



March 13, 2009

Ms. Yolande J.C. Norman
U.S. Nuclear Regulatory Commission (NRC)
Mailstop T-8 F-5
Washington, DC 20555-0001

SUBJECT: Re-Analysis of Higher Activity Soil Samples from Under Depleted Uranium Penetrators, U.S. Army Jefferson Proving Ground, Madison, IN

Dear Ms. Norman:

During the fall of 2008, the U.S. Army pursued additional characterization of depleted uranium (DU) present on the Jefferson Proving Ground (JPG), Madison, IN. Characterization efforts included the collection of soils covering the full range of possible activities from background to relatively high concentrations of uranium particularly samples collected directly under DU penetrators.

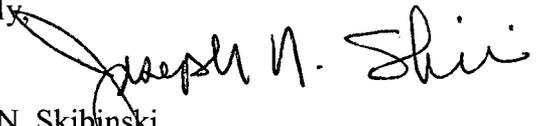
As you have previously been advised verbally, the Army recently became aware that alpha spectrometry results for a limited portion of the higher activity samples appear to be biased high. This conclusion is based on reported results for one alpha spectrometry sample, which exceeded the specific activity of DU as stated in Title 10, Code of Federal Regulations (CFR), Part 20, Appendix B (i.e., 3.6×10^{-7} Ci/g), and has been reinforced by reanalysis of six high-activity samples using gamma spectroscopy and the associated comparison of radioanalytical results for the two methods. The alpha spectrometry results for the highest activity sample are a factor of 50 higher than the gamma spectroscopy results. In addition, alpha spectrometry results for each of the other five samples were a factor of 3.1 to 7.2 higher than the gamma spectroscopy results for the same samples (see Enclosure 1).

Investigations performed to date suggest that the elevated alpha spectrometry results are associated with poor tracer recoveries and sample dilutions required to accommodate the high uranium concentrations. Based on the high bias that been encountered with alpha spectrometry, the Army has proposed to subject up to 40 samples to analysis by gamma spectroscopy with the gamma spectroscopy results serving as the method of record for high-activity samples. Consistent with your direction, Mr. Dennis Chambers (SAIC) consulted Ms. Karen Pinkston of the NRC staff on Friday, March 6, 2009, regarding the change in the analytical method. Ms. Pinkston consulted with other members of the NRC staff and provided verbal concurrence on the afternoon of March 6, 2009.

This letter is provided to serve as documentation of the stated change.

If you have any questions, please contact Mr. Paul Cloud, Jefferson Proving Ground (JPG) License Radiation Safety Officer, U.S. Army JPG at (410) 436-2381, E-mail address: paul.d.cloud@us.army.mil.

Sincerely,



Joseph N. Skibinski
 Project Manager, Science Applications International Corporation (SAIC)
 12100 Sunset Hills Road
 Reston, VA 20190
 (703) 375-2074
 (703) 709-1042 Fax
skibinskij@saic.com

cc: Paul Cloud
 Brooks Evens
 SAIC Central Records Project File

Enclosure 1

Sample ID	Field ID	Alpha Spec Result (U ₂₃₈) (pCi/g)	Result (non-tracer corrected)	Mass (g)	Tracer Recovery	Gamma Result (U ₂₃₈) (pCi/g)	Mass (g)	Dead Time
8881-01	JP-PNCR-001	134,600	16,152	0.0015	12%	34,360	212.8	3.50%
8884-02	JP-PNAC-009	629,400	25,176	0.0015	4%	12,570	246.9	2%
8884-19	JP-PNAC-006	110,200	20,938	0.0015	19%	35,130	211.2	4.50%
8905-04	JP-PNCR-004	89,900	12,586	0.0015	14%	13,330	207.2	1.70%
8905-20	JP-PNAC-010	105,600	11,616	0.0015	11%	14,680	195.2	1.30%
8905-11	JP-PNAC-007	173,500	12,145	0.0015	7%	36,810	137.8	3.10%

FEB 18 2009