

ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

April 24, 2006

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

SUBJECT: ANALYTICAL RESULTS FOR 22 WATER SAMPLES, BATCH THREE, 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 22 water samples, Batch Three, 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 22 water samples were analyzed for tritium to a minimum detectable concentration of 200 pCi/L using a liquid scintillation analyzer (Procedures AP2, Revision 15 and CP4, Revision 3). The chain of custody identified the water samples 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/TWFFN 7F27	E. Abelquist, ORISE
	E. Knox-Davin, NRC/NMSS/TWFFN 8A23	S. Kirk, ORISE
	G. Bonano, NRC Region III	File 1691

Distribution approval and concurrence :	Initials
Technical Management Team Member	SK
Quality Manager	LTP

Voice: 865.241.3242

Fax: 865.241.3248

E-mail: CondraD@orau.gov

TABLE 1

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

ORISE Sample ID	NRC Region III Sample ID	Collection Date
1691W0088	BD-06-3-01	03/29/2006
1691W0089	BD-06-3-02	04/03/2006
1691W0090	BD-06-3-03	03/28/2006
1691W0091	BD-06-3-04	04/03/2006
1691W0092	BD-06-3-05	04/03/2006
1691W0093	BD-06-3-06	04/04/2006
1691W0094	BD-06-3-07	04/04/2006
1691W0095	BD-06-3-08	03/08/2006
1691W0096	BD-06-3-09	03/28/2006
1691W0097	BD-06-3-10	03/28/2006
1691W0098	BD-06-3-11	04/04/2006
1691W0099	BD-06-3-12	04/03/2006
1691W0100	BD-06-3-13	03/30/2006
1691W0101	BD-06-3-14	03/28/2006
1691W0102	BD-06-3-15	03/30/2006
1691W0103	BD-06-3-16	03/30/2006
1691W0104	BD-06-3-17	03/30/2006
1691W0105	BD-06-3-18	03/30/2006
1691W0106	BD-06-3-19	04/03/2006
1691W0107	BD-06-3-20	04/03/2006
1691W0108	BD-06-3-21	04/03/2006
1691W0109	BD-06-3-22	04/03/2006

TABLE 2

**CONCENTRATIONS OF SELECTED
GAMMA EMITTING RADIONUCLIDES
IN A SELECTED WATER SAMPLES
BY GAMMA SPECTROSCOPY CPI, 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
1691W0097	BD-06-3-10	2.6 ± 2.4 ^b	1.5 ± 3.2	-1.0 ± 3.4	-0.6 ± 2.9
1691W0107	BD-06-3-20	-0.1 ± 2.9	1.2 ± 2.8	-0.4 ± 3.0	-0.1 ± 5.4

^aThe range of MDCs for the selected radionuclides is 4.9 pCi/L to 6.0 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)
1691W0088	BD-06-3-01	-60 ± 110 ^b (200)
1691W0089	BD-06-3-02	-50 ± 110 (200)
1691W0090	BD-06-3-03	-80 ± 110 (200)
1691W0091	BD-06-3-04	-120 ± 110 (200)
1691W0092	BD-06-3-05	-10 ± 110 (200)
1691W0093	BD-06-3-06	-70 ± 110 (200)
1691W0094	BD-06-3-07	-80 ± 110 (200)
1691W0095	BD-06-3-08	-80 ± 110 (200)
1691W0096	BD-06-3-09	-90 ± 110 (200)
1691W0097	BD-06-3-10	-40 ± 110 (200)
1691W0098	BD-06-3-11	-80 ± 110 (200)
1691W0099	BD-06-3-12	-100 ± 110 (200)
1691W0100	BD-06-3-13	30 ± 110 (200)
1691W0101	BD-06-3-14	-120 ± 110 (200)
1691W0102	BD-06-3-15	20 ± 110 (200)
1691W0103	BD-06-3-16	-80 ± 110 (200)
1691W0104	BD-06-3-17	-50 ± 110 (200)
1691W0105	BD-06-3-18	-30 ± 110 (200)
1691W0106	BD-06-3-19	-120 ± 110 (200)
1691W0107	BD-06-3-20	-90 ± 110 (200)
1691W0108	BD-06-3-21	-50 ± 110 (200)
1691W0109	BD-06-3-22	0 ^c ± 110 (200)

^aMDCs are in parenthesis.

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

^cZero values are due to rounding.

April 24, 2006

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

SUBJECT: ANALYTICAL RESULTS FOR 22 WATER SAMPLES, BATCH THREE, 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 22 water samples, Batch Three, 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 22 water samples were analyzed for tritium to a minimum detectable concentration of 200 pCi/L using a liquid scintillation analyzer (Procedures AP2, Revision 15 and CP4, Revision 3). The chain of custody identified the water samples 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/TWFFN 7F27
E. Knox-Davin, NRC/NMSS/TWFFN 8A23
G. Bonano, NRC Region III
E. Abelquist, ORISE
S. Kirk, ORISE
File 1691

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

Voice: 865.241.3242

Fax: 865.241.3248

E-mail: CondraD@orau.gov

TABLE 1

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

ORISE Sample ID	NRC Region III Sample ID	Collection Date
1691W0088	BD-06-3-01	03/29/2006
1691W0089	BD-06-3-02	04/03/2006
1691W0090	BD-06-3-03	03/28/2006
1691W0091	BD-06-3-04	04/03/2006
1691W0092	BD-06-3-05	04/03/2006
1691W0093	BD-06-3-06	04/04/2006
1691W0094	BD-06-3-07	04/04/2006
1691W0095	BD-06-3-08	03/08/2006
1691W0096	BD-06-3-09	03/28/2006
1691W0097	BD-06-3-10	03/28/2006
1691W0098	BD-06-3-11	04/04/2006
1691W0099	BD-06-3-12	04/03/2006
1691W0100	BD-06-3-13	03/30/2006
1691W0101	BD-06-3-14	03/28/2006
1691W0102	BD-06-3-15	03/30/2006
1691W0103	BD-06-3-16	03/30/2006
1691W0104	BD-06-3-17	03/30/2006
1691W0105	BD-06-3-18	03/30/2006
1691W0106	BD-06-3-19	04/03/2006
1691W0107	BD-06-3-20	04/03/2006
1691W0108	BD-06-3-21	04/03/2006
1691W0109	BD-06-3-22	04/03/2006

TABLE 2

CONCENTRATIONS OF SELECTED
 GAMMA EMITTING RADIONUCLIDES
 IN A SELECTED WATER SAMPLES
 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
1691W0097	BD-06-3-10	2.6 ± 2.4 ^b	1.5 ± 3.2	-1.0 ± 3.4	-0.6 ± 2.9
1691W0107	BD-06-3-20	-0.1 ± 2.9	1.2 ± 2.8	-0.4 ± 3.0	-0.1 ± 5.4

^aThe range of MDCs for the selected radionuclides is 4.9 pCi/L to 6.0 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

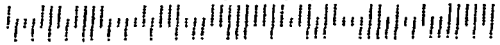
ORISE Sample ID	NRC Region III Sample ID	Tritium Concentrations, TPUs, and MDCs ^a (pCi/L)			
1691W0088	BD-06-3-01	-60	±	110 ^b	(200)
1691W0089	BD-06-3-02	-50	±	110	(200)
1691W0090	BD-06-3-03	-80	±	110	(200)
1691W0091	BD-06-3-04	-120	±	110	(200)
1691W0092	BD-06-3-05	-10	±	110	(200)
1691W0093	BD-06-3-06	-70	±	110	(200)
1691W0094	BD-06-3-07	-80	±	110	(200)
1691W0095	BD-06-3-08	-80	±	110	(200)
1691W0096	BD-06-3-09	-90	±	110	(200)
1691W0097	BD-06-3-10	-40	±	110	(200)
1691W0098	BD-06-3-11	-80	±	110	(200)
1691W0099	BD-06-3-12	-100	±	110	(200)
1691W0100	BD-06-3-13	30	±	110	(200)
1691W0101	BD-06-3-14	-120	±	110	(200)
1691W0102	BD-06-3-15	20	±	110	(200)
1691W0103	BD-06-3-16	-80	±	110	(200)
1691W0104	BD-06-3-17	-50	±	110	(200)
1691W0105	BD-06-3-18	-30	±	110	(200)
1691W0106	BD-06-3-19	-120	±	110	(200)
1691W0107	BD-06-3-20	-90	±	110	(200)
1691W0108	BD-06-3-21	-50	±	110	(200)
1691W0109	BD-06-3-22	0 ^c	±	110	(200)

^aMDCs are in parenthesis.

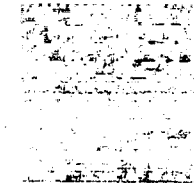
^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

^cZero values are due to rounding.

MS-19



AN RIDGE INSTITUTE FOR SCIENCE AND EDUCATION



NOV 19 1978

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