

May 4, 2006

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

SUBJECT: ANALYTICAL RESULTS FOR THIRTEEN WATER SAMPLES, BATCH FOUR, FROM THE VICINITY OF THE BRAIDWOOD NUCLEAR GENERATING STATION, BRAIDWOOD, ILLINOIS [INSPECTION REPORT NO. 050-00456/2006-003] (RFTA NO. 06-001)

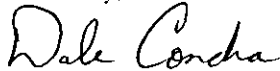
Dear Mr. Snell:

The Oak Ridge Institute for Science and Education (ORISE) received 14 water samples, Batch Four, on April 25 that were collected in the vicinity of the Braidwood Nuclear Generating Station in Braidwood, Illinois. The Request for Analysis form listed sample BD-06-4-11 (ORISE sample number 1691W0120) for expedited processing by gamma spectroscopy (GS) and for tritium by liquid scintillation analysis. The letter report for this sample was issued on April 28, 2006. The remaining samples were analyzed for tritium by liquid scintillation analysis. One sample was also analyzed by GS as directed on the Request for Analysis form. The sample identifications and collection data are presented in Table 1. The GS data are presented in Table 2. The tritium data are presented in Table 3. The pertinent procedure references are provided in the specific 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:db

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TABLE 1

**SAMPLE IDENTIFICATIONS
AND COLLECTION DATA
BRAIDWOOD NUCLEAR GENERATING STATION
BRAIDWOOD, ILLINOIS**

ORISE Sample ID	NRC Region III Sample ID	Collection Date	Collection Time
1691W0110	BD-06-4-01	4/13/2006	4:01 PM
1691W0111	BD-06-4-02	4/13/2006	1:44 PM
1691W0112	BD-06-4-03	4/13/2006	1:10 PM
1691W0113	BD-06-4-04	4/13/2006	2:04 PM
1691W0114	BD-06-4-05	4/13/2006	2:31 PM
1691W0115	BD-06-4-06	4/13/2006	1:22 PM
1691W0116	BD-06-4-07	4/13/2006	1:02 PM
1691W0117	BD-06-4-08	4/13/2006	4:39 PM
1691W0118	BD-06-4-09	4/13/2006	4:17 PM
1691W0119	BD-06-4-10	4/13/2006	4:20 PM
1691W0121	BD-06-4-12	4/13/2006	3:37 PM
1691W0122	BD-06-4-13	4/13/2006	5:05 PM
1691W0123	BD-06-4-14	4/20/2006	1:32 PM

TABLE 2

**CONCENTRATIONS OF SELECTED
GAMMA EMITTING RADIONUCLIDES
IN A SELECTED WATER SAMPLE
BY GAMMA SPECTROSCOPY CP1, REVISION 15
BRAIDWOOD NUCLEAR GENERATING STATION
BRAIDWOOD, ILLINOIS**

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations ^a (pCi/L)			
		Co-58	Co-60	Cs-134	Cs-137
1691W0114	BD-06-4-05	-0.2 ± 5.1 ^b	0.9 ± 5.3	-0.7 ± 5.7	5.0 ± 5.1

^aThe range of MDCs for the selected radionuclides is 8.7 pCi/L to 9.6 pCi/L.

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

TABLE 3

**CONCENTRATIONS OF TRITIUM
IN WATER SAMPLES
BY LIQUID SCINTILLATION ANALYSIS
AP2, REVISION 15; CP4, REVISION 3
BRAIDWOOD NUCLEAR GENERATING STATION
BRAIDWOOD, ILLINOIS**

ORISE Sample ID	NRC Region III Sample ID	Tritium Concentrations, TPUs, and MDCs^a (pCi/L)
1691W0110	BD-06-4-01	-120 ± 120 ^b (200)
1691W0111	BD-06-4-02	-170 ± 110 (200)
1691W0112	BD-06-4-03	-190 ± 110 (200)
1691W0113	BD-06-4-04	-160 ± 110 (200)
1691W0114	BD-06-4-05	-160 ± 110 (200)
1691W0115	BD-06-4-06	-190 ± 110 (200)
1691W0116	BD-06-4-07	-250 ± 110 (200)
1691W0117	BD-06-4-08	-170 ± 110 (200)
1691W0118	BD-06-4-09	-140 ± 110 (200)
1691W0119	BD-06-4-10	-180 ± 110 (200)
1691W0121	BD-06-4-12	-150 ± 110 (200)
1691W0122	BD-06-4-13	110 ± 120 (200)
1691W0123	BD-06-4-14	-200 ± 110 (200)

^aMDCs are in parentheses.

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