

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 7

11201 Renner Boulevard  
Lenexa, Kansas 66219

MAY 16 2014

Ms. Dawn Chapman  
[REDACTED]

Dear Ms. Chapman:

We have received the information you submitted to the U.S. Environmental Protection Agency on April 25, 2014, which you acquired with a Gamma Pal instrument on April 16 and 17, 2014. As the EPA reviews the information, I should point out that even if the instrument was performing correctly, there can be times when naturally occurring radionuclides can create interference peaks in a gamma spectrum. The spectrum identified as having a peak, BMAC0004, has fewer counts than your other samples, but it does have less mass, and therefore has a higher counts per gram of activity by approximately 45%. There are a lot of naturally occurring interferences that sometimes occur in gamma spectroscopy: usually they include radon and its decay daughters; however, your spectrum has a peak around 477 keV which is not a typical radon decay product energy. In reviewing decay spectrum data centered at your peak, there does seem to be a naturally occurring radionuclide, beryllium-7, that is a cosmogenic radionuclide. A cosmogenic radionuclide is created by charged particles in the upper atmosphere similar to the way carbon-14 is created and used in carbon dating.

In order to assist the EPA in evaluating your information, we would appreciate studying copies of the quality assurance plan and standard operating procedure you followed in using this instrument, calibration results from the instrument, the qualifications of the people operating the instrument, and any other documents or notes you took that help describe how and where the information was collected. Without this supporting material, the usability of the information you provided this agency is very limited.

The EPA has detailed quality assurance requirements that apply to all data used for decision-making purposes. These requirements are summarized in our "EPA Requirements for Quality Assurance Project Plans," EPA QA/R5, which is available at [http://www.epa.gov/QUALITY/qa\\_docs.html](http://www.epa.gov/QUALITY/qa_docs.html). These documents are complex, so the EPA recommends that you seek assistance from a qualified third-party expert with experience in performing radiation surveys to help you perform any additional sampling.

Sincerely,

Jeffrey L. Field, Chief  
Missouri/Kansas Remedial Branch  
Superfund Division



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