

December 22, 2010

Docket 070-00925  
License SNM-928

Mr. Robert Evans  
U.S. Nuclear Regulatory Commission  
Region IV: DNMS: NMLB  
Suite 400  
611 Ryan Plaza Drive  
Arlington, TX 76011

**SUBJECT: ORISE CONTRACT NO. DE-AC05-06OR23100  
ANALYTICAL RESULTS FOR SIX WATER SAMPLES ASSOCIATED WITH THE  
CIMARRON SITE IN CIMARRON, OKLAHOMA  
(INSPECTION REPORT #070-00925/2010-001) [RFTA NO. 11-001]  
DCN: 2027-LR-01-0**

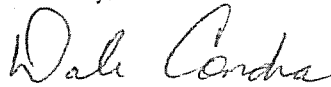
Dear Mr. Evans:

The Oak Ridge Institute for Science and Education (ORISE) received six water samples associated with the Cimarron Site in Cimarron, Oklahoma on October 20, 2010. The samples were analyzed for gross alpha activity, gross beta activity, and isotopic uranium concentrations in accordance with the Form 303 that accompanied the samples. The sample identifications are listed in Table 1. The gross alpha and gross beta data are presented in Table 2. The uranium isotopic data are presented in Table 3. The pertinent procedure references are provided in the respective 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:SO

Enclosures

c: T. Carter, NRC/FSME/DWMEP 7J18      S. Nesmith, NRC/FSME/PBPA/TWFN 8A23  
File 2027

Electronic: S. Roberts, ORISE      T. Vitkus, ORISE

Distribution approval and concurrence:	Initials
Technical Management Team Member	WCA
Quality Manager	DB

**TABLE 1**

**SAMPLE IDENTIFICATIONS  
AND COLLECTION DATA  
CIMARRON CORPORATION  
CIMARRON, OKLAHOMA**

<b>ORISE Sample ID</b>	<b>NRC Region IV Sample ID</b>	<b>Collection Date</b>	<b>Collection Time</b>
2027W0001	1354	10/18/10	14:28
2027W0002	TMW 09	10/18/10	14:47
2027W0003	02W43	10/18/10	15:02
2027W0004	T64	10/18/10	15:20
2027W0005	T76	10/18/10	15:45
2027W0006	1201	10/18/10	16:15

**TABLE 2**  
**GROSS ALPHA AND GROSS BETA CONCENTRATIONS**  
**IN WATER SAMPLES**  
**BY GROSS ALPHA AND BETA FOR VARIOUS MATRICES**  
**API, REVISION 16**  
**CIMARRON CORPORATION**  
**CIMARRON, OKLAHOMA**

ORISE Sample ID	NRC Region IV Sample ID	Radionuclide Concentrations, TPU's, and MDCs <sup>a</sup> (pCi/L)	
		Gross Alpha	Gross Beta
2027W0001	1354	1.6 ± 2.3 <sup>b</sup> , 4.0	50.4 ± 6.7, 5.5
2027W0002	TMW 09	3,060 ± 200, 0 <sup>c</sup>	1,290 ± 120, 0
2027W0003	02W43	95.9 ± 9.9, 3.6	39.3 ± 5.6, 5.2
2027W0004	T64	50.1 ± 6.5, 3.4	59.6 ± 7.3, 5.1
2027W0005	T76	154 ± 14, 4	156 ± 16, 5
2027W0006	1201	6 ± 16, 29	12 ± 27, 46

<sup>a</sup>The MDCs appear after the commas.

<sup>b</sup>Uncertainties represent the 95% confidence level, based on total propagated uncertainties.

<sup>c</sup>Zero values are due to rounding.

TABLE 3

CONCENTRATIONS OF URANIUM ISOTOPES  
 IN WATER SAMPLES  
 BY ALPHA SPECTROSCOPY AP11, REVISION 5; CP2, REVISION 15  
 CIMARRON CORPORATION  
 CIMARRON, OKLAHOMA

ORISE Sample ID	NRC Region IV Sample ID	Radionuclide Concentrations, TPU, and MDCs <sup>a</sup> (pCi/L)			
		U-234	U-235	U-238	Total U <sup>b</sup>
2027W0001	1354	1.23 ± 0.31 <sup>c</sup> , 0.27	0.06 ± 0.09, 0.20	1.14 ± 0.28, 0.05	2.44 ± 0.43
2027W0002	TMW 09	2,160 ± 250, 10	108 ± 16, 3	1,380 ± 160, 0 <sup>d</sup>	3,600 ± 290
2027W0003	02W43	88.9 ± 7.5, 0.3	4.37 ± 0.71, 0.32	51.1 ± 4.5, 0.2	144.4 ± 8.8
2027W0004	T64	51.0 ± 4.5, 0.2	2.38 ± 0.49, 0.21	15.8 ± 1.6, 0.2	69.2 ± 4.8
2027W0005	T76	160 ± 13, 0	8.4 ± 1.1, 0.3	60.4 ± 5.3, 0.1	229 ± 15
2027W0006	1201	2.39 ± 0.47, 0.30	0.16 ± 0.15, 0.29	1.44 ± 0.36, 0.30	3.99 ± 0.61

<sup>a</sup>The MDCs appear after the commas.

<sup>b</sup>Total U is calculated by U-234 + U-235 + U-238.

<sup>c</sup>Uncertainties represent the 95% confidence level, based on total propagated uncertainties.

<sup>d</sup>Zero values are due to rounding.