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Department of Energy
Office of Legacy Management

August 19, 2009

Mr. Michael Murphy
U.S. Environmental Protection Agency
Region V, A-18JJ
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Dear Mr. Murphy:

Subject: Revisions to 2006 and 2007 NESHAP Reports

During the preparation of the 2008 National Emissions Standards for Hazardous Air Pollutants (NESHAP) report, a review of monthly and quarterly analytical results for uranium revealed that quarterly results for uranium were about an order of magnitude lower than monthly results. Although the analytical methods used for the monthly (ICP) and quarterly (alpha spectroscopy) results are different, measured uranium concentrations should differ by no more than about 20 percent for these methods (i.e., within the range of an acceptable laboratory QA/QC performance metric).

After discovering the discrepancy in the 2008 data, previous NESHAP reports were examined and the monthly uranium data were found to be consistent. However, quarterly analytical results for uranium decreased by a significant factor in the second quarter of 2006, relative to the first quarter of 2006. Additional investigation of the variability in the monthly analytical results showed that the decrease in the quarterly data between the first and second quarters of 2006 was significantly more than could be explained by normal uranium variation in the monthly data. Spreadsheet calculations were checked and confirmed to be correct. Therefore, a request was made to the analytical laboratory to investigate the first and second quarter results for 2006 to identify potential reporting errors.

The analytical laboratory confirmed that quarterly uranium isotopic results, and all thorium and radium isotopic results, from the second quarter of 2006 through 2008 were incorrect. A dilution correction performed on the measured result was in error. The ratio of aliquot volume to total sample volume (V_a/V_{ts}) was used for the dilution correction, rather than using the aliquot volume (V_a). In general, the total sample volume from the three monthly samples that form the quarterly composite is approximately 0.150 liter (L) and the sample aliquot is 0.02 L. When the instrument reports an activity result for the isotope, the result is divided by aliquot volume to obtain the activity reporting unit of pCi/L.

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REPLY TO: Harrison Office		

Using revised analytical reports with the correct dilution calculation, the quarterly uranium results now agree (± 20 percent) with the reported monthly uranium results. The use of isotopic results that were biased low by the incorrect dilution calculation produced a dose estimate that was too low for 2006 and 2007. However, corrected doses in Table 1 reveal that the dose remains nearly two orders of magnitude below the NESHAP limit of 10 mrem/yr.

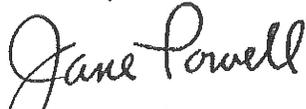
TABLE 1. Corrected NESHAP dose for 2006 and 2007

Year	Incorrect result (mrem/yr)	Correct result (mrem/yr)
2006	0.18	0.48
2007	0.023	0.15

As a mitigation measure, future analytical reports will be verified against historic data to ensure reporting errors are discovered and corrected in a timely fashion. The analytical laboratory has been advised to increase their vigilance with QA/QC checks prior to releasing reports.

If you have any questions or require additional information, please call me at (513) 648-3148.

Sincerely,



Jane Powell
Fernald Preserve Manager
DOE-LM-20.1

cc:

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