

October 6, 2006

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

SUBJECT: INTERIM LETTER REPORT FOR ANALYTICAL RESULTS FOR EIGHT WATER SAMPLES FROM BATTELLE, WEST JEFFERSON, OHIO [TAC NO. W90175] (RFTA NO. 06-001)

Dear Mr. McCann:

The Oak Ridge Institute for Science and Education (ORISE) received eight water samples on August 24, 2006 from Battelle in West Jefferson, Ohio. The samples were analyzed for gamma spectroscopy, gross alpha, gross beta, and for total radiostrontium. The analytical request for plutonium and uranium is being delayed until the U.S. Nuclear Regulatory Commission gives the approval to resume analytical work on water samples that may have plutonium present as a contaminant. The sample identifications are presented in Table 1. The data for gamma spectroscopy, gross alpha and gross beta, and total radiostrontium are presented in Tables 2-4, respectively. 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.

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:ar

Enclosures

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TABLE 1

SAMPLE IDENTIFICATIONS
AND COLLECTION DATA
BATTELLE
WEST JEFFERSON, OHIO

| ORISE Sample ID | NRC Region III Sample ID | Collection Date | Collection Time |
|--------------------|-----------------------------|--------------------|--------------------|
| 1717W0001 | Well 3-805 | 8/22/2006 | 16:20 |
| 1717W0002 | Well 4-805 | 8/21/2006 | 11:50 |
| 1717W0003 | Well 2-855 | 8/21/2006 | 14:45 |
| 1717W0004 | Well 3-855 | 8/22/2006 | 11:25 |
| 1717W0005 | Well 4-855 | 8/21/2006 | 13:40 |
| 1717W0006 | Well 2-885 | 8/22/2006 | 12:45 |
| 1717W0007 | Well 4-885 | 8/22/2006 | 9:30 |
| 1717W0008 | Well 2-805 | 8/21/2006 | 16:50 |

TABLE 2

**CONCENTRATIONS OF SELECTED
GAMMA EMITTING RADIONUCLIDES
IN WATER SAMPLES
BY GAMMA SPECTROSCOPY CP1, REVISION 15
BATTELLE
WEST JEFFERSON, OHIO**

| ORISE Sample ID | NRC Region III Sample ID | Radionuclide Concentrations (pCi/L) | | | | |
|--------------------|-----------------------------|-------------------------------------|------------------------|---------------------|---------------------|---------------------|
| | | Co-60 ^a | Cs-137 ^a | Eu-152 ^a | Eu-154 ^b | Am-241 ^a |
| 1717W0001 | Well 3-805 | 3.0 ± 2.6 ^c | 6.4 ± 3.3 | -3.9 ± 5.3 | 4.6 ± 9.4 | 0.2 ± 3.1 |
| 1717W0002 | Well 4-805 | 1.6 ± 2.2 | 0.0 ^d ± 2.1 | 0.3 ± 4.9 | -6.1 ± 9.8 | 2.8 ± 3.2 |
| 1717W0003 | Well 2-855 | -0.8 ± 1.7 | 0.7 ± 1.6 | -2.6 ± 4.1 | -0.9 ± 7.2 | 0.6 ± 2.3 |
| 1717W0004 | Well 3-855 | 2.4 ± 2.4 | 1.7 ± 2.1 | 0.0 ± 5.9 | -4 ± 11 | 2.8 ± 3.2 |
| 1717W0005 | Well 4-855 | 1.3 ± 2.1 | 0.4 ± 4.2 | 3.8 ± 5.5 | -8.4 ± 9.3 | 0.0 ± 3.0 |
| 1717W0006 | Well 2-885 | 2.9 ± 2.2 | 0.6 ± 2.1 | 1.3 ± 4.9 | -6.6 ± 9.6 | 1.7 ± 3.2 |
| 1717W0007 | Well 4-885 | 1.3 ± 1.8 | -0.9 ± 1.6 | 0.1 ± 4.2 | -6.0 ± 7.4 | 3.1 ± 2.4 |
| 1717W0008 | Well 2-805 | 1.0 ± 2.3 | 1.8 ± 2.2 | 3.4 ± 5.4 | -5 ± 12 | -2.5 ± 2.5 |

^aThe range of MDC's for these radionuclides is 2.7 pCi/L to 9.0 pCi/L.

^bThe average of MDC for Eu-154 was 15 pCi/L.

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

^dZero values are due to rounding.

TABLE 3

**CONCENTRATIONS OF
ALPHA AND BETA EMITTING RADIONUCLIDES
IN WATER SAMPLES
BY LOW BACKGROUND ALPHA AND BETA COUNTING
API, REVISION 14; CP3, REVISION 2
BATTELLE
WEST JEFFERSON, OHIO**

| ORISE Sample ID | NRC Region III Sample ID | Radionuclide Concentrations ^a (pCi/L) | |
|--------------------|-----------------------------|--|----------------------------|
| | | Gross Alpha | Gross Beta |
| 1717W0001 | Well 3-805 | 1.5 ± 2.7 ^b (4.9) | 3.1 ± 2.4 (4.0) |
| 1717W0002 | Well 4-805 | 0.5 ± 1.9 (3.7) | 3.7 ± 1.9 (3.0) |
| 1717W0003 | Well 2-855 | 2.8 ± 4.3 (7.6) | 5.9 ± 3.8 (6.0) |
| 1717W0004 | Well 3-855 | 8.4 ± 3.1 (3.3) | 7.9 ± 2.2 (3.0) |
| 1717W0005 | Well 4-855 | 2.0 ± 2.2 (3.6) | 5.3 ± 2.0 (3.0) |
| 1717W0006 | Well 2-885 | 13.7 ± 6.8 (8.5) | 18.5 ± 5.5 (7.5) |
| 1717W0007 | Well 4-885 | 18 ± 18 (30) ^c | 376 ± 55 (30) ^d |
| 1717W0008 | Well 2-805 | 3.4 ± 2.7 (4.2) | 7.6 ± 2.4 (3.4) |

^aThe MDCs for each radionuclide are in parentheses.

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

^cThe requested alpha MDC not met due to the small volume of sample that could be used for this analysis.

^dThe requested beta MDC not met due to the small volume of sample that could be used for this analysis.

TABLE 4

CONCENTRATIONS OF TOTAL RADIOSTRONTIUM
 IN WATER SAMPLES
 BY LOW BACKGROUND BETA COUNTING
 AP4, REVISION 13; CP3, REVISION 2
 BATTELLE
 WEST JEFFERSON, OHIO

| ORISE Sample ID | NRC Region III Sample ID | Radionuclide Concentrations, TPUs, and MDCs ^a (pCi/L) | | | |
|--------------------|-----------------------------|---|---|------------------|-------|
| 1717W0001 | Well 3-805 | -0.6 | ± | 1.5 ^b | (2.7) |
| 1717W0002 | Well 4-805 | -0.7 | ± | 2.0 | (3.6) |
| 1717W0003 | Well 2-855 | 0.4 | ± | 1.9 | (3.3) |
| 1717W0004 | Well 3-855 | -0.3 | ± | 2.1 | (3.7) |
| 1717W0005 | Well 4-855 | -0.3 | ± | 1.5 | (2.7) |
| 1717W0006 | Well 2-885 | -1.1 | ± | 1.5 | (2.8) |
| 1717W0007 | Well 4-885 | -0.9 | ± | 1.5 | (2.8) |
| 1717W0008 | Well 2-805 | -0.6 | ± | 1.5 | (2.7) |

^aMDCs are in parentheses.

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