

Environmental Science and Research Foundation

Results of INEEL Offsite Environmental Surveillance for the First Quarter of 1996

Environmental surveillance during the first quarter of 1996 (January-March) found no radionuclides in the offsite environment attributable to Idaho National Engineering and Environmental Laboratory (INEEL) operations. The Environmental Science and Research Foundation sampled potential pathways by which radionuclides from the INEEL could reach members of the public. The pathways sampled during the first quarter were air, water, and milk. The results are presented in the report *INEEL Offsite Environmental Surveillance Program Report for the First Quarter of 1996* (ESRF-016(1QT96)).

Air

The Foundation maintained a network of 11 continuously-operating air samplers around the INEEL. Three additional samplers were located on the INEEL for comparison to offsite samplers. Air filters from the samplers were collected weekly for analysis. The filters were analyzed weekly for "gross" activity--a measurement of the total amount of radioactivity per milliliter of air pulled through the filter. At the end of the quarter all of the filters from each location were combined and analyzed for specific radionuclides. Charcoal cartridges included with the air filters trap radionuclides, such as iodine-131, that are in the form of gases. These cartridges were analyzed weekly. Atmospheric moisture and precipitation samples were collected and analyzed for tritium, a radioactive form of hydrogen.

All concentrations of radionuclides were within the range of values typical of background radioactivity.

No iodine-131 was found in any air samples.

Mean concentrations of gross beta and gross alpha were similar among weekly air filters collected on the INEEL, near the boundary of the INEEL, and far from the INEEL.

No plutonium or cesium was detected on any air filters. Strontium-90 was detected at one distant and two boundary stations. The highest level occurred at Mud Lake. Americium-241, at just above the minimum detectable concentration, was indicated at the INEL Main Gate. No americium was detected in a replicate sample.

Small amounts of tritium were found in two of 10 precipitation analyses. Both samples were collected at the Experimental Field Station on the INEEL. The detected concentrations are most

likely due to natural atmospheric reactions and nuclear weapons testing during the 1950s and 1960s.

Air, continued

Tritium was detected in one of four atmospheric moisture samples. This tritium, found in a sample from Idaho Falls, was attributed to historic, above-ground nuclear weapons tests and natural atmospheric processes.

Water

In February, the Foundation collected samples of drinking water from two communities and samples of surface water from three locations in the Magic Valley. Each sample was tested for tritium, gross alpha, and gross beta.

No tritium was found in any of the water samples.

No measurable concentrations of gross alpha radioactivity were detected.

Gross beta concentrations were detected in water samples from Minidoka, Shoshone, and Alpheus Spring. The detected concentrations were consistent with those acquired naturally as water flows through the earth's crust.

Milk

Milk samples were collected weekly from a dairy in Idaho Falls, and monthly from eight other dairies in southeastern Idaho. Each milk sample was analyzed for iodine-131.

No iodine-131 was found in any of the 37 milk samples.

For questions or more detailed results, contact:

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