ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

April 22, 2008

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

SUBJECT: LETTER REPORT FOR ANALYTICAL RESULTS FOR SEVEN SOIL SAMPLES FROM AMERICAN RADIOLABELED CHEMICALS CORPORATION, ST. LOUIS, MISSOURI [030-20567/08-001] (RFTA NO. 08-001) DCN: 1767-LR-01-0

Dear Mr. McCann:

The Oak Ridge Institute for Science and Education (ORISE) received seven soil samples on March 13, 2008 from the American Radiolabeled Chemicals Corporation in St. Louis, Missouri. The samples were analyzed according to the 303 form submitted with the samples. The sample identifications are presented in Table 1. The tritium results for the soil samples are presented in Table 2. The C-14 results for the soil samples are presented in Table 3. The pertinent procedure references are in the data tables.

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

A short case narrative is included to discuss the lack of homogeneity of the samples.

My contact information is listed below. You may also contact Wade Ivey at 865.576.9184 with any questions or comments.

Sincerely,

Dale Condra

Dale Condra, Manager
Laboratory

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Enclosures

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CASE NARRATIVE

The American Radiolabeled Chemicals Corporation samples were analyzed as received since the analytes of interest are volatile and would be driven off by the drying process. The required quality control parameters of the first analytical batch did not pass. A second batch was analyzed and the data were compared to the results from the first analysis. The C-14 and H-3 results for the two batches were not statistically equal, indicating that the samples are inhomogeneous. For this reason, the sample with the most variation between analyses was selected for reanalysis. Three aliquots were taken from sample ARC-08-02-01 and reanalyzed for C-14 and H-3. The average of the three aliquots is reported in each table and the range of concentrations for each analyte is presented as a footnote in Table 2 for H-3 and Table 3 for C-14. The range for each analyte clearly indicates that lack of homogeneity associated with these samples.

TABLE 1

SAMPLE IDENTIFICATIONS AND COLLECTION DATA AMERICAN RADIOLABELED CHEMICALS CORPORATION ST. LOUIS, MISSOURI

ORISE Sample ID	NRC REG 3 Sample ID	Collection Date	Collection Time
1767S0001	ARC-08-02-01	03/12/08	2:00 PM
1767S0002	ARC-08-02-02	↓	↓
1767S0003	ARC-08-02-03	↓	↓
1767S0004	ARC-08-02-04	↓	↓
1767S0005	ARC-08-02-05	↓	↓
1767S0006	ARC-08-02-06	↓	↓
1767S0007	ARC-08-02-07	03/12/08	3:00 PM

TABLE 2

TRITIUM CONCENTRATIONS IN SOIL SAMPLES AP6, REVISION 16; CP4, REVISION 3 AMERICAN RADIOLABELED CHEMICALS CORPORATION ST. LOUIS, MISSOURI

ORISE Sample ID	NRC REG 3 Sample ID	Concentrations, TPUs, and MDCs[a] (pCi/g wet weight)				
1767S0001	ARC-08-02-01	3390[b]	±	530[c]	,	10
1767S0002	ARC-08-02-02	360	±	57	,	10
1767S0003	ARC-08-02-03	193	±	31	,	7
1767S0004	ARC-08-02-04	155	±	26	,	10
1767S0005	ARC-08-02-05	491	±	78	,	10
1767S0006	ARC-08-02-06	39.6	±	8.0	,	7.1
1767S0007	ARC-08-02-07	33.9	±	6.8	,	6.0

[a]MDCs are presented after the comma.

[b]Values reported for this sample are averages from three sample aliquots. The H-3 concentrations for this sample ranged from a low of 592 pCi/g to a high 8,900 pCi/g.

[c]Uncertainties represent the 95% confidence level, based on total propagated uncertainties.

TABLE 3

CARBON-14 CONCENTRATIONS IN SOIL SAMPLES AP6, REVISION 16; CP4, REVISION 3 AMERICAN RADIOLABELED CHEMICALS CORPORATION ST. LOUIS, MISSOURI

ORISE Sample ID	NRC REG 3 Sample ID	Concentrations, TPUs, and MDCs[a] (pCi/g wet weight)				
1767S0001	ARC-08-02-01	5450[b]	±	740[c]	,	10
1767S0002	ARC-08-02-02	214	±	30	,	6
1767S0003	ARC-08-02-03	27.7	±	4.8	,	4.2
1767S0004	ARC-08-02-04	34.9	±	6.4	,	6.3
1767S0005	ARC-08-02-05	79	±	12	,	6
1767S0006	ARC-08-02-06	11.5	±	3.2	,	4.5
1767S0007	ARC-08-02-07	6.4	±	2.5	,	3.8

[a]MDCs are presented after the comma.

[b]Values reported for this sample are averages from three sample aliquots. The C-14 concentration for this sample ranged from a low of 327 pCi/g to a high 15,300 pCi/g.

[c]Uncertainties represent the 95% confidence level, based on total propagated uncertainties.