

URANIUM REDUCTION COMPANY

INTER-OFFICE CORRESPONDENCE

To T. F. LERO

From John Goff

Date May 3, 1960

Subject RADION ANALYSIS COMPLETED FOR THE QUARTER ENDING MARCH 31, 1960

On January 18, 1960, during a seminar, held by the Idaho Operations Office of the AEC at Idaho Falls, it was conclusively proven that all previously existing methods of radium analysis on mill effluents, except the 'Kannation Method', resulted in a positive error due to thorium, which was co-precipitated with the barium radium sulfate. During this meeting a new method for radium analysis developed by the Analytical Branch of the Health and Safety Division of the AEC was outlined. The method incorporates a quantitative separation of radium and thorium, utilizing selective complexed with E. D. T. A. by pH control. This method will not show interference from thorium.

U. S. C. began on January 22, preparations to make radium analyses by the method developed at the Arco AEC Laboratory. In order to use this method, it was necessary to install a fuming hood and hot plates in the radium laboratory and order several chemicals which were not in stock. These preparations were completed on March 18, and initial work was begun on the AEC method.

During the period of March 18 through March 31, twenty-five assays were run on standard radium samples obtained from National Bureau of Standards, chemical recovery from these samples varied from 62 to 74 percent. This will necessitate further work with the method before any reliable work can be done on mill effluent, or river water.

Attached is a list of assays completed during the period of January 1 through March 31 by the modified Harwell Method.

John Goff

30:1b
Attachment

7612200323 600503
PDR ADOCK 04003453
C PDR

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Amplifier Taken November 27, 1952

<u>SAMPLE NUMBER</u>	<u>DIRECTION</u>	<u>DBM/L</u>	<u>W/L</u>
1	Colorado River above junction with Delores	.787 DBM/L	3.36×10^{-10}
2	Delores River above junction with Colorado	5.37 DBM/L	2.54×10^{-9}
3	Colorado River at Tenny Bridge	1.45 DBM/L	6.53×10^{-10}
4	Colorado River at Hunt Bridge	1.95 DBM/L	8.63×10^{-10}
5	Colorado River 1/4 mile below mill	1.50 DBM/L	3.42×10^{-10}
6	Colorado River 1/2 mile below mill	1.04 DBM/L	4.6×10^{-10}
7	Colorado River 1 mile below mill	1.49 DBM/L	6.71×10^{-10}
8	Colorado River at Ralph Miller's farm	1.29 DBM/L	5.51×10^{-10}
9	Colorado River 5 miles below mill	1.54 DBM/L	6.06×10^{-10}
10	Colorado River 10 miles below mill	2.07 DBM/L	9.32×10^{-10}
11	Colorado River 20 miles below mill	3.65 DBM/L	1.54×10^{-9}
12	Colorado River 30 miles above confluence	2.06 DBM/L	1.04×10^{-9}
13	Colorado River 40 miles above confluence	3.32 DBM/L	1.48×10^{-9}
14	Colorado River 1 mile above confluence	2.25 DBM/L	1.48×10^{-9}
15	Colorado River 1 mile below confluence	2.31 DBM/L	9.55×10^{-10}
16	Green River 1 mile above confluence	.532 DBM/L	2.85×10^{-10}
17	Mill Tailings Pond 12/5/1952	694.7 DBM/L	1.56×10^{-7}

Amplifier Taken December 10, 1952

18	Colorado River above junction with Delores	.857 DBM/L	3.86×10^{-10}
19	Delores River above junction with Colorado	15.14 DBM/L	6.61×10^{-9}
20	Colorado River at Tenny Bridge	1.04 DBM/L	4.58×10^{-10}
21	Colorado River at Hunt Bridge	1.52 DBM/L	5.52×10^{-10}
22	Colorado River 1/4 mile below mill	1.31 DBM/L	4.54×10^{-10}

DATE
11/2/58

STATION

TIME

WIND

23	Colorado River 1 1/2 miles below wall	1.75 MPH	4.56×10^{-10}
26	Colorado River 1 1/2 miles below wall	1.75 MPH	3.91×10^{-10}
25	Colorado River 1 1/2 miles below wall	1.75 MPH	3.62×10^{-10}
16	Colorado River 1 1/2 miles below wall	1.75 MPH	1.21×10^{-9}
27	Colorado River 1 1/2 miles below wall	1.75 MPH	1.21×10^{-9}
18	Colorado River 2 1/2 miles below wall	1.75 MPH	1.39×10^{-9}
29	Colorado River 1 1/2 miles above confluence	1.75 MPH	1.36×10^{-9}
30	Colorado River 1 1/2 miles above confluence	1.75 MPH	1.10×10^{-9}
31	Colorado River 1 1/2 miles above confluence	1.75 MPH	4.39×10^{-10}
32	Colorado River 1 1/2 miles above confluence	1.75 MPH	4.31×10^{-10}
33	Great River 1 mile above confluence	2.10 MPH	1.75×10^{-10}
34	Mill Tailrace and effluent 12/19/59	11.2 MPH	5.0×10^{-3}