

August 11, 2011

Mr. Gene Bonano  
U.S. Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road  
Lisle, IL 60532-4351

**SUBJECT: ORISE CONTRACT NO. DE-AC05-06OR23100  
LETTER REPORT FOR ANALYTICAL RESULTS FOR ONE SOIL SAMPLE  
FROM THE BRECKENRIDGE SITE, BRECKENRIDGE, MICHIGAN  
[INSPECTION REPORT NO. 040-06264/11-01]  
(RFTA NO. 11-001), DCN: 2050-LR-03-0**


Dear Mr. Bonano:

The Oak Ridge Institute for Science and Education (ORISE) received one soil sample on August 9, 2011 from the Breckenridge site in Breckenridge, Michigan. The sample was analyzed according to the NRC Form 303 supplied with the sample including an "urgent" priority. Sample identification as described under the "Sample Number" field of Form 303 and collection data are presented in Table 1. Gamma spectroscopy data for Ra-226, Th-228, Th-230, Th-232, total Th, U-235, U-238, and total U are presented in Table 2. The pertinent procedure reference is included with the data table.

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

My contact information is listed below. You may also contact Dale Condra at 865.241.3242 with any questions or comments.

Sincerely,

  
Wade Ivey, Manager  
Laboratory

WPI:RDC:bj

Enclosures

c: T. Carter, NRC/FSME/DWMEP T-8F5 File 2050  
S. Nesmith, NRC/FSME/PBPA/TWFN 8A23

electronic: S. Roberts, ORISE T. Vitkus, ORISE

Distribution approval and concurrence:	Initials
Technical Review	ENB
Quality Review	JB

**TABLE 1**

**SAMPLE IDENTIFICATION  
AND COLLECTION DATA  
BRECKENRIDGE SITE  
BRECKENRIDGE, MICHIGAN**

<b>ORISE Sample ID</b>	<b>NRC Region III Sample ID</b>	<b>Collection Date</b>	<b>Collection Time</b>
2050S0009	BK-11-02-01	8/4/11	11:30

**TABLE 2**

**CONCENTRATIONS OF SELECTED GAMMA EMITTING RADIONUCLIDES**  
**IN A SOIL SAMPLE**  
**BY GAMMA SPECTROSCOPY CP1, REVISION 17**  
**BRECKENRIDGE SITE**  
**BRECKENRIDGE, MICHIGAN**

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations, TPU <sup>a</sup> , and MDCs <sup>b</sup> (pCi/g)			
		Th-228 by Pb-212	Th-230	Th-232 by Ac-228	Total Th <sup>c</sup>
2050S0009	BK-11-02-01	0.83 ± 0.09 , 0.19	52 ± 11 , 34	0.84 ± 0.18 , 0.62	1.67 ± 0.20

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations, TPU <sup>a</sup> , and MDCs <sup>b</sup> (pCi/g)			
		Ra-226 by Pb-214	U-235	U-238 by Th-234	Total U <sup>d</sup>
2050S0009	BK-11-02-01	38.9 ± 2.2 , 0.3	3.08 ± 0.31 , 0.66	48.0 ± 3.3 , 3.5	99.1 ± 6.6

<sup>a</sup>Uncertainties represent the 95% confidence level, based on total propagated uncertainties.

<sup>b</sup>The MDCs appear after the commas.

<sup>c</sup>Total Th is the sum of Th-228 + Th-232.

<sup>d</sup>Total U is calculated by (U-238\*2) + U-235.