

Defenders of the Black Hills

P. O. Box 2003, Rapid City, SD 57709

Phone: (605) 399 -1868

DATE: June 18, 2007

TO: Everit Poor Thunder
Red Shirt Village

FROM: Charmaine White Face, Coordinator
B.S. in Biology and Physical Science,
Additional hours for minors in Chemistry and Microbiology

RE: Report on water from the Cheyenne River

This report is being submitted in response to your question regarding the Cheyenne River and its suitability as a water source for irrigation of a community garden.

Background: Defenders of the Black Hills has been gathering information where available on current and past uranium mining activities that might have an effect on the water in the Cheyenne River. A number of abandoned uranium mines and exploratory wells from more than 40 years ago exist in the southwestern Black Hills. (See Addendum No. 1: Final Report, A Reconnaissance Inventory of Environmental Impacts of Uranium Mining in the Edgemont Mining District, Fall River Country, South Dakota, June 30, 1982,...Prepared by Perry H. Ranh and Rowland L. Hall, South Dakota School of Mines and Technology, Rapid City, SD)

In a report submitted to the World Uranium Hearing in Salzburg, 1992, Professor Gordon Edwards further states: "When we extract uranium from the ground, we dig up the rock, we crush it and we leave behind this finely pulverized material -- it's like flour....As Marie Curie observed, 85 percent of the radioactivity in the ore remains behind in that crushed rock....And as these tailings are left on the surface of the earth, they are blown by the wind, they are washed by the rain into the water systems, and they inevitably spread...." (See Addendum No. 2, Uranium: Known Facts and Hidden Dangers, Dr. Gordon Edwards, Sept. 14, 1992)

Furthermore, the State of South Dakota conducted a study of the surface water in 2006 and state: "Only one sample analyzed for dissolved uranium exceeded the drinking water MCL, and that sample was collected in the Cheyenne River at the South Dakota/Wyoming border." (See Addendum No. 3: Summary of Surface Water Quality Sampling in Western South Dakota for Uranium,...)

Sampling Completed and Results:

Radiological Water Test: On May 14, 2007, a water sample was obtained at Red Shirt Village just to the west of the village in the presence of three witnesses, and prepared according to instructions received from Energy Laboratories, 2821 Plant St., Rapid City, SD. The sample was taken the next day, May 15, 2007, to the Laboratory for analysis.


The results are included as Addendum No. 4 and show Gross Alpha emissions to be at or above 15.0 pCi/L which is the Maximum Contaminant Level. The Maximum Contaminant Level as determined by the Environmental Protection Agency is 15 pCi/L. (See Addendum No. 5: Radionuclides in Drinking Water, EPA)

Aquatic Life Sampling: On May 20, 2007, two sites along the Cheyenne River near Red Shirt village were sampled for aquatic life. A large net was taken into the water by two young men at the first site approximately one-fourth of a mile east of the new bridge. The net was carried river wide for approximately 25-30 yards while others threw rock into the water upstream to chase any fish into the net. The results were one crayfish.

At the second site approximately one-half mile east of the old bridge, another sample was taken for approximately 75 yards. The results were one crayfish, one cat fish minnow, and approximately 10 Skip Jack minnows.

Recommendations: Due to the lack of aquatic life and the high alpha level in the water, it is recommended that the water from the Cheyenne River is not used to irrigate any plants. More tests need to be done on the River to determine what is causing the lack of aquatic life and also to insure quality control of the radiological results.

Submitted by:



Charmaine White Face, Coordinator

Cc: Michael Catches Enemy, OST Natural Resources
Mario Gonzalez, OST Legal Counsel



LABORATORY ANALYTICAL REPORT

Client: Defenders of the Black Hills
Project: 1-RSV
Lab ID: R07050243-001
Client Sample ID: #1 - RSV

Report Date: 06/08/07
Collection Date: 05/15/07 20:25
Date Received: 05/16/07
Matrix: AQUEOUS

Analyses	Result	Units	Qual	MCL/			Method	Analysis Date / By
				RL	QCL	DF		
RADIONUCLIDES - TOTAL								
Gross Alpha	15.0	pCi/L	*	1.0	15	1	E900.0	06/05/07 09:12/eli-c
Gross Alpha precision (±)	1.4	pCi/L				1	E900.0	06/05/07 09:12/eli-c
Radium 226	ND	pCi/L		1.0	5	1	E903.0	05/31/07 14:25/eli-c
Radium 228	ND	pCi/L		1	5	1	RA-05	05/25/07 11:19/eli-c
Uranium	14	ug/L		1.0	30	1	E200.8	05/19/07 21:47/eli-c
Uranium, Activity	9.2	pCi/L		0.67	20	1	E200.8	05/19/07 21:47/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.