

November 29, 2004

Mr. Mike McCann
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532-4351

**SUBJECT: ANALYTICAL RESULTS FOR SOIL AND SMEAR SAMPLES
COLLECTED OCTOBER 20 AND 21, 2004 FROM THE BATTELLE
MEMORIAL INSTITUTE, COLUMBUS, OHIO [INSPECTION REPORT
070-00008/2004-003](RFTA NO. 05-001)**

Dear Mr. McCann:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) received nine soil samples and 41 smear samples on October 26, 2004 that were collected at the Battelle Memorial Institute. However, the samples were not officially received by the Laboratory staff until November 15, 2004 due to the sample shipping container not being placed in the Laboratory sample receiving area. ORISE apologizes for the delay in beginning the analyses and has taken steps to ensure that the laboratory staff is notified when sample shipments have been delivered. The sample package did not appear to have been tampered with, and was in an ORISE controlled area until received by Laboratory staff. When the samples were reviewed against the chain-of-custody (COC), it was discovered that smears 15-17 were missing. This discrepancy was reported to Ed Kulzer. ESSAP was instructed to count the 41 smear samples that were received by the laboratory. The soil samples were analyzed by gamma spectroscopy (GS) (Procedure CP1, Revision 14). The results of the GS are presented in Table 1. The 41 smear samples were analyzed for alpha and beta contamination by low background alpha and beta counting (Procedure AP1, Revision 14 and CP3 Low Background Alpha/Beta Counter, Revision 2). The minimum detectable concentration (MDC) for gross alpha is 8.9 dpm/smear and the MDC for gross beta is 15 dpm/smear. The results for the 41 smear samples were all less than the reported MDC for each analysis.

ESSAP's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

P. O. BOX 117, OAK RIDGE, TENNESSEE 37831-0117

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If you have any questions, please call me at (865) 241-3242 or Wade Ivey at (865) 576-9184.

Sincerely,

Dale Condra

Dale Condra
Laboratory Manager
Environmental Survey and
Site Assessment Program

RDC:WPI:ar

Enclosures

cc: T. McLaughlin, NRC/NMSS/TWFN 7F27
E. Knox-Davin, NRC/NMSS/TWFN T8A23
File 1639

E. Abelquist, ORISE/ESSAP
T. Vitkus, ORISE/ESSAP

Distribution approval and concurrence:	Initials	Date
Technical Management Team Member	<i>TQV</i>	<i>11/29/2004</i>
Quality Manager	<i>ATP</i>	<i>11/29/2004</i>

ORISE TABLE 1

**COBALT-60 (Co-60), CESIUM-137 (Cs-137) AND URANIUM-235,-238 (U-235,U-238)
CONCENTRATIONS IN SOIL SAMPLES
BY GAMMA SPECTROSCOPY
CP1, REVISION 14
BATTELLE MEMORIAL INSTITUTE
COLUMBUS, OHIO**

ESSAP Sample ID	NRC Region III Sample ID	Radionuclide Concentrations ^{a,b} (pCi/g dry weight)			
		Co-60	Cs-137	U-235	U-238 by Th-234
1639S0001	#1	0.00 ^c ± 0.03 ^d	0.02 ± 0.02	0.01 ± 0.09	1.08 ± 0.45
1639S0002	#2	-0.01 ± 0.03	0.01 ± 0.02	0.09 ± 0.11	1.49 ± 0.69
1639S0003	#3	-0.01 ± 0.02	0.04 ± 0.02	0.12 ± 0.12	1.32 ± 0.46
1639S0004	#4	-0.01 ± 0.02	-0.01 ± 0.02	0.11 ± 0.12	1.04 ± 0.51
1639S0005	#5	0.01 ± 0.03	0.12 ± 0.03	0.05 ± 0.09	0.99 ± 0.60
1639S0006	#6	0.00 ± 0.02	0.00 ± 0.02	0.08 ± 0.07	0.88 ± 0.43
1639S0007	#7	-0.01 ± 0.03	0.04 ± 0.02	0.08 ± 0.08	1.01 ± 0.52
1639S0008	#8	0.00 ± 0.02	0.05 ± 0.02	0.08 ± 0.13	1.17 ± 0.58
1639S0009	#9	0.01 ± 0.02	0.06 ± 0.03	0.05 ± 0.07	1.05 ± 0.43

^aThe MDC for a one hour count of soil in a 0.5L Marinelli for Co-60 is 0.04 pCi/g and for Cs-137 is 0.03 pCi/g.

^bThe average MDC for a one hour count of soil in a 0.5L Marinelli for U-235 is 0.14 pCi/g and for U-238 is 0.52 pCi/g.

^cZero values are due to rounding.

^dUncertainties represent the 95% confidence level, based on total propagated uncertainties.