UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RADIATION AND INDOOR AIR
National Air and Radiation Environmental Laboratory
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February 28, 2012

MEMORANDUM

SUBJECT: Radiochemical Results for
Dimock Residential Groundwater Site Samples

FROM: Tonya B. Hudson, Acting Director
Center for Environmental Radioanalytical Laboratory Science

TO: Fred Foreman, Chief
Technical Services, Region 3

Attached are data packages for gross alpha and beta analysis of samples collected from the Dimock Residential Groundwater Site in Dimock, PA. The samples constitute NAREL batch numbers 1100243, 1100244, and 1100245. Also attached is a radium-228 data package for NAREL batch number 1100243. The results of further analyses will be sent as they are completed.

Radiochemical analyses usually require the subtraction of an instrument background measurement from a gross sample measurement. Both values are positive, but when the sample activity is low, random variations in the two measurements can cause the gross value to be less than the background, resulting in a measured activity less than zero. Although negative activities have no physical significance, they do have statistical significance, as for example in the evaluation of trends or the comparison of two groups of samples.

For all analyses except gamma spectroscopy, it is the policy of NAREL to report results as generated, whether positive, negative, or zero, together with the 2-sigma measurement uncertainty and a sample-specific estimate of the minimum detectable concentration (MDC). The activity, uncertainty, and MDC are given in the same units. The activity and 2-sigma uncertainty for a radionuclide measured by gamma spectroscopy are reported only if the nuclide is detected; so, the results of gamma analyses are never zero or negative. Nuclides that are not detected do not appear in the report, with the exception of Ba-140, Co-60, Cs-137, I-131, K-40, Ra-226, and Ra-228. If one of these seven nuclides is undetected, NAREL reports it as ANot Detected,@ or AND,@ and provides a sample-specific estimate of the MDC.

DIM0270919

Specific information concerning all aspects of the radiological analysis of the samples is contained in the batch case narratives of the data packages. If you have any questions concerning the analytical results, please contact me at (334)270-3450.

Attachments

cc: John G. Griggs, NAREL