

May 1, 2006

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

**SUBJECT: ANALYTICAL RESULTS FOR SIX WATER SAMPLES, BATCH ONE,
FROM THE VICINITY OF THE ZION STATION, ZION, ILLINOIS
[INSPECTION REPORT NO. 05000295/2006-001] (RFTA NO. 06-001)**

Dear Mr. Snell:

The Oak Ridge Institute for Science and Education (ORISE) received six water samples, Batch One, on April 26, 2006 which were collected in the vicinity of the Zion Station in Zion, Illinois. The six water samples were analyzed for tritium using a liquid scintillation analyzer. The chain of custody identified one water sample to be analyzed by gamma spectroscopy. 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:ar

Enclosure

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TABLE 1

**SAMPLE IDENTIFICATIONS
AND COLLECTION DATA
ZION GENERATING STATION
ZION, ILLINOIS**

ORISE Sample ID	NRC Region III Sample ID	Collection Time	Collection Date
1701W0001	Z-06-1-01	04/19/2006	9:45 AM
1701W0002	Z-06-1-02	04/19/2006	9:35 AM
1701W0003	Z-06-1-03	04/19/2006	10:15 AM
1701W0004	Z-06-1-04	04/19/2006	10:45 AM
1701W0005	Z-06-1-05	04/19/2006	11:20 AM
1701W0006	Z-06-1-06	04/19/2006	11:55 AM

TABLE 2

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

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations ^a (pCi/L)			
		Co-58	Co-60	Cs-134	Cs-137
1701W0005	Z-06-1-05	-5.0 ± 5.3 ^b	10.8 ± 5.5	-1.1 ± 6.1	-0.1 ± 5.1

^aThe range of MDCs for the selected radionuclides is 8.4 pCi/L to 11 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
ZION GENERATING STATION
ZION, ILLINOIS**

ORISE Sample ID	NRC Region III Sample ID	Tritium Concentrations, TPUs, and MDCs^a (pCi/L)
1701W0001	Z-06-1-01	0 ^b ± 110 ^c (190)
1701W0002	Z-06-1-02	20 ± 110 (190)
1701W0003	Z-06-1-03	30 ± 110 (190)
1701W0004	Z-06-1-04	10 ± 110 (190)
1701W0005	Z-06-1-05	50 ± 110 (190)
1701W0006	Z-06-1-06	0 ± 110 (190)

^aMDCs are in parenthesis.

^bZero values are due to rounding.

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