

April 24, 2006

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

**SUBJECT: ANALYTICAL RESULTS FOR SEVEN WATER SAMPLES, BATCH TWO, FROM THE VICINITY OF THE BRAIDWOOD GENERATING STATION, BRAIDWOOD, ILLINOIS [INSPECTION REPORT NO. 05000456/2006-003] (RFTA NO. 06-001)**

Dear Mr. Snell:

The Oak Ridge Institute for Science and Education (ORISE) received seven water samples, designated as Batch Two, on April 12 that were collected in the vicinity of the Braidwood Generating Station in Braidwood, Illinois. The samples were not logged into the database until Friday April 14, 2006 because the lab staff was unsure of the inspection report sequence. After a phone call with you and Gene Bonano on April 14, 2006 the samples were logged into the database and sample processing was initiated. The seven water samples were analyzed for tritium using a liquid scintillation analyzer (Procedures AP2, Revision 15 and CP4, Revision 3). The chain of custody indicated which of the samples to be analyzed for tritium were to meet a minimum detectable concentration (MDC) of 200 pCi/L and which of the samples were to meet a MDC of 500 pCi/L. The chain of custody also identified one water sample (W0084) to be analyzed by gamma spectroscopy (GS) (Procedure CP1, Revision 15). 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.

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

c:	T. McLaughlin, NRC/NMSS/TWFN 7F27	E. Abelquist, ORISE
	E. Knox-Davin, NRC/NMSS/TWFN 8A23	S. Kirk, ORISE
	G. Bonano, NRC Region III	File 1691

Distribution approval and concurrence :	Initials
Technical Management Team Member	HJK
Quality Manager	CTP

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Fax: 865.241.3248

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**TABLE 1**

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

<b>ORISE Sample ID</b>	<b>NRC Region III Sample ID</b>	<b>Collection Date</b>
1691W0081	BD-06-2-01	03/20/2006
1691W0082	BD-06-2-02	03/20/2006
1691W0083	BD-06-2-03	03/20/2006
1691W0084	BD-06-2-04	03/20/2006
1691W0085	BD-06-2-05	03/20/2006
1691W0086	BD-06-2-06	03/20/2006
1691W0087	BD-06-2-07	03/20/2006

TABLE 2

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

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations <sup>a</sup> (pCi/L)			
		Co-58	Co-60	Cs-134	Cs-137
1691W0084	BD-06-2-04	-4.3 ± 7.3 <sup>b</sup>	-3.2 ± 6.0	2.5 ± 7.2	-3.5 ± 5.2

<sup>a</sup>The range of MDCs for the selected radionuclides is 8.7 pCi/L to 11 pCi/L.

<sup>b</sup>Uncertainties 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 <sup>a</sup> (pCi/L)		
1691W0081	BD-06-2-01	950	± 140 <sup>b</sup>	(200)
1691W0082	BD-06-2-02	840	± 140	(200)
1691W0083	BD-06-2-03	370	± 120	(200)
1691W0084	BD-06-2-04	790	± 140	(200)
1691W0085	BD-06-2-05	60	± 120	(200)
1691W0086	BD-06-2-06	30	± 220	(380)
1691W0087	BD-06-2-07	160	± 220	(380)

<sup>a</sup>MDCs are in parenthesis.

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BRAIDWOOD NUCLEAR GENERATING STATION  
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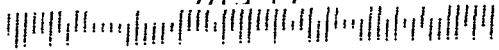
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MS-19



U.S. DEPARTMENT OF SCIENCE AND EDUCATION

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