



10 CFR 70.5

April 21, 2010

AES-O-NRC-10-00331-0

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

AREVA Enrichment Services LLC
Eagle Rock Enrichment Facility
NRC Docket No: 70-7015

Subject: AREVA Enrichment Services LLC Eagle Rock Enrichment Facility Environmental Report Supplement – Radiochemical Analysis for the EREF Site Groundwater; Revised Thorium Results

On April 23, 2009, AREVA Enrichment Services (AES) submitted the Eagle Rock Enrichment Facility (EREF) License Application Revision 1 to the U.S. NRC to construct and operate the EREF in Bonneville County, Idaho (Ref. 1).

This letter submits changes to the EREF Environmental Report (ER) based upon re-analysis of the April 2009 EREF site groundwater samples for Th-228, Th-230, and Th-232. The EREF site groundwater samples prior to the April 2009 samples were not affected.

The April 2009 EREF site groundwater samples were re-analyzed for Th-228, Th-230, and Th-232 because, subsequent to the initial analysis, it was discovered by the laboratory that performed the analysis that the source used to create the Th-230 batch Quality Control samples for the analysis did not pass acceptance criteria. Upon notification by the Laboratory Manager, we requested the entire batch of samples from April 2009 be re-analyzed for Th-228, Th-230, and Th-232. Samples were re-analyzed and the results are presented in Enclosure 1, Markups for ER Table 3.4-14, Radiochemical Analysis for the EREF Site Groundwater.

The markups in Enclosure 1 will be included in the EREF License Application, Revision 2.

If you have any questions regarding this submittal, please contact me at (508) 573-6554.

Respectfully,

A handwritten signature in black ink that reads 'J. A. Kay'.

James A. Kay
Licensing Manager

AREVA ENRICHMENT SERVICES LLC

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References:

- 1) S. Shakir (AES) Letter to the U.S. Nuclear Regulatory Commission, Revision 1 to License Application for the Eagle Rock Enrichment Facility, dated April 23, 2009.

Enclosures:

- 1) Markups for ER Table 3.4-14, Radiochemical Analysis for the EREF Site Groundwater.

Commitment:

- 1) The markups in Enclosure 1 will be included in the EREF License Application, Revision 2.

CC:

Breeda Reilly, U.S. NRC Senior Project Manager

Steve Lemont, U.S. NRC Senior Project Manager

Bruce Biber, Argonne National Laboratory

MARKUPS

ER Table 3.4-14 Radiochemical Analysis for the EREF Site Groundwater

Table 3.4-14 Radiochemical Analyses for the EREF Site Groundwater
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Well Name	GW-3				Lava Well				
Sample Date	4/08/2009	4/08/2009	4/08/2009	4/08/2009	4/07/2009	4/07/2009	4/07/2009	4/07/2009	
Sample Name	GW-03-01	GW-03-01	MDC	MDC	LAVA WELL 03-01	LAVA WELL 03-01	MDC	MDC	EPA MCL ¹
Analyte	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	pCi/L (Bq/L)
Ru-106	-2.70E+00	-9.99E-02	3.50E+01	1.29E+00	-1.00E+01	-3.70E-01	4.30E+01	1.59E+00	NS
Sb-124	-5.50E+00	-2.03E-01	1.30E+01	4.81E-01	1.30E+00	4.81E-02	1.10E+01	4.07E-01	NS
Sb-125	3.10E+00	1.15E-01	8.80E+00	3.26E-01	-5.10E+00	-1.89E-01	1.20E+01	4.44E-01	NS
Se-75	4.00E-01	1.48E-02	3.90E+00	1.44E-01	-1.60E+00	-5.92E-02	5.60E+00	2.07E-01	NS
Zn-65	4.10E+00	1.52E-01	1.40E+01	5.18E-01	-4.30E+00	-1.59E-01	1.00E+01	3.70E-01	NS
Zr-95	-1.00E-01	-3.70E-03	6.50E+00	2.40E-01	1.00E+00	3.70E-02	7.10E+00	2.63E-01	NS
H-3	2.00E+01	7.40E-01	4.30E+02	1.59E+01	4.00E+01	1.48E+00	4.30E+02	1.59E+01	NS
Ra-224	0.00E+00	0.00E+00	4.30E+01	1.59E+00	2.90E-01	1.07E-02	4.10E-01	1.52E-02	NS
Ra-226	1.30E-01	4.81E-03	2.80E-01	1.04E-02	1.09E-01	4.03E-03	2.60E-01	9.62E-03	5 (0.18) [Ra-226+Ra-228] ²
Ra-228	3.50E-01	1.29E-02	2.90E+00	1.07E-01	-1.60E+00	-5.92E-02	4.60E+00	1.70E-01	5 (0.18) [Ra-226+Ra-228] ²
Th-228	7.00E-02	2.81E-03	1.70E-01	6.29E-03	5.36E-01	1.98E-02	1.10E-01	4.07E-03	NS
Th-230	-1.18E-01	-4.37E-03	2.70E-01	9.99E-03	-7.60E-02	-2.81E-03	2.00E-01	7.40E-03	NS
Th-232	4.00E-03	1.48E-04	1.00E-01	3.70E-03	2.20E-02	8.14E-04	3.00E-02	1.11E-03	NS
U-234	1.27E+00	4.70E-02	1.60E-01	5.92E-03	1.62E+00	5.99E-02	1.30E-01	4.81E-03	20 (0.74)
U-235	3.50E-02	1.29E-03	1.70E-01	6.29E-03	5.60E-02	2.07E-03	1.20E-01	4.44E-03	20 (0.74)
U-238	6.50E-01	2.40E-02	1.50E-01	5.55E-03	6.10E-01	2.26E-02	1.00E-01	3.70E-03	20 (0.74)
Th-228	1.30E-01	4.81E-03	2.30E-01	8.51E-03	5.30E-02	2.15E-03	2.50E-01	9.25E-03	NS
Th-230	9.10E-01*	3.37E-02*	2.40E-01	8.88E-03	3.77E-01*	1.39E-02*	2.70E-01	9.99E-03	NS
Th-232	3.01E-01*	1.11E-02*	5.90E-02	2.18E-03	1.88E-01*	6.96E-03*	7.00E-02	2.59E-03	NS

* RESULT TO BE BOLDED AND BOX SHADED

Table 3.4-14 Radiochemical Analyses for the EREF Site Groundwater

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Well Name	GW-5				Spud Well				EPA MCL ¹
	Sample Name Sample Date	Sample Name Sample Date	MDC Sample Date	MDC Sample Date	SPUD WELL Sample Date	SPUD WELL Sample Date	MDC Sample Date	MDC Sample Date	
Analyte	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	pCi/L (Bq/L)
Se-75	2.50E+00	9.25E-02	3.80E+00	1.41E-01	2.00E-01	7.40E-03	4.30E+00	1.59E-01	NS
Zn-65	-9.00E-01	-3.33E-02	1.10E+01	4.07E-01	-1.30E+00	-4.81E-02	9.30E+00	3.44E-01	NS
Zr-95	1.40E+00	5.18E-02	7.50E+00	2.77E-01	-4.00E-01	-1.48E-02	8.60E+00	3.18E-01	NS
H-3	1.60E+02	5.92E+00	4.30E+02	1.59E+01	3.00E+01	1.11E+00	4.30E+02	1.59E+01	NS
Ra-224	4.50E+01	1.66E+00	6.10E+01	2.26E+00	-1.15E+01	-4.25E-01	1.20E+02	4.44E+00	NS
Ra-226	2.07E-01	7.66E-03	2.50E-01	9.25E-03	3.70E-01	1.37E-02	4.00E-01	1.48E-02	5 (0.18) [Ra-226+Ra-228] ²
Ra-228	-3.00E-01	-1.11E-02	4.60E+00	1.70E-01	2.00E-01	7.40E-03	3.70E+00	1.37E-01	5 (0.18) [Ra-226+Ra-228] ²
Th-228	2.90E-02	1.07E-03	1.70E-01	6.29E-03	9.30E-02	3.44E-03	2.00E-01	7.40E-03	NS
Th-230	2.30E-02	8.51E-04	2.70E-01	9.99E-03	1.31E-01	4.85E-03	2.20E-01	8.14E-03	NS
Th-232	1.60E-02	5.92E-04	7.30E-02	2.70E-03	1.70E-02	6.29E-04	8.10E-02	3.00E-03	NS
U-234	1.54E+00	5.70E-02	1.30E-01	4.81E-03	1.58E+00	5.85E-02	1.20E-01	4.44E-03	20 (0.74)
U-235	4.90E-02	1.81E-03	9.50E-02	3.51E-03	6.70E-02	2.48E-03	1.40E-01	5.18E-03	20 (0.74)
U-238	5.90E-01	2.18E-02	1.10E-01	4.07E-03	3.87E-01	1.43E-02	9.60E-02	3.55E-03	20 (0.74)
Th-228	2.00E-02	7.40E-04	3.20E-01	1.18E-02	1.41E-01	5.22E-03	2.70E-01	9.99E-03	NS
Th-230	4.30E-01	1.59E-02	5.40E-01	2.00E-02	1.36E-01	5.03E-03	2.50E-01	9.25E-03	NS
Th-232	3.20E-02	1.18E-03	8.50E-02	3.14E-03	3.11E-01*	1.15E-02*	8.60E-02	3.18E-03	NS

* RESULT TO BE BOLDED AND BOX SHADED.

Table 3.4-14 Radiochemical Analyses for the EREF Site Groundwater
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Well Name	GW-1				GW-4				EPA MCL ¹
Sample Name Sample Date	GW-01-01 4/07/09	GW-01-01 4/07/09	MDC 4/07/09	MDC 4/07/09	GW-04-01 4/07/09	GW-04-01 4/07/09	MDC 4/07/09	MDC 4/07/09	pCi/L (Bq/L)
Analyte	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	
Sb-124	8.00E-01	2.96E-02	1.10E+01	4.07E-01	-1.90E+00	-7.03E-02	1.20E+01	4.44E-01	NS
Sb-125	-2.60E+00	-9.62E-02	8.90E+00	3.29E-01	-2.80E+00	-1.04E-01	1.10E+01	4.07E-01	NS
Se-75	3.00E-01	1.11E-02	3.60E+00	1.33E-01	-3.00E-01	-1.11E-02	5.50E+00	2.03E-01	NS
Zn-65	-1.60E+00	-5.92E-02	7.50E+00	2.77E-01	-2.10E+00	-7.77E-02	9.60E+00	3.55E-01	NS
Zr-95	3.60E+00	1.33E-01	5.70E+00	2.11E-01	-6.00E-01	-2.22E-02	8.00E+00	2.96E-01	NS
H-3	1.40E+02	5.18E+00	4.30E+02	1.59E+01	2.00E+01	7.40E-01	4.30E+02	1.59E+01	NS
Ra-224	2.20E-01	8.14E-03	1.30E+00	4.81E-02	2.70E+01	9.99E-01	3.60E+01	1.33E+00	NS
Ra-226	5.30E-01	1.96E-02	2.20E-01	8.14E-03	2.47E-01	9.14E-03	1.80E-01	6.66E-03	5 (0.18) [Ra-226+Ra-228] ²
Ra-228	-1.00E+00	-3.70E-02	4.10E+00	1.52E-01	6.00E-01	2.22E-02	3.80E+00	1.41E-01	5 (0.18) [Ra-226+Ra-228] ²
Th-228	2.33E-01	8.62E-03	1.98E-01	7.03E-03	1.28E-01	4.44E-03	1.80E-01	6.66E-03	NS
Th-230	1.81E-01	6.70E-03	2.60E-01	9.62E-03	2.80E-02	1.04E-03	3.00E-01	1.14E-02	NS
Th-232	1.70E-03	6.29E-05	4.50E-02	1.66E-03	6.40E-02	2.37E-03	8.80E-02	3.26E-03	NS
U-234	2.13E+00	7.88E-02	1.40E-01	5.18E-03	7.60E-01	2.81E-02	9.00E-02	3.33E-03	20 (0.74)
U-235	7.90E-02	2.92E-03	1.10E-01	4.07E-03	1.45E-01	5.36E-03	1.20E-01	4.44E-03	20 (0.74)
U-238	5.40E-01	2.00E-02	1.10E-01	4.07E-03	5.80E-01	2.15E-02	1.10E-01	4.07E-03	20 (0.74)
Th-228	3.53E-01*	1.31E-02*	1.60E-01	5.92E-03	2.00E-03	7.40E-05	1.80E-01	6.66E-03	NS
Th-230	1.73E-01	6.40E-03	2.70E-01	9.99E-03	-1.00E-01	-3.70E-03	5.00E-01	1.85E-02	NS
Th-232	4.59E-01*	1.70E-02*	2.40E-02	8.88E-04	2.17E-01*	8.03E-03*	1.40E-01	5.18E-03	NS

* RESULT TO BE BOLDED AND BOX SHADED.

**Table 3.4-14 Radiochemical Analyses for the EREF Site Groundwater
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Well Name	GW-2				
Sample Name	GW-02-01	GW-02-01	MDC	MDC	EPA MCL ¹
Analyte	(pCi/L)	(Bq/L)	(pCi/L)	(Bq/L)	pCi/L (Bq/L)
Sample Date	4/06/2009	4/06/2009	4/06/2009	4/06/2009	
Se-75	4.00E-01	1.48E-02	5.00E+00	1.85E-01	NS
Zn-65	0.00E+00	0.00E+00	1.10E+01	4.07E-01	NS
Zr-95	2.10E+00	7.77E-02	6.80E+00	2.52E-01	NS
H-3	9.00E+01	3.33E+00	4.30E+02	1.59E+01	NS
Ra-224	5.70E+01	2.11E+00	5.10E+01	1.89E+00	NS
Ra-226	2.40E-01	8.88E-03	2.50E-01	9.25E-03	5 (0.18) [Ra-226+Ra-228] ²
Ra-228	1.90E+00	7.03E-02	4.40E+00	1.63E-01	5 (0.18) [Ra-226+Ra-228] ²
Th-228	3.40E-01	1.26E-02	5.20E-01	1.92E-02	NS
Th-230	4.70E-02	1.74E-03	3.50E-01	1.29E-02	NS
Th-232	7.10E-02	2.63E-03	1.50E-01	5.55E-03	NS
U-234	9.30E-01	3.44E-02	1.10E-01	4.07E-03	20 (0.74)
U-235	2.90E-02	1.07E-03	1.20E-01	4.44E-03	20 (0.74)
U-238	5.50E-01	2.03E-02	1.20E-01	4.44E-03	20 (0.74)
Th-228	9.30E-02	3.44E-03	2.80E-01	1.04E-02	NS
Th-230	4.83E-01*	1.79E-02*	2.40E-01	8.88E-03	NS
Th-232	2.00E-01*	7.40E-03*	6.30E-02	2.33E-03	NS