

June 12, 2009

Mr. Mike McCann  
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 THREE  
SOIL SAMPLES FROM SIGMA-ALDRICH/FORT MIMS FACILITY  
IN MARYLAND HEIGHTS, MISSOURI  
[030-10716/2009001] (RFTA NO. 09-001)  
DCN: 1796-LR-01-0**

Dear Mr. McCann:

The Oak Ridge Institute for Science and Education (ORISE) received three soil samples on May 12, 2009 from Sigma-Aldrich/Fort Mims Facility in Maryland Heights, Missouri. The samples were analyzed according to the 303 form submitted with the samples. The sample identification numbers are presented in Table 1. The tritium results are presented in Table 2. The carbon-14 results are presented in Table 3. The pertinent procedure references are included with the data tables.

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 Wade Ivey at 865.576.9184 with any questions or comments.

Sincerely,



Dale Condra, Manager  
Laboratory

RDC:WPI:bf

Enclosures

c: T. Carter, NRC/FSME/DWMEP T-8F5                      E. Abelquist, ORISE  
T. Patterson, NRC/FSME/TWFN 8D42                      T. Vitkus, ORISE  
File 1796

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

**TABLE 1**

**SAMPLE IDENTIFICATIONS  
AND COLLECTION DATA  
SIGMA-ALDRICH/FORT MIMS FACILITY  
MARYLAND HEIGHTS, MISSOURI**

<b>ORISE Sample ID</b>	<b>NRC Region III Sample ID</b>	<b>Collection Date</b>	<b>Collection Time</b>
1796S0001	SA-09-1-01	5/6/09	11:55 AM
1796S0002	SA-09-1-02	5/6/09	12:07 PM
1796S0003	SA-09-1-03	5/6/09	11:45 AM

**TABLE 2**

**CONCENTRATIONS OF TRITIUM (H-3)  
IN SOIL SAMPLES  
BY LIQUID SCINTILLATION ANALYSIS  
AP6, REVISION 17; CP4, REVISION 3  
SIGMA-ALDRICH/FORT MIMS FACILITY  
MARYLAND HEIGHTS, MISSOURI**

<b>ORISE Sample ID</b>	<b>NRC Region III Sample ID</b>	<b>H-3 Concentrations, TPUs, and MDCs<sup>a</sup> (pCi/g wet weight)</b>
1796S0001	SA-09-1-01	15.1 ± 4.4 <sup>b</sup> , 3.0
1796S0002	SA-09-1-02	9.1 ± 3.0 , 2.8
1796S0003	SA-09-1-03	15.9 ± 4.4 , 2.7

<sup>a</sup>The MDCs are after the comma.

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

**TABLE 3**

**CONCENTRATIONS OF CARBON-14 (C-14)  
IN SOIL SAMPLES  
BY LIQUID SCINTILLATION ANALYSIS  
AP6, REVISION 17; CP4, REVISION 3  
SIGMA-ALDRICH/FORT MIMS FACILITY  
MARYLAND HEIGHTS, MISSOURI**

<b>ORISE Sample ID</b>	<b>NRC Region III Sample ID</b>	<b>C-14 Concentrations, TPUs, and MDCs<sup>a</sup> (pCi/g wet weight)</b>
1796S0001	SA-09-1-01	9.3 ± 1.5 <sup>b</sup> , 1.5
1796S0002	SA-09-1-02	58.0 ± 7.3 , 1.4
1796S0003	SA-09-1-03	0.36 ± 0.77 , 1.30

<sup>a</sup>The MDCs are after the comma.

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