± 0.26	4.59	± 0.94	27.80	± 0.87	102.86	± 3.22
	08/17/22	1.56	± 0.24	5.77	± 0.90	29.30	± 0.81	108.41	± 3.00
	08/24/22	2.34	± 0.30	8.66	± 1.12	42.40	± 1.01	156.88	± 3.74
	08/31/22	2.04	± 0.28	7.55	± 1.02	31.70	± 0.85	117.29	± 3.14
	09/07/22	3.00	± 0.32	11.10	± 1.18	31.90	± 0.82	118.03	± 3.04
	09/14/22	4.63	± 0.40	17.13	± 1.48	33.60	± 0.91	124.32	± 3.35
	09/21/22	1.59	± 0.24	5.88	± 0.89	27.50	± 0.76	101.75	± 2.81
	09/28/22	2.93	± 0.31	10.84	± 1.15	37.50	± 0.90	138.75	± 3.33

a. Invalid sample identified in red.

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result \pm 1s Uncertainty ($\times 10^{-15}$ $\mu\text{Ci/mL}$)			Result \pm 1s Uncertainty ($\times 10^{-11}$ Bq/mL)			Result > 3s
BOUNDARY								
ARCO	07/06/22	0.24	\pm	1.14	0.89	\pm	4.22	No
	07/13/22	0.59	\pm	1.22	2.20	\pm	4.51	No
	07/20/22	0.73	\pm	1.19	2.70	\pm	4.40	No
	07/27/22	1.03	\pm	1.36	3.81	\pm	5.03	No
	08/03/22	1.54	\pm	1.26	5.70	\pm	4.66	No
	08/10/22	3.52	\pm	2.82	13.02	\pm	10.43	No
	08/17/22	1.23	\pm	2.25	4.55	\pm	8.33	No
	08/24/22	1.67	\pm	1.34	6.18	\pm	4.96	No
	08/31/22	-1.10	\pm	1.33	-4.07	\pm	4.92	No
	09/07/22	0.35	\pm	1.52	1.29	\pm	5.62	No
	09/14/22	0.23	\pm	1.39	0.86	\pm	5.14	No
	09/21/22	-2.20	\pm	1.99	-8.14	\pm	7.36	No
	09/28/22	-0.82	\pm	1.26	-3.03	\pm	4.66	No
ATOMIC CITY	07/06/22	0.25	\pm	1.20	0.93	\pm	4.44	No
	07/13/22	0.61	\pm	1.25	2.26	\pm	4.63	No
	a 07/20/22		\pm		0.00	\pm	0.00	No
	07/27/22	1.25	\pm	1.65	4.63	\pm	6.11	No
	08/03/22	1.69	\pm	1.38	6.25	\pm	5.11	No
	08/10/22	3.23	\pm	2.59	11.95	\pm	9.58	No
	08/17/22	1.21	\pm	2.21	4.48	\pm	8.18	No
	08/24/22	1.56	\pm	1.25	5.77	\pm	4.63	No
	08/31/22	-1.07	\pm	1.30	-3.96	\pm	4.81	No
	09/07/22	0.34	\pm	1.47	1.24	\pm	5.44	No
	09/14/22	0.20	\pm	1.20	0.74	\pm	4.44	No
	09/21/22	-2.16	\pm	1.96	-7.99	\pm	7.25	No
	09/28/22	-0.85	\pm	1.31	-3.15	\pm	4.85	No
BLUE DOME	07/06/22	-0.56	\pm	1.31	-2.06	\pm	4.85	No
	07/13/22	1.50	\pm	1.78	5.55	\pm	6.59	No
	07/20/22	-0.06	\pm	1.19	-0.20	\pm	4.40	No
	07/27/22	0.85	\pm	1.31	3.13	\pm	4.85	No
	08/03/22	-2.54	\pm	1.29	-9.40	\pm	4.77	No
	08/10/22	0.66	\pm	1.27	2.44	\pm	4.70	No
	08/17/22	0.77	\pm	2.33	2.85	\pm	8.62	No
	08/24/22	1.42	\pm	1.17	5.25	\pm	4.33	No
	08/31/22	1.46	\pm	1.25	5.40	\pm	4.63	No
	09/07/22	-0.35	\pm	1.39	-1.28	\pm	5.14	No
	09/14/22	1.49	\pm	1.55	5.51	\pm	5.74	No
	09/21/22	-1.14	\pm	1.84	-4.22	\pm	6.81	No
	09/28/22	-0.80	\pm	1.69	-2.96	\pm	6.25	No
FAA TOWER	07/06/22	-0.51	\pm	1.20	-1.89	\pm	4.44	No
	07/13/22	1.36	\pm	1.61	5.03	\pm	5.96	No
	07/20/22	-0.05	\pm	1.07	-0.18	\pm	3.96	No
	07/27/22	0.74	\pm	1.15	2.74	\pm	4.26	No
	08/03/22	-2.40	\pm	1.22	-8.88	\pm	4.51	No
	08/10/22	0.61	\pm	1.18	2.27	\pm	4.37	No
	08/17/22	0.69	\pm	2.08	2.54	\pm	7.70	No
	08/24/22	1.58	\pm	1.30	5.85	\pm	4.81	No
	08/31/22	1.50	\pm	1.29	5.55	\pm	4.77	No
	09/07/22	-0.33	\pm	1.33	-1.22	\pm	4.92	No
	09/14/22	1.16	\pm	1.20	4.29	\pm	4.44	No
	09/21/22	-1.19	\pm	1.93	-4.40	\pm	7.14	No

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result \pm 1s Uncertainty ($\times 10^{-15}$ $\mu\text{Ci/mL}$)		Result \pm 1s Uncertainty ($\times 10^{-11}$ Bq/mL)		Result > 3s
	09/28/22	-0.79	\pm 1.66	-2.92	\pm 6.14	No
HOWE	07/06/22	-0.50	\pm 1.19	-1.86	\pm 4.40	No
	07/13/22	1.34	\pm 1.58	4.96	\pm 5.85	No
	07/20/22	-0.05	\pm 1.14	-0.19	\pm 4.22	No
	07/27/22	0.76	\pm 1.18	2.82	\pm 4.37	No
	08/03/22	-2.38	\pm 1.21	-8.81	\pm 4.48	No
	08/10/22	0.65	\pm 1.24	2.39	\pm 4.59	No
	08/17/22	0.86	\pm 2.60	3.18	\pm 9.62	No
	08/24/22	1.93	\pm 1.60	7.14	\pm 5.92	No
	08/31/22	1.85	\pm 1.59	6.85	\pm 5.88	No
	09/07/22	-0.34	\pm 1.37	-1.25	\pm 5.07	No
	09/14/22	1.30	\pm 1.35	4.81	\pm 5.00	No
	09/21/22	-1.36	\pm 2.20	-5.03	\pm 8.14	No
09/28/22	-0.81	\pm 1.71	-3.00	\pm 6.33	No	
MONTEVIEW	07/06/22	-0.49	\pm 1.14	-1.79	\pm 4.22	No
	07/13/22	1.40	\pm 1.66	5.18	\pm 6.14	No
	07/20/22	-0.05	\pm 1.09	-0.19	\pm 4.03	No
	07/27/22	0.74	\pm 1.14	2.73	\pm 4.22	No
	08/03/22	-2.38	\pm 1.21	-8.81	\pm 4.48	No
	08/10/22	0.59	\pm 1.14	2.18	\pm 4.22	No
	08/17/22	0.68	\pm 2.06	2.53	\pm 7.62	No
	08/24/22	3.38	\pm 2.79	12.51	\pm 10.32	No
	08/31/22	1.38	\pm 1.19	5.11	\pm 4.40	No
	09/07/22	-0.34	\pm 1.37	-1.25	\pm 5.07	No
	09/14/22	1.42	\pm 1.47	5.25	\pm 5.44	No
	09/21/22	-1.18	\pm 1.90	-4.37	\pm 7.03	No
09/28/22	-0.77	\pm 1.63	-2.85	\pm 6.03	No	
MUD LAKE	07/06/22	-0.47	\pm 1.11	-1.74	\pm 4.11	No
	07/13/22	1.34	\pm 1.59	4.96	\pm 5.88	No
	07/20/22	-0.05	\pm 1.05	-0.18	\pm 3.89	No
	07/27/22	0.76	\pm 1.17	2.79	\pm 4.33	No
	08/03/22	-2.26	\pm 1.15	-8.36	\pm 4.26	No
	08/10/22	0.60	\pm 1.16	2.22	\pm 4.29	No
	08/17/22	0.66	\pm 2.00	2.45	\pm 7.40	No
	08/24/22	1.46	\pm 1.20	5.40	\pm 4.44	No
	08/31/22	1.37	\pm 1.17	5.07	\pm 4.33	No
	09/07/22	-0.29	\pm 1.17	-1.08	\pm 4.33	No
	09/14/22	1.49	\pm 1.55	5.51	\pm 5.74	No
	09/21/22	-1.14	\pm 1.85	-4.22	\pm 6.85	No
09/28/22	-0.76	\pm 1.59	-2.81	\pm 5.88	No	
OFFSITE						
BLACKFOOT	07/06/22	0.27	\pm 1.28	1.00	\pm 4.74	No
	07/06/22	-107.34	\pm 152.04	-397.16	\pm 562.55	No
	07/13/22	0.57	\pm 1.16	2.10	\pm 4.29	No
	07/13/22	16.15	\pm 150.26	59.76	\pm 555.96	No
	07/20/22	0.83	\pm 1.36	3.07	\pm 5.03	No
	07/20/22	-2.35	\pm 133.91	-8.69	\pm 495.47	No
	07/27/22	1.09	\pm 1.44	4.03	\pm 5.33	No
	07/27/22	66.92	\pm 126.65	247.62	\pm 468.61	No
	08/03/22	1.63	\pm 1.32	6.03	\pm 4.88	No
	08/03/22	-82.89	\pm 152.05	-306.70	\pm 562.59	No
	08/10/22	3.47	\pm 2.78	12.84	\pm 10.29	No

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result ± 1s Uncertainty (x 10 ⁻¹⁵ µCi/mL)		Result ± 1s Uncertainty (x 10 ⁻¹¹ Bq/mL)		Result > 3s
	08/10/22	-152.30	± 135.54	-563.51	± 501.50	No
	08/17/22	1.24	± 2.27	4.59	± 8.40	No
	08/17/22	-92.19	± 154.99	-341.10	± 573.46	No
	08/24/22	1.53	± 1.23	5.66	± 4.55	No
	08/24/22	-258.30	± 140.79	-955.71	± 520.92	No
	08/31/22	-1.10	± 1.33	-4.07	± 4.92	No
	08/31/22	-74.42	± 111.75	-275.35	± 413.48	No
	09/07/22	0.36	± 1.58	1.34	± 5.85	No
	09/07/22	-164.62	± 136.34	-609.09	± 504.46	No
	09/14/22	0.23	± 1.36	0.84	± 5.03	No
	09/14/22	1.14	± 137.30	4.21	± 508.01	No
	09/21/22	-2.32	± 2.10	-8.58	± 7.77	No
	09/21/22	-65.59	± 134.96	-242.69	± 499.35	No
	09/28/22	-0.83	± 1.28	-3.07	± 4.74	No
	09/28/22	-31.50	± 143.95	-116.56	± 532.62	No
CRATERS OF THE MOON	07/06/22	0.27	± 1.29	1.00	± 4.77	No
	07/06/22	-38.49	± 156.73	-142.42	± 579.90	No
	07/13/22	0.55	± 1.13	2.04	± 4.18	No
	07/13/22	-68.22	± 146.06	-252.42	± 540.42	No
	07/20/22	0.76	± 1.24	2.81	± 4.59	No
	07/20/22	-163.65	± 162.76	-605.51	± 602.21	No
	07/27/22	1.08	± 1.42	4.00	± 5.25	No
	07/27/22	-7.21	± 161.01	-26.66	± 595.74	No
	08/03/22	1.82	± 1.48	6.73	± 5.48	No
	08/03/22	151.92	± 143.73	562.10	± 531.80	No
	08/10/22	4.87	± 3.90	18.02	± 14.43	No
	08/10/22	-0.72	± 103.75	-2.65	± 383.88	No
	08/17/22	1.49	± 2.74	5.51	± 10.14	No
	08/17/22	-15.96	± 146.16	-59.05	± 540.79	No
	08/24/22	2.07	± 1.66	7.66	± 6.14	No
	08/24/22	-138.90	± 170.49	-513.93	± 630.81	No
	08/31/22	-1.32	± 1.59	-4.88	± 5.88	No
	08/31/22	5.02	± 151.11	18.59	± 559.11	No
	09/07/22	0.58	± 2.54	2.15	± 9.40	No
	09/07/22	-57.59	± 335.13	-213.08	± 1239.98	No
	09/14/22	0.25	± 1.47	0.91	± 5.44	No
	09/14/22	-106.80	± 192.38	-395.16	± 711.81	No
	09/21/22	-3.80	± 3.44	-14.06	± 12.73	No
09/21/22	192.09	± 143.40	710.73	± 530.58	No	
09/28/22	-1.03	± 1.60	-3.81	± 5.92	No	
09/28/22	-118.67	± 151.76	-439.08	± 561.51	No	
DUBOIS	07/06/22	-0.42	± 1.00	-1.57	± 3.70	No
	07/13/22	1.51	± 1.79	5.59	± 6.62	No
	07/20/22	-0.06	± 1.22	-0.21	± 4.51	No
	07/27/22	0.81	± 1.26	3.01	± 4.66	No
	08/03/22	-2.63	± 1.33	-9.73	± 4.92	No
	a 08/10/22		±	0.00	± 0.00	No
	08/17/22	0.86	± 2.60	3.19	± 9.62	No
	08/24/22	1.71	± 1.41	6.33	± 5.22	No
	08/31/22	1.47	± 1.26	5.44	± 4.66	No
	09/07/22	-0.34	± 1.38	-1.26	± 5.11	No
	09/14/22	1.22	± 1.27	4.51	± 4.70	No

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result \pm 1s Uncertainty		Result \pm 1s Uncertainty		Result > 3s
		(x 10 ⁻¹⁵ μ Ci/mL)		(x 10 ⁻¹¹ Bq/mL)		
	09/21/22	-1.26	\pm 2.03	-4.66	\pm 7.51	No
	09/28/22	-0.92	\pm 1.93	-3.40	\pm 7.14	No
DUBOS (QA)	07/06/22	-0.51	\pm 1.20	-1.88	\pm 4.44	No
	07/13/22	1.36	\pm 1.61	5.03	\pm 5.96	No
	07/20/22	-0.05	\pm 1.09	-0.19	\pm 4.03	No
	07/27/22	0.71	\pm 1.10	2.63	\pm 4.07	No
	08/03/22	-2.28	\pm 1.16	-8.44	\pm 4.29	No
	08/10/22	0.57	\pm 1.10	2.12	\pm 4.07	No
	08/17/22	0.67	\pm 2.04	2.49	\pm 7.55	No
	08/24/22	1.53	\pm 1.26	5.66	\pm 4.66	No
	08/31/22	1.46	\pm 1.26	5.40	\pm 4.66	No
	09/07/22	-0.34	\pm 1.37	-1.25	\pm 5.07	No
	09/14/22	1.08	\pm 1.13	4.00	\pm 4.18	No
	09/21/22	-1.21	\pm 1.96	-4.48	\pm 7.25	No
09/28/22	-0.82	\pm 1.72	-3.03	\pm 6.36	No	
IDAHO FALLS	07/06/22	-0.53	\pm 1.24	-1.95	\pm 4.59	No
	07/06/22	-62.54	\pm 171.11	-231.41	\pm 633.11	No
	07/13/22	1.50	\pm 1.77	5.55	\pm 6.55	No
	07/13/22	226.81	\pm 155.02	839.20	\pm 573.57	No
	07/20/22	-0.05	\pm 1.13	-0.19	\pm 4.18	No
	07/20/22	-135.36	\pm 115.66	-500.83	\pm 427.94	No
	07/27/22	0.76	\pm 1.18	2.82	\pm 4.37	No
	07/27/22	-141.54	\pm 149.63	-523.70	\pm 553.63	No
	08/03/22	-4.36	\pm 2.21	-16.13	\pm 8.18	No
	08/03/22	-158.67	\pm 119.85	-587.08	\pm 443.45	No
	a 08/10/22		\pm	0.00	\pm 0.00	No
	08/10/22	-14.08	\pm 143.31	-52.11	\pm 530.25	No
	08/17/22	0.82	\pm 2.48	3.04	\pm 9.18	No
	08/17/22	-302.94	\pm 165.40	-1120.88	\pm 611.98	No
	08/24/22	1.70	\pm 1.40	6.29	\pm 5.18	No
	08/24/22	-20.48	\pm 113.56	-75.78	\pm 420.17	No
	08/31/22	1.63	\pm 1.40	6.03	\pm 5.18	No
	08/31/22	-96.32	\pm 120.49	-356.37	\pm 445.81	No
	09/07/22	-0.36	\pm 1.47	-1.34	\pm 5.44	No
	09/07/22	2.01	\pm 120.64	7.45	\pm 446.37	No
	09/14/22	1.55	\pm 1.61	5.74	\pm 5.96	No
	09/14/22	52.59	\pm 143.18	194.57	\pm 529.77	No
	09/21/22	-1.28	\pm 2.07	-4.74	\pm 7.66	No
09/21/22	-108.41	\pm 130.50	-401.12	\pm 482.85	No	
09/28/22	-0.85	\pm 1.78	-3.15	\pm 6.59	No	
09/28/22	-121.33	\pm 128.41	-448.92	\pm 475.12	No	
IRC	07/06/22	-36.10	\pm 151.48	-133.58	\pm 560.48	No
	07/13/22	-99.31	\pm 150.22	-367.44	\pm 555.81	No
	07/20/22	-0.37	\pm 134.42	-1.38	\pm 497.35	No
	07/27/22	-55.59	\pm 129.69	-205.68	\pm 479.85	No
	08/03/22	-27.24	\pm 131.49	-100.80	\pm 486.51	No
	08/10/22	2.47	\pm 101.19	9.15	\pm 374.40	No
	08/17/22	-124.50	\pm 162.24	-460.65	\pm 600.29	No
	08/24/22	-120.06	\pm 146.01	-444.22	\pm 540.24	No
	08/31/22	69.80	\pm 143.35	258.27	\pm 530.40	No
	09/07/22	38.11	\pm 118.03	141.01	\pm 436.71	No
	09/14/22	-90.56	\pm 157.78	-335.08	\pm 583.79	No

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result \pm 1s Uncertainty		Result \pm 1s Uncertainty		Result > 3s
		(x 10 ⁻¹⁵ μ Ci/mL)		(x 10 ⁻¹¹ Bq/mL)		
	09/21/22	96.69	\pm 130.93	357.77	\pm 484.44	No
	09/28/22	-149.59	\pm 141.92	-553.48	\pm 525.10	No
IRC NORTH	07/06/22	1.85	\pm 130.28	6.83	\pm 482.04	No
	07/13/22	-5.92	\pm 131.69	-21.90	\pm 487.25	No
	07/20/22	32.36	\pm 136.86	119.75	\pm 506.38	No
	07/27/22	-86.85	\pm 150.93	-321.33	\pm 558.44	No
	08/03/22	-20.92	\pm 147.17	-77.40	\pm 544.53	No
	08/10/22	83.88	\pm 135.27	310.37	\pm 500.50	No
	08/17/22	138.63	\pm 198.49	512.93	\pm 734.41	No
	a 08/24/22		\pm	0.00	\pm 0.00	No
	a 08/31/22		\pm	0.00	\pm 0.00	No
	09/07/22	-195.86	\pm 185.71	-724.68	\pm 687.13	No
	09/14/22	-109.97	\pm 125.17	-406.89	\pm 463.13	No
	09/21/22	-0.76	\pm 115.59	-2.83	\pm 427.68	No
09/28/22	145.42	\pm 152.28	538.05	\pm 563.44	No	
JACKSON, WY	07/06/22	0.29	\pm 1.37	1.07	\pm 5.07	No
	07/13/22	0.65	\pm 1.33	2.40	\pm 4.92	No
	07/20/22	0.88	\pm 1.43	3.24	\pm 5.29	No
	07/27/22	1.22	\pm 1.61	4.51	\pm 5.96	No
	08/03/22	1.75	\pm 1.43	6.48	\pm 5.29	No
	08/10/22	3.82	\pm 3.06	14.13	\pm 11.32	No
	08/17/22	1.38	\pm 2.53	5.11	\pm 9.36	No
	08/24/22	1.68	\pm 1.35	6.22	\pm 5.00	No
	08/31/22	-1.23	\pm 1.48	-4.55	\pm 5.48	No
	09/07/22	0.38	\pm 1.68	1.42	\pm 6.22	No
	09/14/22	0.23	\pm 1.37	0.84	\pm 5.07	No
	09/21/22	-2.47	\pm 2.24	-9.14	\pm 8.29	No
09/28/22	-0.92	\pm 1.42	-3.40	\pm 5.25	No	
SUGAR CITY	07/06/22	-0.50	\pm 1.18	-1.84	\pm 4.37	No
	07/06/22	-109.83	\pm 129.72	-406.37	\pm 479.96	No
	07/13/22	1.45	\pm 1.71	5.37	\pm 6.33	No
	07/13/22	-49.59	\pm 124.76	-183.47	\pm 461.61	No
	07/20/22	-0.05	\pm 1.14	-0.20	\pm 4.22	No
	07/20/22	-169.43	\pm 161.44	-626.89	\pm 597.33	No
	07/27/22	0.80	\pm 1.24	2.95	\pm 4.59	No
	07/27/22	-109.82	\pm 154.68	-406.33	\pm 572.32	No
	08/03/22	-2.40	\pm 1.22	-8.88	\pm 4.51	No
	08/03/22	-84.60	\pm 152.42	-313.01	\pm 563.95	No
	08/10/22	0.59	\pm 1.14	2.19	\pm 4.22	No
	08/10/22	-85.21	\pm 144.19	-315.28	\pm 533.50	No
	08/17/22	0.68	\pm 2.04	2.50	\pm 7.55	No
	08/17/22	-80.95	\pm 134.22	-299.52	\pm 496.61	No
	08/24/22	1.62	\pm 1.34	5.99	\pm 4.96	No
	08/24/22	-92.34	\pm 130.72	-341.64	\pm 483.66	No
	08/31/22	1.53	\pm 1.32	5.66	\pm 4.88	No
	a 08/31/22		\pm	0.00	\pm 0.00	No
	09/07/22	-0.32	\pm 1.29	-1.18	\pm 4.77	No
	09/07/22	2.72	\pm 147.49	10.07	\pm 545.71	No
	09/14/22	1.48	\pm 1.53	5.48	\pm 5.66	No
	09/14/22	-111.19	\pm 138.01	-411.40	\pm 510.64	No
09/21/22	-1.15	\pm 1.86	-4.26	\pm 6.88	No	
09/21/22	-81.44	\pm 136.16	-301.34	\pm 503.79	No	

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result \pm 1s Uncertainty		Result \pm 1s Uncertainty		Result > 3s
		(x 10 ⁻¹⁵ μ Ci/mL)		(x 10 ⁻¹¹ Bq/mL)		
	09/28/22	-0.77	\pm 1.62	-2.85	\pm 5.99	No
	09/28/22	108.57	\pm 126.94	401.71	\pm 469.68	No
ONSITE						
ATR COMPLEX	07/06/22	191.15	\pm 238.81	707.26	\pm 883.60	No
	07/13/22	-1.81	\pm 113.26	-6.70	\pm 419.06	No
	07/20/22	-98.90	\pm 136.82	-365.92	\pm 506.23	No
	07/27/22	-83.00	\pm 155.21	-307.11	\pm 574.28	No
	08/03/22	-55.93	\pm 140.27	-206.95	\pm 519.00	No
	08/10/22	-5.65	\pm 126.72	-20.91	\pm 468.86	No
	08/17/22	-151.81	\pm 152.49	-561.70	\pm 564.21	No
	08/24/22	21.33	\pm 117.05	78.90	\pm 433.09	No
	a 08/31/22		\pm	0.00	\pm 0.00	No
	a 09/07/22		\pm	0.00	\pm 0.00	No
	09/14/22	-54.07	\pm 166.66	-200.07	\pm 616.64	No
	09/21/22	-5.52	\pm 143.33	-20.42	\pm 530.32	No
	09/28/22	-169.21	\pm 171.06	-626.08	\pm 632.92	No
CFA	07/06/22	-75.95	\pm 139.85	-281.02	\pm 517.45	No
	07/13/22	67.10	\pm 128.93	248.28	\pm 477.04	No
	07/20/22	-100.72	\pm 171.96	-372.66	\pm 636.25	No
	07/27/22	160.85	\pm 139.53	595.15	\pm 516.26	No
	08/03/22	-15.88	\pm 141.31	-58.77	\pm 522.85	No
	08/10/22	-51.58	\pm 151.52	-190.86	\pm 560.62	No
	08/17/22	24.23	\pm 119.13	89.64	\pm 440.78	No
	08/24/22	21.16	\pm 110.24	78.31	\pm 407.89	No
	08/31/22	33.09	\pm 124.06	122.43	\pm 459.02	No
	09/07/22	-86.10	\pm 155.56	-318.57	\pm 575.57	No
	09/14/22	-39.40	\pm 177.59	-145.79	\pm 657.08	No
	09/21/22	-57.62	\pm 118.58	-213.19	\pm 438.75	No
	09/28/22	-122.82	\pm 131.89	-454.43	\pm 487.99	No
EBR-I	07/06/22	-4.87	\pm 121.31	-18.01	\pm 448.85	No
	07/13/22	-12.51	\pm 180.97	-46.27	\pm 669.59	No
	07/20/22	-143.30	\pm 136.06	-530.21	\pm 503.42	No
	07/27/22	-137.10	\pm 160.68	-507.27	\pm 594.52	No
	08/03/22	48.58	\pm 156.17	179.75	\pm 577.83	No
	08/10/22	-7.01	\pm 129.27	-25.95	\pm 478.30	No
	08/17/22	-72.49	\pm 188.10	-268.22	\pm 695.97	No
	08/24/22	156.82	\pm 262.32	580.23	\pm 970.58	No
	08/31/22	-117.59	\pm 148.29	-435.08	\pm 548.67	No
	09/07/22	1.63	\pm 154.44	6.01	\pm 571.43	No
	09/14/22	-103.13	\pm 177.85	-381.58	\pm 658.05	No
	a 09/21/22		\pm	0.00	\pm 0.00	No
	a 09/28/22		\pm	0.00	\pm 0.00	No
EFS	07/06/22	0.33	\pm 1.59	1.24	\pm 5.88	No
	07/06/22	-196.61	\pm 126.81	-727.46	\pm 469.20	No
	07/13/22	0.78	\pm 1.60	2.88	\pm 5.92	No
	07/13/22	-87.06	\pm 128.96	-322.11	\pm 477.15	No
	07/20/22	1.14	\pm 1.87	4.22	\pm 6.92	No
	07/20/22	52.99	\pm 209.44	196.07	\pm 774.93	No
	07/27/22	1.64	\pm 2.17	6.07	\pm 8.03	No
	07/27/22	-14.03	\pm 128.27	-51.93	\pm 474.60	No
	08/03/22	1.63	\pm 1.32	6.03	\pm 4.88	No
	08/03/22	-2.47	\pm 121.56	-9.14	\pm 449.77	No

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result \pm 1s Uncertainty ($\times 10^{-15}$ $\mu\text{Ci/mL}$)		Result \pm 1s Uncertainty ($\times 10^{-11}$ Bq/mL)		Result > 3s
	08/10/22	4.15	\pm 3.32	15.36	\pm 12.28	No
	08/10/22	81.43	\pm 137.13	301.30	\pm 507.38	No
	08/17/22	1.36	\pm 2.49	5.03	\pm 9.21	No
	08/17/22	146.76	\pm 129.69	543.01	\pm 479.85	No
	08/24/22	1.54	\pm 1.23	5.70	\pm 4.55	No
	08/24/22	20.09	\pm 132.10	74.33	\pm 488.77	No
	08/31/22	-1.20	\pm 1.45	-4.44	\pm 5.37	No
	08/31/22	-131.72	\pm 140.81	-487.36	\pm 521.00	No
	09/07/22	0.40	\pm 1.76	1.49	\pm 6.51	No
	09/07/22	160.21	\pm 164.28	592.78	\pm 607.84	No
	09/14/22	0.26	\pm 1.56	0.97	\pm 5.77	No
a	09/14/22		\pm	0.00	\pm 0.00	No
	09/21/22	-2.57	\pm 2.33	-9.51	\pm 8.62	No
	09/21/22	38.88	\pm 125.65	143.84	\pm 464.91	No
	09/28/22	-1.30	\pm 2.01	-4.81	\pm 7.44	No
a	09/28/22		\pm	0.00	\pm 0.00	No
GATE 4	07/06/22	-6.37	\pm 116.12	-23.55	\pm 429.64	No
	07/13/22	55.67	\pm 130.19	205.97	\pm 481.70	No
	07/20/22	28.74	\pm 134.76	106.34	\pm 498.61	No
	07/27/22	20.59	\pm 151.75	76.16	\pm 561.48	No
	08/03/22	-151.41	\pm 151.50	-560.22	\pm 560.55	No
	08/10/22	100.37	\pm 142.86	371.37	\pm 528.58	No
	08/17/22	13.72	\pm 144.63	50.77	\pm 535.13	No
	08/24/22	1.48	\pm 114.55	5.47	\pm 423.84	No
	08/31/22	5.79	\pm 124.52	21.43	\pm 460.72	No
	09/07/22	-71.24	\pm 128.84	-263.57	\pm 476.71	No
	09/14/22	-31.21	\pm 162.06	-115.47	\pm 599.62	No
	09/21/22	-2.26	\pm 104.42	-8.36	\pm 386.35	No
	09/28/22	-56.22	\pm 128.38	-208.02	\pm 475.01	No
HIGHWAY 26 AREA	07/06/22	-3.43	\pm 138.80	-12.69	\pm 513.56	No
	07/13/22	7.46	\pm 125.32	27.60	\pm 463.68	No
	07/20/22	-23.33	\pm 132.92	-86.32	\pm 491.80	No
	07/27/22	-111.81	\pm 144.83	-413.70	\pm 535.87	No
	08/03/22	-1.42	\pm 148.87	-5.27	\pm 550.82	No
	08/10/22	129.68	\pm 114.21	479.82	\pm 422.58	No
	08/17/22	12.68	\pm 111.92	46.93	\pm 414.10	No
	08/24/22	-0.97	\pm 130.91	-3.60	\pm 484.37	No
	08/31/22	-166.56	\pm 150.78	-616.27	\pm 557.89	No
	09/07/22	5.45	\pm 138.12	20.17	\pm 511.04	No
	09/14/22	0.00	\pm 167.77	0.00	\pm 620.75	No
	09/21/22	29.19	\pm 133.99	108.02	\pm 495.76	No
	09/28/22	-32.87	\pm 145.39	-121.62	\pm 537.94	No
INTEC	07/06/22	129.11	\pm 161.15	477.71	\pm 596.26	No
	07/13/22	131.52	\pm 126.96	486.62	\pm 469.75	No
	07/20/22	-163.46	\pm 137.44	-604.80	\pm 508.53	No
a	07/27/22		\pm	0.00	\pm 0.00	No
	08/03/22	-32.55	\pm 148.21	-120.43	\pm 548.38	No
	08/10/22	-114.64	\pm 137.76	-424.17	\pm 509.71	No
	08/17/22	-10.11	\pm 149.10	-37.40	\pm 551.67	No
a	08/24/22		\pm	0.00	\pm 0.00	No
	08/31/22	-139.45	\pm 154.82	-515.97	\pm 572.83	No
	09/07/22	23.80	\pm 157.67	88.07	\pm 583.38	No

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result \pm 1s Uncertainty		Result \pm 1s Uncertainty		Result > 3s
		(x 10 ⁻¹⁵ μ Ci/mL)		(x 10 ⁻¹¹ Bq/mL)		
	09/14/22	-15.83	\pm 171.49	-58.56	\pm 634.51	No
	09/21/22	-41.73	\pm 121.13	-154.38	\pm 448.18	No
	09/28/22	-75.92	\pm 146.19	-280.89	\pm 540.90	No
INTEC (WEST SIDE)	07/06/22	26.16	\pm 139.84	96.79	\pm 517.41	No
	07/13/22	-143.90	\pm 138.14	-532.43	\pm 511.12	No
	07/20/22	-41.45	\pm 128.72	-153.36	\pm 476.26	No
	07/27/22	125.27	\pm 123.36	463.50	\pm 456.43	No
	08/03/22	93.70	\pm 109.31	346.69	\pm 404.45	No
	08/10/22	-2.60	\pm 114.71	-9.61	\pm 424.43	No
	08/17/22	-106.77	\pm 129.19	-395.05	\pm 478.00	No
	08/24/22	-5.49	\pm 145.41	-20.31	\pm 538.02	No
	08/31/22	7.57	\pm 262.41	28.01	\pm 970.92	No
	09/07/22	-5.56	\pm 137.86	-20.57	\pm 510.08	No
	09/14/22	-30.78	\pm 158.75	-113.87	\pm 587.38	No
	09/21/22	-45.77	\pm 125.64	-169.36	\pm 464.87	No
	09/28/22	42.15	\pm 154.99	155.97	\pm 573.46	No
INTEC (QA)	07/06/22	-90.97	\pm 146.10	-336.58	\pm 540.57	No
	07/13/22	171.37	\pm 139.11	634.07	\pm 514.71	No
	07/20/22	3.27	\pm 108.10	12.12	\pm 399.97	No
	07/27/22	0.06	\pm 154.09	0.23	\pm 570.13	No
	08/03/22	-46.05	\pm 114.18	-170.39	\pm 422.47	No
	08/10/22	-4.67	\pm 105.73	-17.27	\pm 391.20	No
	08/17/22	-85.25	\pm 142.40	-315.41	\pm 526.88	No
	08/24/22	0.80	\pm 113.18	2.95	\pm 418.77	No
	08/31/22	-9.89	\pm 267.48	-36.60	\pm 989.68	No
	09/07/22	-88.44	\pm 161.13	-327.21	\pm 596.18	No
	09/14/22	112.86	\pm 183.18	417.58	\pm 677.77	No
	09/21/22	2.47	\pm 121.70	9.13	\pm 450.29	No
	09/28/22	24.66	\pm 129.52	91.25	\pm 479.22	No
MAIN GATE	07/06/22	0.26	\pm 1.22	0.95	\pm 4.51	No
	07/13/22	0.57	\pm 1.17	2.11	\pm 4.33	No
	07/20/22	0.75	\pm 1.23	2.78	\pm 4.55	No
	07/27/22	1.00	\pm 1.32	3.69	\pm 4.88	No
	08/03/22	1.57	\pm 1.28	5.81	\pm 4.74	No
	08/10/22	3.46	\pm 2.77	12.80	\pm 10.25	No
	08/17/22	1.22	\pm 2.23	4.51	\pm 8.25	No
	08/24/22	1.64	\pm 1.31	6.07	\pm 4.85	No
	08/31/22	-1.13	\pm 1.36	-4.18	\pm 5.03	No
	09/07/22	0.37	\pm 1.60	1.35	\pm 5.92	No
	09/14/22	0.24	\pm 1.45	0.90	\pm 5.37	No
	09/21/22	-2.14	\pm 1.94	-7.92	\pm 7.18	No
	09/28/22	-0.91	\pm 1.41	-3.37	\pm 5.22	No
MFC NORTH	07/06/22	-4.00	\pm 147.76	-14.79	\pm 546.71	No
	07/13/22	-88.71	\pm 131.98	-328.23	\pm 488.33	No
	07/20/22	-97.80	\pm 168.95	-361.85	\pm 625.12	No
	07/27/22	-106.77	\pm 142.87	-395.05	\pm 528.62	No
	08/03/22	116.61	\pm 146.26	431.46	\pm 541.16	No
	08/10/22	116.97	\pm 207.74	432.79	\pm 768.64	No
	08/17/22	187.29	\pm 123.28	692.97	\pm 456.14	No
	08/24/22	-93.75	\pm 149.82	-346.89	\pm 554.33	No
	08/31/22	-27.40	\pm 111.44	-101.37	\pm 412.33	No
	09/07/22	33.48	\pm 135.13	123.86	\pm 499.98	No

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result \pm 1s Uncertainty ($\times 10^{-15}$ μ Ci/mL)		Result \pm 1s Uncertainty ($\times 10^{-11}$ Bq/mL)		Result > 3s
	09/14/22	-101.74	\pm 155.41	-376.44	\pm 575.02	No
	09/21/22	-69.97	\pm 108.70	-258.88	\pm 402.19	No
	09/28/22	-35.70	\pm 87.89	-132.10	\pm 325.20	No
MFC SOUTH	07/06/22	-119.04	\pm 135.50	-440.45	\pm 501.35	No
	07/13/22	14.69	\pm 136.87	54.34	\pm 506.42	No
	07/20/22	1.19	\pm 136.72	4.39	\pm 505.86	No
	07/27/22	-77.62	\pm 154.06	-287.20	\pm 570.02	No
	08/03/22	-50.91	\pm 162.71	-188.35	\pm 602.03	No
	08/10/22	68.76	\pm 113.60	254.43	\pm 420.32	No
	08/17/22	-115.95	\pm 152.78	-429.02	\pm 565.29	No
	08/24/22	3.28	\pm 138.26	12.12	\pm 511.56	No
	08/31/22	-70.55	\pm 116.57	-261.05	\pm 431.31	No
	09/07/22	-16.32	\pm 92.82	-60.39	\pm 343.42	No
	09/14/22	-95.77	\pm 128.37	-354.35	\pm 474.97	No
	09/21/22	120.55	\pm 148.23	446.04	\pm 548.45	No
	09/28/22	-40.29	\pm 122.63	-149.05	\pm 453.73	No
NRF	07/06/22	-28.10	\pm 146.00	-103.96	\pm 540.20	No
	07/13/22	-48.69	\pm 138.93	-180.16	\pm 514.04	No
	07/20/22	-66.15	\pm 121.28	-244.76	\pm 448.74	No
	07/27/22	80.54	\pm 134.59	298.01	\pm 497.98	No
	08/03/22	-148.63	\pm 148.47	-549.93	\pm 549.34	No
	08/10/22	37.39	\pm 110.93	138.35	\pm 410.44	No
	08/17/22	9.40	\pm 148.22	34.78	\pm 548.41	No
	08/24/22	-21.95	\pm 143.98	-81.23	\pm 532.73	No
	08/31/22	134.49	\pm 149.09	497.61	\pm 551.63	No
	09/07/22	-14.35	\pm 158.49	-53.09	\pm 586.41	No
	09/14/22	-211.44	\pm 153.96	-782.33	\pm 569.65	No
	a 09/21/22		\pm	0.00	\pm 0.00	No
	a 09/28/22		\pm	0.00	\pm 0.00	No
RHLLW	07/06/22	-83.62	\pm 148.33	-309.38	\pm 548.82	No
	07/13/22	6.12	\pm 140.11	22.64	\pm 518.41	No
	07/20/22	-4.17	\pm 117.16	-15.42	\pm 433.49	No
	07/27/22	-49.19	\pm 155.66	-182.01	\pm 575.94	No
	08/03/22	-180.34	\pm 135.61	-667.26	\pm 501.76	No
	08/10/22	-16.57	\pm 149.11	-61.31	\pm 551.71	No
	08/17/22	-54.21	\pm 128.05	-200.58	\pm 473.79	No
	08/24/22	84.81	\pm 140.57	313.80	\pm 520.11	No
	08/31/22	-246.15	\pm 169.24	-910.76	\pm 626.19	No
	09/07/22	-100.62	\pm 166.64	-372.29	\pm 616.57	No
	09/14/22	-65.74	\pm 170.67	-243.25	\pm 631.48	No
	09/21/22	-124.77	\pm 137.13	-461.65	\pm 507.38	No
	09/28/22	-91.90	\pm 127.15	-340.02	\pm 470.46	No
RWMC	07/06/22	-52.47	\pm 221.74	-194.13	\pm 820.44	No
	07/13/22	-18.29	\pm 142.43	-67.65	\pm 526.99	No
	07/20/22	-2.83	\pm 136.17	-10.49	\pm 503.83	No
	07/27/22	11.03	\pm 136.84	40.83	\pm 506.31	No
	08/03/22	23.96	\pm 101.59	88.65	\pm 375.88	No
	08/10/22	-59.81	\pm 124.37	-221.29	\pm 460.17	No
	08/17/22	9.72	\pm 111.23	35.96	\pm 411.55	No
	08/24/22	0.65	\pm 144.30	2.39	\pm 533.91	No
	08/31/22	15.13	\pm 121.30	55.99	\pm 448.81	No
	09/07/22	211.04	\pm 152.94	780.85	\pm 565.88	No

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result \pm 1s Uncertainty ($\times 10^{-15}$ $\mu\text{Ci/mL}$)		Result \pm 1s Uncertainty ($\times 10^{-11}$ Bq/mL)		Result > 3s
	09/14/22	-144.74	\pm 145.52	-535.54	\pm 538.42	No
	09/21/22	-129.16	\pm 126.96	-477.89	\pm 469.75	No
	09/28/22	-2.62	\pm 130.42	-9.68	\pm 482.55	No
RWMC (QA)	07/06/22	-59.20	\pm 305.57	-219.04	\pm 1130.61	No
	07/13/22	-187.23	\pm 129.98	-692.75	\pm 480.93	No
	07/20/22	107.49	\pm 151.73	397.71	\pm 561.40	No
	07/27/22	-53.45	\pm 150.71	-197.75	\pm 557.63	No
	08/03/22	-28.26	\pm 153.72	-104.55	\pm 568.76	No
	08/10/22	20.60	\pm 145.29	76.23	\pm 537.57	No
	08/17/22	-8.90	\pm 122.86	-32.93	\pm 454.58	No
	08/24/22	16.64	\pm 146.10	61.56	\pm 540.57	No
	08/31/22	-20.46	\pm 131.79	-75.72	\pm 487.62	No
	09/07/22	-64.48	\pm 140.87	-238.56	\pm 521.22	No
	09/14/22	-157.83	\pm 169.76	-583.97	\pm 628.11	No
	09/21/22	-0.15	\pm 133.57	-0.57	\pm 494.21	No
	09/28/22	-46.23	\pm 148.36	-171.06	\pm 548.93	No
RWMC SOUTH	07/06/22	-83.80	\pm 151.62	-310.05	\pm 560.99	No
	07/13/22	152.37	\pm 120.80	563.77	\pm 446.96	No
	07/20/22	-39.38	\pm 142.08	-145.72	\pm 525.70	No
	07/27/22	98.96	\pm 122.21	366.16	\pm 452.18	No
	08/03/22	-158.38	\pm 153.19	-586.01	\pm 566.80	No
	08/10/22	22.32	\pm 138.84	82.58	\pm 513.71	No
	08/17/22	50.82	\pm 150.68	188.02	\pm 557.52	No
	08/24/22	-53.88	\pm 151.60	-199.37	\pm 560.92	No
	08/31/22	3.24	\pm 137.98	11.97	\pm 510.53	No
	09/07/22	-72.57	\pm 164.66	-268.51	\pm 609.24	No
	09/14/22	-14.14	\pm 192.96	-52.30	\pm 713.95	No
	09/21/22	-10.73	\pm 148.12	-39.71	\pm 548.04	No
	09/28/22	-6.18	\pm 172.64	-22.88	\pm 638.77	No
SMC	07/06/22	-56.61	\pm 143.99	-209.46	\pm 532.76	No
	07/13/22	-78.02	\pm 153.67	-288.68	\pm 568.58	No
	a 07/20/22		\pm	0.00	\pm 0.00	No
	a 07/27/22		\pm	0.00	\pm 0.00	No
	a 08/03/22		\pm	0.00	\pm 0.00	No
	a 08/10/22		\pm	0.00	\pm 0.00	No
	08/17/22	-23.99	\pm 149.03	-88.74	\pm 551.41	No
	08/24/22	-78.02	\pm 139.56	-288.67	\pm 516.37	No
	08/31/22	-66.89	\pm 138.36	-247.49	\pm 511.93	No
	09/07/22	-31.31	\pm 177.71	-115.84	\pm 657.53	No
	09/14/22	-42.08	\pm 169.30	-155.70	\pm 626.41	No
	09/21/22	26.99	\pm 138.16	99.84	\pm 511.19	No
	09/28/22	-91.91	\pm 145.03	-340.06	\pm 536.61	No
VAN BUREN	07/06/22	0.25	\pm 1.19	0.93	\pm 4.40	No
	07/06/22	7.98	\pm 123.69	29.53	\pm 457.65	No
	07/13/22	0.53	\pm 1.09	1.97	\pm 4.03	No
	07/13/22	45.93	\pm 154.99	169.94	\pm 573.46	No
	07/20/22	0.73	\pm 1.18	2.69	\pm 4.37	No
	07/20/22	-51.72	\pm 146.39	-191.35	\pm 541.64	No
	07/27/22	0.97	\pm 1.28	3.60	\pm 4.74	No
	07/27/22	-98.11	\pm 156.79	-363.01	\pm 580.12	No
	08/03/22	1.72	\pm 1.40	6.36	\pm 5.18	No
	08/03/22	42.67	\pm 178.98	157.89	\pm 662.23	No

Table C-2. Weekly iodine-131 activity in air.

Sampling Group and Location	Sampling Date	Result ± 1s Uncertainty		Result ± 1s Uncertainty		Result > 3s
		(x 10 ⁻¹⁵ µCi/mL)		(x 10 ⁻¹¹ Bq/mL)		
	08/10/22	3.76	± 3.01	13.91	± 11.14	No
	08/10/22	7.68	± 174.08	28.41	± 644.10	No
	08/17/22	2.46	± 4.51	9.10	± 16.69	No
	08/17/22	-81.23	± 119.79	-300.53	± 443.22	No
	08/24/22	2.16	± 1.73	7.99	± 6.40	No
	08/24/22	181.65	± 140.75	672.11	± 520.78	No
	08/31/22	-1.10	± 1.33	-4.07	± 4.92	No
	08/31/22	36.55	± 132.59	135.23	± 490.58	No
	09/07/22	0.36	± 1.55	1.31	± 5.74	No
	09/07/22	-26.88	± 126.23	-99.45	± 467.05	No
	09/14/22	0.21	± 1.28	0.79	± 4.74	No
	09/14/22	30.97	± 152.41	114.59	± 563.92	No
	09/21/22	-2.19	± 1.99	-8.10	± 7.36	No
	09/21/22	-112.75	± 142.45	-417.18	± 527.07	No
	09/28/22	-0.87	± 1.35	-3.22	± 5.00	No
	09/28/22	4.69	± 127.09	17.37	± 470.23	No
VAN BUREN (QA)	07/06/22	0.26	± 1.21	0.94	± 4.48	No
	07/13/22	0.55	± 1.13	2.05	± 4.18	No
	07/20/22	0.75	± 1.23	2.78	± 4.55	No
	07/27/22	0.99	± 1.31	3.67	± 4.85	No
	08/03/22	1.78	± 1.45	6.59	± 5.37	No
	08/10/22	4.01	± 3.22	14.84	± 11.91	No
	08/17/22	1.21	± 2.22	4.48	± 8.21	No
	08/24/22	1.67	± 1.34	6.18	± 4.96	No
	08/31/22	-1.12	± 1.36	-4.14	± 5.03	No
	09/07/22	0.34	± 1.47	1.24	± 5.44	No
	09/14/22	0.23	± 1.37	0.85	± 5.07	No
	09/21/22	-2.18	± 1.98	-8.07	± 7.33	No
	09/28/22	-0.90	± 1.40	-3.33	± 5.18	No
a. Invalid sample identified in red						

Table C-3. Quarterly cesium-137, strontium-90, and actinide concentrations in composite air filters.

Sampling Group and Location	Sampling Date	Analyte	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s	
			(x 10 ⁻¹⁸ µCi/mL)			(x 10 ⁻¹⁴ Bq/mL)				
BOUNDARY										
ARCO	09/28/22	Americium-241	5.39	±	2.78	19.94	±	10.29	No	
	09/28/22	Cesium-137	-46.40	±	56.60	-171.68	±	209.42	No	
	09/28/22	Plutonium-238	1.98	±	1.75	7.33	±	6.48	No	
	09/28/22	Plutonium-239/240	1.97	±	1.74	7.29	±	6.44	No	
ATOMIC CITY	09/28/22	Americium-241	2.54	±	3.06	9.40	±	11.32	No	
	09/28/22	Cesium-137	1.66	±	78.00	6.14	±	288.60	No	
	09/28/22	Plutonium-238	0.71	±	2.12	2.62	±	7.84	No	
	09/28/22	Plutonium-239/240	2.81	±	2.44	10.40	±	9.03	No	
BLUE DOME	09/28/22	Cesium-137	37.50	±	58.30	138.75	±	215.71	No	
	09/28/22	Strontium-90	1.46	±	4.17	5.40	±	15.43	No	
FAA TOWER	09/28/22	Cesium-137	-2.01	±	56.80	-7.44	±	210.16	No	
	09/28/22	Strontium-90	26.60	±	11.50	98.42	±	42.55	No	
HOWE	09/28/22	Cesium-137	-84.20	±	83.30	-311.54	±	308.21	No	
	09/28/22	Strontium-90	8.68	±	3.47	32.12	±	12.84	No	
MONTEVIEW	09/28/22	Americium-241	4.57	±	2.17	16.91	±	8.03	No	
	09/28/22	Cesium-137	17.40	±	69.10	64.38	±	255.67	No	
	09/28/22	Plutonium-238	5.16	±	2.58	19.09	±	9.55	No	
	09/28/22	Plutonium-239/240	1.28	±	2.22	4.74	±	8.21	No	
MUD LAKE	09/28/22	Cesium-137	60.40	±	60.10	223.48	±	222.37	No	
OFFSITE										
BLACKFOOT	09/28/22	Americium-241	2.68	±	2.12	9.92	±	7.84	No	
	09/30/22	Americium-241	-19.30	±	12.90	-71.41	±	47.73	No	
	09/28/22	Cesium-137	49.40	±	60.80	182.78	±	224.96	No	
	09/30/22	Cesium-137	126.00	±	137.00	466.20	±	506.90	No	
	09/28/22	Plutonium-238	0.74	±	1.96	2.74	±	7.25	No	
	09/30/22	Plutonium-238	2.47	±	8.92	9.14	±	33.00	No	
	09/28/22	Plutonium-239/240	3.68	±	2.44	13.62	±	9.03	No	
	09/30/22	Plutonium-239/240	4.94	±	7.82	18.28	±	28.93	No	
	a	09/30/22	Strontium-90							
		09/30/22	Uranium-233/234	58.80	±	14.10	217.56	±	52.17	Yes
		09/30/22	Uranium-235	13.60	±	7.17	50.32	±	26.53	No
		09/30/22	Uranium-238	34.70	±	8.52	128.39	±	31.52	Yes
	CRATERS OF THE MOON	09/30/22	Americium-241	0.00	±	8.70	0.00	±	32.19	No
09/28/22		Cesium-137	-9.91	±	71.40	-36.67	±	264.18	No	

Table C-3. Quarterly cesium-137, strontium-90, and actinide concentrations in composite air filters.

Sampling Group and Location	Sampling Date	Analyte	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
			(x 10 ⁻¹⁸ µCi/mL)			(x 10 ⁻¹⁴ Bq/mL)			
	09/30/22	Cesium-137	23.30	±	56.60	86.21	±	209.42	No
	09/30/22	Plutonium-238	0.00	±	10.70	0.00	±	39.59	No
	09/30/22	Plutonium-239/240	4.18	±	5.13	15.47	±	18.98	No
	09/30/22	Strontium-90	309.00	±	445.00	1143.30	±	1646.50	No
	09/30/22	Uranium-233/234	25.60	±	19.00	94.72	±	70.30	No
	09/30/22	Uranium-235	29.20	±	13.90	108.04	±	51.43	No
	09/30/22	Uranium-238	19.70	±	10.50	72.89	±	38.85	No
DUBOIS	09/28/22	Cesium-137	-25.70	±	78.40	-95.09	±	290.08	No
	09/28/22	Strontium-90	13.50	±	10.50	49.95	±	38.85	No
DUBOIS (QA)	09/28/22	Cesium-137	-2.59	±	79.80	-9.58	±	295.26	No
	09/28/22	Strontium-90	15.60	±	7.03	57.72	±	26.01	No
IDAHO FALLS	09/30/22	Americium-241	2.29	±	7.59	8.47	±	28.08	No
	09/28/22	Cesium-137	245.00	±	159.00	906.50	±	588.30	No
	09/30/22	Cesium-137	-84.70	±	62.80	-313.39	±	232.36	No
	09/30/22	Plutonium-238	7.52	±	8.32	27.82	±	30.78	No
	09/30/22	Plutonium-239/240	12.50	±	9.72	46.25	±	35.96	No
	a 09/30/22	Strontium-90							
	09/30/22	Uranium-233/234	16.30	±	13.30	60.31	±	49.21	No
	09/30/22	Uranium-235	23.80	±	10.30	88.06	±	38.11	No
09/30/22	Uranium-238	24.80	±	10.00	91.76	±	37.00	No	
IRC	09/30/22	Americium-241	1.37	±	3.63	5.07	±	13.43	No
	09/30/22	Cesium-137	33.10	±	82.20	122.47	±	304.14	No
	09/30/22	Plutonium-238	-5.24	±	4.53	-19.39	±	16.76	No
	09/30/22	Plutonium-239/240	5.22	±	5.84	19.31	±	21.61	No
	09/30/22	Strontium-90	-40.20	±	33.70	-148.74	±	124.69	No
	09/30/22	Uranium-233/234	29.90	±	9.49	110.63	±	35.11	Yes
	09/30/22	Uranium-235	6.83	±	4.85	25.27	±	17.95	No
	09/30/22	Uranium-238	23.60	±	7.92	87.32	±	29.30	No
IRC NORTH	09/30/22	Americium-241	9.15	±	7.25	33.86	±	26.83	No
	09/30/22	Cesium-137	134.00	±	86.50	495.80	±	320.05	No
	09/30/22	Plutonium-238	9.17	±	10.10	33.93	±	37.37	No
	09/30/22	Plutonium-239/240	9.16	±	8.09	33.89	±	29.93	No
	09/30/22	Strontium-90	290.00	±	104.00	1073.00	±	384.80	No

Table C-3. Quarterly cesium-137, strontium-90, and actinide concentrations in composite air filters.

Sampling Group and Location	Sampling Date	Analyte	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
			(x 10 ⁻¹⁸ µCi/mL)			(x 10 ⁻¹⁴ Bq/mL)			
	09/30/22	Uranium-233/234	50.50	±	15.20	186.85	±	56.24	Yes
	09/30/22	Uranium-235	7.11	±	10.10	26.31	±	37.37	No
	09/30/22	Uranium-238	37.40	±	13.30	138.38	±	49.21	No
JACKSON, WY	09/28/22	Americium-241	0.73	±	1.63	2.70	±	6.03	No
	09/28/22	Cesium-137	73.60	±	82.90	272.32	±	306.73	No
	09/28/22	Plutonium-238	1.06	±	2.38	3.92	±	8.81	No
	09/28/22	Plutonium-239/240	5.29	±	3.17	19.57	±	11.73	No
SUGAR CITY	09/30/22	Americium-241	-14.10	±	13.20	-52.17	±	48.84	No
	09/28/22	Cesium-137	13.60	±	75.00	50.32	±	277.50	No
	09/30/22	Cesium-137	62.30	±	60.70	230.51	±	224.59	No
	09/30/22	Plutonium-238	-59.90	±	21.20	-221.63	±	78.44	No
	09/30/22	Plutonium-239/240	-11.20	±	12.40	-41.44	±	45.88	No
	09/30/22	Strontium-90	36.90	±	94.30	136.53	±	348.91	No
	09/30/22	Uranium-233/234	52.40	±	15.00	193.88	±	55.50	Yes
	09/30/22	Uranium-235	16.00	±	9.64	59.20	±	35.67	No
	09/30/22	Uranium-238	33.70	±	10.80	124.69	±	39.96	Yes
ONSITE									
ATR COMPLEX	09/30/22	Americium-241	7.31	±	7.32	27.05	±	27.08	No
	09/30/22	Cesium-137	16.30	±	59.50	60.31	±	220.15	No
	09/30/22	Plutonium-238	10.50	±	7.01	38.85	±	25.94	No
	09/30/22	Plutonium-239/240	4.21	±	5.95	15.58	±	22.02	No
	09/30/22	Strontium-90	-46.20	±	21.00	-170.94	±	77.70	No
	09/30/22	Uranium-233/234	12.90	±	9.15	47.73	±	33.86	No
	09/30/22	Uranium-235	9.98	±	7.72	36.93	±	28.56	No
	09/30/22	Uranium-238	27.80	±	8.91	102.86	±	32.97	Yes
BIG LOST RIVER	09/30/22	Americium-241	8.65	±	7.64	32.01	±	28.27	No
REST AREA	09/30/22	Cesium-137	15.60	±	63.20	57.72	±	233.84	No
	09/30/22	Plutonium-238	0.00	±	10.40	0.00	±	38.48	No
	09/30/22	Plutonium-239/240	0.00	±	11.00	0.00	±	40.70	No
	a 09/30/22	Strontium-90							
	09/30/22	Uranium-233/234	-11.60	±	11.10	-42.92	±	41.07	No
	09/30/22	Uranium-235	11.50	±	10.10	42.55	±	37.37	No

Table C-3. Quarterly cesium-137, strontium-90, and actinide concentrations in composite air filters.

Sampling Group and Location	Sampling Date	Analyte	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
			(x 10 ⁻¹⁸ µCi/mL)			(x 10 ⁻¹⁴ Bq/mL)			
	09/30/22	Uranium-238	12.40	±	8.76	45.88	±	32.41	No
CFA	09/30/22	Americium-241	14.50	±	12.70	53.65	±	46.99	No
	09/30/22	Cesium-137	0.11	±	62.40	0.39	±	230.88	No
	09/30/22	Plutonium-238	12.00	±	12.10	44.40	±	44.77	No
	09/30/22	Plutonium-239/240	18.10	±	12.80	66.97	±	47.36	No
	09/30/22	Strontium-90	283.00	±	111.00	1047.10	±	410.70	No
	09/30/22	Uranium-233/234	3.04	±	13.00	11.25	±	48.10	No
	09/30/22	Uranium-235	7.20	±	8.83	26.64	±	32.67	No
	09/30/22	Uranium-238	20.40	±	12.10	75.48	±	44.77	No
EBR-I	09/30/22	Americium-241	27.90	±	15.50	103.23	±	57.35	No
	09/30/22	Cesium-137	-40.90	±	103.00	-151.33	±	381.10	No
	09/30/22	Plutonium-238	18.80	±	20.20	69.56	±	74.74	No
	09/30/22	Plutonium-239/240	3.75	±	11.30	13.88	±	41.81	No
	09/30/22	Strontium-90	-333.00	±	500.00	-1232.10	±	1850.00	No
	09/30/22	Uranium-233/234	11.90	±	16.70	44.03	±	61.79	No
	09/30/22	Uranium-235	0.00	±	9.70	0.00	±	35.89	No
	09/30/22	Uranium-238	23.50	±	13.60	86.95	±	50.32	No
EFS	09/28/22	Americium-241	2.03	±	1.79	7.51	±	6.62	No
	09/30/22	Americium-241	-11.20	±	12.40	-41.44	±	45.88	No
	09/28/22	Cesium-137	-2.24	±	67.30	-8.29	±	249.01	No
	09/30/22	Cesium-137	184.00	±	81.30	680.80	±	300.81	No
	09/28/22	Plutonium-238	0.82	±	1.83	3.02	±	6.77	No
	09/30/22	Plutonium-238	-2.74	±	10.60	-10.14	±	39.22	No
	09/28/22	Plutonium-239/240	0.81	±	2.43	3.00	±	8.99	No
	09/30/22	Plutonium-239/240	11.00	±	9.51	40.70	±	35.19	No
	09/30/22	Strontium-90	128.00	±	209.00	473.60	±	773.30	No
	09/30/22	Uranium-233/234	13.00	±	9.40	48.10	±	34.78	No
	09/30/22	Uranium-235	14.60	±	12.60	54.02	±	46.62	No
	09/30/22	Uranium-238	44.20	±	12.30	163.54	±	45.51	Yes
GATE4	09/30/22	Americium-241	0.00	±	13.20	0.00	±	48.84	No
	09/30/22	Cesium-137	-1.24	±	43.90	-4.59	±	162.43	No
	09/30/22	Plutonium-238	-15.30	±	22.30	-56.61	±	82.51	No

Table C-3. Quarterly cesium-137, strontium-90, and actinide concentrations in composite air filters.

Sampling Group and Location	Sampling Date	Analyte	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
			(x 10 ⁻¹⁸ µCi/mL)			(x 10 ⁻¹⁴ Bq/mL)			
	09/30/22	Plutonium-239/240	-10.20	±	12.50	-37.74	±	46.25	No
	09/30/22	Strontium-90	65.60	±	157.00	242.72	±	580.90	No
	09/30/22	Uranium-233/234	37.10	±	27.00	137.27	±	99.90	No
	09/30/22	Uranium-235	0.00	±	22.80	0.00	±	84.36	No
	09/30/22	Uranium-238	19.50	±	17.30	72.15	±	64.01	No
INTEC	09/30/22	Americium-241	-45.20	±	78.60	-167.24	±	290.82	No
	09/30/22	Cesium-137	80.00	±	75.10	296.00	±	277.87	No
	09/30/22	Plutonium-238	0.00	±	24.60	0.00	±	91.02	No
	09/30/22	Plutonium-239/240	16.40	±	17.40	60.68	±	64.38	No
	09/30/22	Strontium-90	-59.30	±	19.20	-219.41	±	71.04	No
	09/30/22	Uranium-233/234	-281.00	±	295.00	-1039.70	±	1091.50	No
	09/30/22	Uranium-235	123.00	±	200.00	455.10	±	740.00	No
	09/30/22	Uranium-238	382.00	±	330.00	1413.40	±	1221.00	No
INTEC (WEST SIDE)	09/30/22	Americium-241	34.00	±	21.30	125.80	±	78.81	No
	09/30/22	Cesium-137	7.03	±	103.00	26.01	±	381.10	No
	09/30/22	Plutonium-238	10.90	±	7.69	40.33	±	28.45	No
	09/30/22	Plutonium-239/240	-5.42	±	10.80	-20.05	±	39.96	No
	a 09/30/22	Strontium-90							
	09/30/22	Uranium-233/234	14.00	±	10.60	51.80	±	39.22	No
	09/30/22	Uranium-235	11.10	±	8.79	41.07	±	32.52	No
	09/30/22	Uranium-238	13.50	±	9.54	49.95	±	35.30	No
INTEC (QA)	09/30/22	Americium-241	-1.26	±	2.18	-4.66	±	8.07	No
	09/30/22	Cesium-137	233.00	±	81.10	862.10	±	300.07	No
	09/30/22	Plutonium-238	1.20	±	4.65	4.44	±	17.21	No
	09/30/22	Plutonium-239/240	9.58	±	5.63	35.45	±	20.83	No
	09/30/22	Strontium-90	-59.50	±	32.50	-220.15	±	120.25	No
	09/30/22	Uranium-233/234	18.60	±	8.66	68.82	±	32.04	No
	09/30/22	Uranium-235	6.05	±	6.06	22.39	±	22.42	No
	09/30/22	Uranium-238	22.60	±	7.98	83.62	±	29.53	No
MAIN GATE	09/28/22	Americium-241	1.79	±	2.16	6.62	±	7.99	No
	09/28/22	Cesium-137	-3.41	±	65.00	-12.62	±	240.50	No
	09/28/22	Plutonium-238	3.46	±	2.68	12.80	±	9.92	No

Table C-3. Quarterly cesium-137, strontium-90, and actinide concentrations in composite air filters.

Sampling Group and Location	Sampling Date	Analyte	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
			(x 10 ⁻¹⁸ µCi/mL)			(x 10 ⁻¹⁴ Bq/mL)			
	09/28/22	Plutonium-239/240	0.69	±	2.28	2.55	±	8.44	No
MFC NORTH	09/30/22	Americium-241	0.00	±	12.60	0.00	±	46.62	No
	09/30/22	Cesium-137	216.00	±	82.20	799.20	±	304.14	No
	09/30/22	Plutonium-238	7.10	±	45.40	26.27	±	167.98	No
	09/30/22	Plutonium-239/240	-7.09	±	12.30	-26.23	±	45.51	No
	09/30/22	Strontium-90	-300.00	±	233.00	-1110.00	±	862.10	No
	09/30/22	Uranium-233/234	37.00	±	15.40	136.90	±	56.98	No
	09/30/22	Uranium-235	18.90	±	10.00	69.93	±	37.00	No
	09/30/22	Uranium-238	39.70	±	13.50	146.89	±	49.95	No
MFC SOUTH	09/30/22	Americium-241	3.43	±	3.03	12.69	±	11.21	No
	09/30/22	Cesium-137	-33.50	±	57.50	-123.95	±	212.75	No
	09/30/22	Plutonium-238	0.84	±	4.62	3.10	±	17.09	No
	09/30/22	Plutonium-239/240	3.82	±	5.49	14.13	±	20.31	No
	09/30/22	Strontium-90	-8.64	±	22.40	-31.97	±	82.88	No
	09/30/22	Uranium-233/234	16.60	±	6.29	61.42	±	23.27	No
	09/30/22	Uranium-235	3.56	±	3.34	13.17	±	12.36	No
	09/30/22	Uranium-238	20.60	±	6.03	76.22	±	22.31	Yes
NRF	09/30/22	Americium-241	0.00	±	11.40	0.00	±	42.18	No
	09/30/22	Cesium-137	45.90	±	70.80	169.83	±	261.96	No
	09/30/22	Plutonium-238	-4.82	±	14.50	-17.83	±	53.65	No
	09/30/22	Plutonium-239/240	24.10	±	16.00	89.17	±	59.20	No
	09/30/22	Strontium-90	-180.00	±	90.70	-666.00	±	335.59	No
	09/30/22	Uranium-233/234	19.20	±	18.50	71.04	±	68.45	No
	09/30/22	Uranium-235	-6.08	±	10.50	-22.50	±	38.85	No
	09/30/22	Uranium-238	24.60	±	13.10	91.02	±	48.47	No
RHLLW	09/30/22	Americium-241	-9.63	±	10.60	-35.63	±	39.22	No
	09/30/22	Cesium-137	-7.65	±	56.30	-28.31	±	208.31	No
	09/30/22	Plutonium-238	8.98	±	9.94	33.23	±	36.78	No
	09/30/22	Plutonium-239/240	12.00	±	8.48	44.40	±	31.38	No
	09/30/22	Strontium-90	217.00	±	149.00	802.90	±	551.30	No
	09/30/22	Uranium-233/234	32.50	±	14.90	120.25	±	55.13	No
	09/30/22	Uranium-235	13.50	±	8.32	49.95	±	30.78	No

Table C-3. Quarterly cesium-137, strontium-90, and actinide concentrations in composite air filters.

Sampling Group and Location	Sampling Date	Analyte	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
			(x 10 ⁻¹⁸ µCi/mL)			(x 10 ⁻¹⁴ Bq/mL)			
	09/30/22	Uranium-238	24.60	±	9.16	91.02	±	33.89	No
RWMC	09/30/22	Americium-241	19.50	±	15.20	72.15	±	56.24	No
	09/30/22	Cesium-137	51.30	±	50.30	189.81	±	186.11	No
	09/30/22	Plutonium-238	15.50	±	18.60	57.35	±	68.82	No
	09/30/22	Plutonium-239/240	15.50	±	13.70	57.35	±	50.69	No
	09/30/22	Strontium-90	422.00	±	142.00	1561.40	±	525.40	No
	09/30/22	Uranium-233/234	17.60	±	12.50	65.12	±	46.25	No
	09/30/22	Uranium-235	8.21	±	8.22	30.38	±	30.41	No
	09/30/22	Uranium-238	23.30	±	10.00	86.21	±	37.00	No
RWMC (QA)	09/30/22	Americium-241	9.44	±	4.49	34.93	±	16.61	No
	09/30/22	Cesium-137	-34.30	±	65.10	-126.91	±	240.87	No
	09/30/22	Plutonium-238	-1.09	±	3.41	-4.03	±	12.62	No
	09/30/22	Plutonium-239/240	4.96	±	5.47	18.35	±	20.24	No
	09/30/22	Strontium-90	23.50	±	19.40	86.95	±	71.78	No
	09/30/22	Uranium-233/234	21.80	±	7.61	80.66	±	28.16	No
	09/30/22	Uranium-235	2.18	±	3.46	8.07	±	12.80	No
	09/30/22	Uranium-238	16.60	±	7.34	61.42	±	27.16	No
RWMC SOUTH	09/30/22	Americium-241	11.90	±	11.90	44.03	±	44.03	No
	09/30/22	Cesium-137	144.00	±	193.00	532.80	±	714.10	No
	09/30/22	Plutonium-238	3.44	±	16.50	12.73	±	61.05	No
	09/30/22	Plutonium-239/240	13.70	±	10.90	50.69	±	40.33	No
	09/30/22	Strontium-90	-247.00	±	216.00	-913.90	±	799.20	No
	09/30/22	Uranium-233/234	-12.60	±	12.20	-46.62	±	45.14	No
	09/30/22	Uranium-235	-3.90	±	6.75	-14.43	±	24.98	No
	09/30/22	Uranium-238	9.46	±	11.40	35.00	±	42.18	No
SMC	09/30/22	Americium-241	0.00	±	15.20	0.00	±	56.24	No
	09/30/22	Cesium-137	192.00	±	146.00	710.40	±	540.20	No
	09/30/22	Plutonium-238	-2.82	±	18.50	-10.43	±	68.45	No
	09/30/22	Plutonium-239/240	-8.44	±	10.90	-31.23	±	40.33	No
	09/30/22	Strontium-90	276.00	±	186.00	1021.20	±	688.20	No
	09/30/22	Uranium-233/234	6.00	±	13.60	22.20	±	50.32	No
	09/30/22	Uranium-235	7.49	±	9.18	27.71	±	33.97	No

Table C-3. Quarterly cesium-137, strontium-90, and actinide concentrations in composite air filters.

Sampling Group and Location	Sampling Date	Analyte	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
			(x 10 ⁻¹⁸ µCi/mL)			(x 10 ⁻¹⁴ Bq/mL)			
	09/30/22	Uranium-238	54.50	±	13.80	201.65	±	51.06	Yes
VAN BUREN	09/28/22	Americium-241	3.27	±	2.53	12.10	±	9.36	No
	09/30/22	Americium-241	4.62	±	15.30	17.09	±	56.61	No
	09/28/22	Cesium-137	-28.40	±	80.50	-105.08	±	297.85	No
	09/30/22	Cesium-137	17.30	±	51.90	64.01	±	192.03	No
	09/28/22	Plutonium-238	0.00	±	1.67	0.00	±	6.18	No
	09/30/22	Plutonium-238	3.07	±	11.90	11.36	±	44.03	No
	09/28/22	Plutonium-239/240	2.03	±	2.03	7.51	±	7.51	No
	09/30/22	Plutonium-239/240	6.13	±	8.67	22.68	±	32.08	No
	09/30/22	Strontium-90	-446.00	±	226.00	-1650.20	±	836.20	No
	09/30/22	Uranium-233/234	-8.48	±	12.00	-31.38	±	44.40	No
	09/30/22	Uranium-235	0.00	±	11.00	0.00	±	40.70	No
	09/30/22	Uranium-238	11.30	±	11.30	41.81	±	41.81	No
VAN BUREN (QA)	09/28/22	Americium-241	3.11	±	2.06	11.51	±	7.62	No
	09/28/22	Cesium-137	19.70	±	60.30	72.89	±	223.11	No
	09/28/22	Plutonium-238	3.41	±	3.41	12.62	±	12.62	No
	09/28/22	Plutonium-239/240	6.78	±	2.88	25.09	±	10.66	No
a. Result was considered invalid.									

Table C-4. Tritium concentrations in atmospheric moisture.

Sampling Group and Location	Sampling Date	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
		(x 10 ⁻¹³ µCi/mL _{air})			(x 10 ⁻⁹ Bq/mL _{air})			
BOUNDARY								
ATOMIC CITY	07/20/22	1.61	±	1.33	5.96	±	4.92	No
	08/10/22	1.74	±	1.11	6.44	±	4.11	No
	08/31/22	3.01	±	1.39	11.14	±	5.14	No
HOWE	08/03/22	-1.02	±	1.93	-3.77	±	7.14	No
	08/24/22	2.04	±	1.86	7.55	±	6.88	No
OFFSITE								
CRATERS OF THE MOON	07/20/22	4.44	±	10.50	16.43	±	38.85	No
	08/17/22	176.00	±	480.00	651.20	±	1776.00	No
IDAHO FALLS	07/20/22	-1.01	±	1.33	-3.74	±	4.92	No
	07/20/22	-5.09	±	22.00	-18.83	±	81.40	No
	08/10/22	6.38	±	1.36	23.61	±	5.03	Yes
	08/31/22	3.86	±	32.60	14.28	±	120.62	No
	09/21/22	0.16	±	0.95	0.58	±	3.50	No
ONSITE								
EFS	07/07/22	-26.30	±	50.50	-97.31	±	186.85	No
	07/13/22	3.38	±	0.95	12.51	±	3.50	Yes
	08/03/22	6.92	±	1.20	25.60	±	4.44	Yes
	08/03/22	10.10	±	17.30	37.37	±	64.01	No
	08/18/22	5.22	±	1.58	19.31	±	5.85	Yes
	08/24/22	14.40	±	40.50	53.28	±	149.85	No
VAN BUREN	08/03/22	-49.50	±	57.60	-183.15	±	213.12	No
	08/19/22	-4.85	±	85.00	-17.95	±	314.50	No
	09/21/22	0.50	±	34.20	1.84	±	126.54	No

Table C-5. Monthly and weekly tritium concentrations in precipitation.

Location	Start Date	End Date	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
			(pCi/L)			(Bq/L)			
BOUNDARY									
ATOMIC CITY	07/27/22	08/03/22	9.65	±	31.20	0.36	±	1.15	No
	08/03/22	08/10/22	38.90	±	31.40	1.44	±	1.16	No
	08/10/22	08/17/22	107.00	±	31.50	3.96	±	1.17	Yes
	09/14/22	09/21/22	5.09	±	103.00	0.19	±	3.81	No
	09/21/22	09/28/22	-57.40	±	107.00	-2.12	±	3.96	No
HOWE	06/29/22	07/06/22	35.80	±	33.30	1.32	±	1.23	No
	08/03/22	08/10/22	6.52	±	31.20	0.24	±	1.15	No
	09/07/22	09/14/22	107.00	±	31.90	3.96	±	1.18	Yes
	09/14/22	09/21/22	148.00	±	32.10	5.48	±	1.19	Yes
	09/21/22	09/28/22	10.60	±	103.00	0.39	±	3.81	No
OFFSITE									
IDAHO FALLS	07/01/22	07/31/22	73.10	±	32.90	2.70	±	1.22	No
	08/01/22	08/31/22	90.60	±	33.50	3.35	±	1.24	No
	09/01/22	09/30/22	-16.00	±	33.20	-0.59	±	1.23	No
ONSITE									
EFS	07/27/22	08/03/22	-29.40	±	25.70	-1.09	±	0.95	No
	08/03/22	08/10/22	61.90	±	32.90	2.29	±	1.22	No
	08/10/22	08/17/22	78.20	±	33.40	2.89	±	1.24	No
	08/17/22	08/24/22	-58.30	±	32.60	-2.16	±	1.21	No
	09/14/22	09/21/22	167.00	±	31.90	6.18	±	1.18	Yes
	09/21/22	09/28/22	5.46	±	33.30	0.20	±	1.23	No

Table C-6. Weekly and monthly iodine-131 and cesium-137 concentrations in milk.

Location	Sampling Date	Iodine-131					Cesium-137				
		Result ± 1s Uncertainty		Result ± 1s Uncertainty (Bq/L)		Result > 3s	Result ± 1s Uncertainty (pCi/L)		Result ± 1s Uncertainty (Bq/L)		Result > 3s
CONTROL	07/06/22	-1.24 ± 1.29	-0.05 ± 0.05	No	-1.17 ± 1.51	-0.04 ± 0.06	No				
	08/01/22	0.84 ± 1.11	0.03 ± 0.04	No	-0.51 ± 1.40	-0.02 ± 0.05	No				
	09/07/22	1.54 ± 1.09	0.06 ± 0.04	No	0.28 ± 1.51	0.01 ± 0.06	No				
DIETRICH	07/05/22	-1.34 ± 1.08	-0.05 ± 0.04	No	1.34 ± 1.36	0.05 ± 0.05	No				
	08/02/22	-2.06 ± 1.12	-0.08 ± 0.04	No	2.28 ^a ± 0.72	0.08 ± 0.03	Yes				
	09/06/22	-0.98 ± 0.91	-0.04 ± 0.03	No	1.16 ± 0.71	0.04 ± 0.03	No				
HOWE	07/05/22	0.52 ± 0.90	0.02 ± 0.03	No	-0.19 ± 0.61	-0.01 ± 0.02	No				
	08/02/22	-0.19 ± 1.87	-0.01 ± 0.07	No	-0.16 ± 1.39	-0.01 ± 0.05	No				
	09/06/22	-1.36 ± 1.41	-0.05 ± 0.05	No	1.70 ± 1.40	0.06 ± 0.05	No				
MINIDOKA	07/05/22	0.14 ± 0.84	0.01 ± 0.03	No	0.46 ± 0.65	0.02 ± 0.02	No				
	08/02/22	1.63 ± 1.67	0.06 ± 0.06	No	2.45 ± 1.42	0.09 ± 0.05	No				
	09/06/22	-1.57 ± 1.02	-0.06 ± 0.04	No	-0.64 ± 0.63	-0.02 ± 0.02	No				
MONTEVIEW	07/06/22	-0.05 ± 1.03	0.00 ± 0.04	No	0.36 ± 0.62	0.01 ± 0.02	No				
	08/01/22	0.98 ± 0.98	0.04 ± 0.04	No	0.02 ± 0.66	0.00 ± 0.02	No				
	duplicate 09/07/22	1.09 ± 1.02	0.04 ± 0.04	No	1.01 ± 0.67	0.04 ± 0.02	No				
	09/07/22	0.43 ± 1.63	0.02 ± 0.06	No	-0.23 ± 1.32	-0.01 ± 0.05	No				
	09/07/22	0.43 ± 1.63	0.02 ± 0.06	No	-0.23 ± 1.32	-0.01 ± 0.05	No				
RIGBY	07/06/22	2.34 ± 1.15	0.09 ± 0.04	No	0.65 ± 1.40	0.02 ± 0.05	No				
	07/12/22	1.40 ± 1.37	0.05 ± 0.05	No	-1.58 ± 1.55	-0.06 ± 0.06	No				
	07/20/22	-0.52 ± 1.47	-0.02 ± 0.05	No	-2.27 ± 1.48	-0.08 ± 0.05	No				
	07/27/22	-0.65 ± 1.07	-0.02 ± 0.04	No	0.20 ± 0.66	0.01 ± 0.02	No				
	08/03/22	-3.81 ± 1.74	-0.14 ± 0.06	No	-0.27 ± 1.32	-0.01 ± 0.05	No				
	duplicate 08/03/22	1.14 ± 1.25	0.04 ± 0.05	No	1.06 ± 0.67	0.04 ± 0.02	No				
	08/17/22	-2.09 ± 1.07	-0.08 ± 0.04	No	0.13 ± 1.45	0.00 ± 0.05	No				
	08/23/22	-2.95 ± 1.71	-0.11 ± 0.06	No	0.16 ± 1.32	0.01 ± 0.05	No				
	08/31/22	2.87 ± 1.52	0.11 ± 0.06	No	2.23 ± 1.45	0.08 ± 0.05	No				
	09/06/22	0.42 ± 1.95	0.02 ± 0.07	No	-1.25 ± 1.34	-0.05 ± 0.05	No				
	09/14/22	0.99 ± 1.50	0.04 ± 0.06	No	-0.06 ± 1.30	0.00 ± 0.05	No				
	09/21/22	1.09 ± 1.40	0.04 ± 0.05	No	2.16 ± 1.36	0.08 ± 0.05	No				
	09/27/22	-1.17 ± 1.03	-0.04 ± 0.04	No	-0.83 ± 1.07	-0.03 ± 0.04	No				
TERRETON	07/06/22	-0.03 ± 0.87	0.00 ± 0.03	No	2.27 ^a ± 0.75	0.08 ± 0.03	Yes				
	duplicate 07/06/22	0.07 ± 0.92	0.00 ± 0.03	No	0.30 ± 0.60	0.01 ± 0.02	No				
	07/12/22	-0.04 ± 0.85	0.00 ± 0.03	No	-0.33 ± 0.63	-0.01 ± 0.02	No				
	07/20/22	0.36 ± 0.80	0.01 ± 0.03	No	0.57 ± 0.67	0.02 ± 0.02	No				
	07/27/22	-0.80 ± 0.84	-0.03 ± 0.03	No	-0.04 ± 0.65	0.00 ± 0.02	No				
	08/03/22	-3.41 ± 2.22	-0.13 ± 0.08	No	-0.77 ± 1.36	-0.03 ± 0.05	No				
	08/17/22	-0.23 ± 0.78	-0.01 ± 0.03	No	0.93 ± 0.67	0.03 ± 0.02	No				
	08/23/22	-1.23 ± 0.93	-0.05 ± 0.03	No	0.06 ± 0.61	0.00 ± 0.02	No				
	08/31/22	-0.75 ± 0.78	-0.03 ± 0.03	No	-0.46 ± 0.65	-0.02 ± 0.02	No				
	09/06/22	0.83 ± 1.25	0.03 ± 0.05	No	-2.08 ± 1.47	-0.08 ± 0.05	No				
	09/14/22	0.74 ± 0.85	0.03 ± 0.03	No	-0.71 ± 0.63	-0.03 ± 0.02	No				
	09/20/22	1.59 ± 0.89	0.06 ± 0.03	No	1.21 ± 0.68	0.04 ± 0.03	No				
	09/28/22	-0.18 ± 0.89	-0.01 ± 0.03	No	-0.42 ± 0.47	-0.02 ± 0.02	No				

^a The associated energy peak was not present.

Tabel C-7. Cesium-137 and strontium-90 concentrations in lettuce.

CESIUM-137								
Location	Sampling Date	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
		pCi/kg			(x 10 ⁻² Bq/kg)			
AMMON	09/06/22	-6.26	±	130.00	-23.19	±	481.48	No
ATOMIC CITY	08/24/22	-39.30	±	35.40	-145.56	±	131.11	No
BLACKFOOT	09/10/22	-15.10	±	24.60	-55.93	±	91.11	No
EFS	08/24/22	-4.07	±	53.60	-15.07	±	198.52	No
FAA TOWER	09/15/22	-24.40	±	53.90	-90.37	±	199.63	No
HOWE	08/17/22	-10.80	±	24.90	-40.00	±	92.22	No
MONTEREY, CA	09/12/22	-4.02	±	53.40	-14.89	±	197.78	No
MONTEVIEW	08/03/22	51.70	±	41.90	191.48	±	155.19	No
POCATELLO	09/10/22	-173.00	±	152.00	-640.74	±	562.96	No
STRONTIUM-90								
AMMON	09/06/22	-9.43	±	7.40	-34.93	±	27.41	No
ATOMIC CITY	08/24/22	34.60	±	12.60	128.15	±	46.67	No
BLACKFOOT	09/10/22	13.20	±	8.92	48.89	±	33.04	No
EFS	08/24/22	31.00	±	12.30	114.81	±	45.56	No
FAA TOWER	09/15/22	26.70	±	15.80	98.89	±	58.52	No
HOWE	08/17/22	-9.94	±	9.11	-36.81	±	33.74	No
MONTEREY, CA	09/12/22	21.50	±	11.80	79.63	±	43.70	No
MONTEVIEW	08/03/22	30.50	±	19.30	112.96	±	71.48	No
POCATELLO	09/10/22	-15.40	±	7.44	-57.04	±	27.56	No

Table C-8. Cesium-137 and strontium-90 concentrations in grain.

CESIUM-137									
Location	Sampling Date	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s	
		pCi/kg			Bq/kg				
AMERICAN FALLS	09/06/22	-1.35	±	1.49	-0.05	±	0.06	No	
AMERICAN FALLS (QA)	09/06/22	0.16	±	0.98	0.01	±	0.04	No	
ARCO	08/31/22	-0.27	±	2.53	-0.01	±	0.09	No	
BLACKFOOT	08/31/22	-2.96	±	2.17	-0.11	±	0.08	No	
HOWE	09/06/22	-0.98	±	1.50	-0.04	±	0.06	No	
IDAHO FALLS	09/08/22	-0.61	±	0.88	-0.02	±	0.03	No	
KIMAMA	09/06/22	-0.40	±	0.82	-0.01	±	0.03	No	
MILWAUKIE, OR	09/07/22	0.03	±	2.35	0.00	±	0.09	No	
MONTEVIEW	09/07/22	-1.07	±	1.10	-0.04	±	0.04	No	
ROBERTS	09/08/22	0.72	±	2.23	0.03	±	0.08	No	
RUPERT	09/06/22	3.78	±	1.93	0.14	±	0.07	No	
TERRETON	09/06/22	-1.18	±	2.52	-0.04	±	0.09	No	
STRONTIUM-90									
AMERICAN FALLS	09/06/22	-17.70	±	11.50	-0.66	±	0.43	No	
AMERICAN FALLS (QA)	09/06/22	35.40	±	15.50	1.31	±	0.57	No	
ARCO	08/31/22	-27.50	±	15.70	-1.02	±	0.58	No	
BLACKFOOT	08/31/22	20.10	±	10.40	0.74	±	0.39	No	
HOWE	09/06/22	38.60	±	15.30	1.43	±	0.57	No	
IDAHO FALLS	09/08/22	3.59	±	14.20	0.13	±	0.53	No	
KIMAMA	09/06/22	20.40	±	16.20	0.76	±	0.60	No	
MILWAUKIE, OR	09/07/22	23.30	±	12.00	0.86	±	0.44	No	
MONTEVIEW	09/07/22	0.48	±	14.60	0.02	±	0.54	No	
ROBERTS	09/08/22	15.50	±	16.00	0.57	±	0.59	No	
RUPERT	09/06/22	-31.00	±	13.70	-1.15	±	0.51	No	
TERRETON	09/06/22	6.47	±	17.00	0.24	±	0.63	No	

Table C-9. Gamma-emitting radionuclides in large game animals.

Species	Collection		Analyte	Result ± 1s Uncertainty			Result ± 1s Uncertainty			Result > 3s
	Date	Tissue		(pCi/kg wet weight)			(x 10 ⁻² Bq/kg wet weight)			
ELK	09/28/22	Liver	Cesium-137	1.11	±	0.96	4.11	±	3.53	No
			Iodine-131	18.70	±	16.20	69.19	±	59.94	No
ELK	09/28/22	Muscle	Cesium-137	0.78	±	1.38	2.87	±	5.11	No
			Iodine-131	31.20	±	29.40	115.44	±	108.78	No
ELK	09/28/22	Thyroid	Cesium-137	-1.78	±	6.56	-6.59	±	24.27	No
			Iodine-131	5.27	±	10.80	19.50	±	39.96	No

Appendix D

Statistical Analysis Results

Table D-1. Results of the Kruskal-Wallis one-way analysis of variance by ranks between onsite, boundary, and offsite sample groups by quarter and by month.

GROSS ALPHA					
Quarter	Valid N	Sum of Ranks	Mean Ranks	H^a	P^b
Boundary	90	23352.00	259.4667		
Onsite	272	72901.50	268.0202	0.5021721	0.7780
Offsite	164	42347.50	258.2165		
July	Valid N	Sum of Ranks	Mean Ranks	H^a	P^b
Boundary	27	1982.000	73.40741		
Onsite	85	7120.000	83.76471	1.212747	0.5453
Offsite	52	4428.000	85.15385		
August	Valid N	Sum of Ranks	Mean Ranks	H^a	P^b
Boundary	35	3960.50	105.4429		
Onsite	106	10673.50	100.6934	0.2816750	0.8686
Offsite	60	5937.00	98.9500		
September	Valid N	Sum of Ranks	Mean Ranks	H^a	P^b
Boundary	28	2304.50	82.30357		
Onsite	81	6938.50	85.66049	2.347941	0.3091
Offsite	52	3798.00	73.03846		
GROSS BETA					
Quarter	Valid N	Sum of Ranks	Mean Ranks	H^a	P^b
Boundary	90	22369.00	248.5444		
Onsite	272	72042.50	264.8621	1.144529	0.5642
Offsite	164	44189.50	269.4482		
July	Valid N	Sum of Ranks	Mean Ranks	H^a	P^b
Boundary	27	1657.000	61.37037		
Onsite	85	7592.500	89.32353	7.102600	0.0287
Offsite	52	4280.500	82.31731		
August	Valid N	Sum of Ranks	Mean Ranks	H^a	P^b
Boundary	35	3144.00	89.8286		
Onsite	106	10610.00	100.0943	2.485238	0.2886
Offsite	60	6547.00	109.1167		

Table D-1. continued.

September	Valid N	Sum of Ranks	Mean Ranks	H^a	P^b
Boundary	28	2382.500	85.08929		
Onsite	81	6377.500	78.73457	0.4488516	0.7990
Offsite	52	4281.000	82.32692		

- a. Kruskal Wallis test statistic calculated using mean ranks. This test assumes H is approximately distributed as χ^2 .
- b. A p-value (probability value) greater than 0.05 signifies no statistical difference between data groups. Any values below 0.05 are indicated in red.

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