



Cleveland-Cliffs

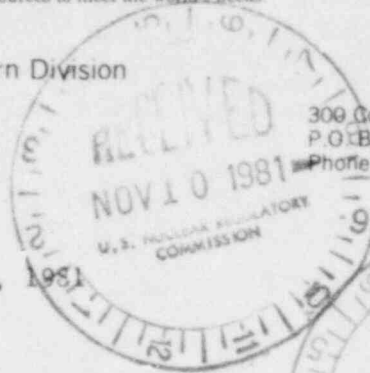
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Western Division

- R. M. DeGabriele, General Manager, Western Operations
- R. M. Tuthill, Manager, Uranium
- R. W. Riedel, Assistant to the General Manager
- E. D. Lindquist, Assistant Manager Special Projects

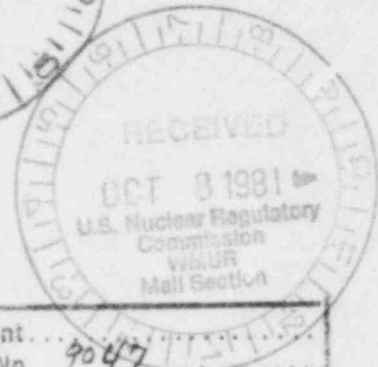
Docket 40-8714
PDR

Return to
D. CRAMER
396-55



300 Country Club Road
P.O. Box 3140, Casper, WY 82602
Phone: 307-234-9133

October 2, 1981



Director
Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. Ross A. Scarano
Uranium Recovery Licensing Branch
Division of Waste Management

Dear Sir:

Re: Source Material License No. SUA-1352
Docket No. 040-08714

Applicant...	
Check No...	9047
Amount/Fee Category	\$150.26
Type of Fee	Uranium safety
Date Check Rec'd	11/3/81
Received By	Wren

The purpose of this letter is to submit the detailed "Program" developed by the licensee demonstrating compliance with Appendix A to Part 40, Title 10, Code of Federal Regulations in regard to the disposition of byproduct materials generated by the Collins Draw Research and Development In situ Uranium Mine and Process Plant, and to request an amendment to the above referenced license to incorporate the Program into the license and to authorize surface discharge of treated restoration water per EPA and State of Wyoming NPDES surface discharge criteria.

Ten copies of the Program, submitted in compliance with Appendix A to 10 CFR 40 are enclosed. The Program does include the data discussed below in regard to the request for authorization to surface discharge restoration water.

As a restoration alternative, Cleveland-Cliffs seeks to remove approximately 20,000,000 gallons of water from the mine zone in an attempt to further improve the groundwater quality. This alternative will contribute to a timely, orderly, and economic termination of all research activities.

The water would be pumped from the mine zone at approximately 100 gallons per minute, circuited through the uranium recovery plant to remove uranium, radium and other constituents to be in compliance with NPDES discharge limitations, and then the water would be discharged on the surface. A discharge of 20,000,000 gallons, at the rate of 100 gallons per minute would require approximately 140 days of continuous discharge or nearly 5 months.

It is not anticipated that the current restoration research would be completed and the surface discharge would begin before November 1, 1981. There is a possibility that the water discharge would not begin until the spring of 1982.

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Add'l Info

However, Cleveland-Cliffs requests the flexibility to discharge as soon as authorization is obtained. All discharge should be completed during 1982, with a discharge volume of approximately 20,000,000 gallons.

Per NPDES discharge limitations, the radium concentration is limited to 3 pCi/l dissolved radium and 10 pCi/l total radium, and the uranium concentration is limited to 2 mg/l in the discharge. At these concentrations, the 20,000,000-gallon discharge would release a maximum of 75.7×10^6 pCi of radium and 151.4 kilograms of uranium. The attached Figure 2 shows the location of the proposed surface discharge point. The discharge will flow approximately 250 feet (76 meters) westerly in an unnamed dry gulch before reaching the ephemeral Collins Draw stream channel, which is a tributary of the ephemeral Cottonwood Creek, which is a tributary of the Dry Fork of the Powder River.

The discharge is expected to dissipate into the soils of the Collins Draw and Cottonwood Creek stream beds before reaching the Dry Fork of the Powder River. The stream beds are wide and flat and heavily vegetated with native grasses. The water should spread out to cover a wide area and the grasses should prevent channelization and erosion. The discharge is expected to cover in excess of 100 surface acres.

Assuming even distribution of the maximum allowable quantity of radium in the discharge dissipating into 100 acres of soil, and the radium traveling only 1 centimeter deep, the radium concentrations in the soil can be calculated as follows:

$$\frac{757 \times 10^6 \text{ pCi}}{(100 \text{ acres}) (4047 \text{ m}^2/\text{acre}) (1 \text{ cm, depth}) (10^4 \text{ cm}^2/\text{m}^2) (1.6 \text{ g/cm}^3)}$$

= 0.117 pCi/g.

If the radium was only dissipated over 20 acres the radium concentration in the soil would be five times as concentrated or 0.585 pCi/g.

The surface discharge should not create adverse environmental impact. The surface water discharge with trace quantities of ammonia will irrigate and fertilize the stream beds and should substantially increase vegetation production for the rancher-landowner, and, therefore, be a beneficial impact.

Baseline surface topsoil samples have been taken at six locations in the Collins Draw stream bed near the proposed surface discharge point, as shown on Figure 2. These samples have been analyzed for uranium, radium and thorium and the results of these analyses are attached as Table 2. After termination of surface discharge, postdischarge topsoil samples will be collected in approximately the same six locations, unless the discharge has not flowed over or seeped into these locations and then substitute locations will be used. The postdischarge samples will also be analyzed for uranium, radium and thorium.

If the postdischarge samples indicate uranium contamination of 20 mg per kilogram of soil in excess of baseline, radium contamination of 5 pCi per gram of soil in excess of baseline or thorium contamination in excess of 5 pCi per gram of soil in excess of baseline, the contaminated areas will be mapped, and communications will be conducted with the NRC and the Wyoming DEQ to establish procedures to mitigate the impact.

Director

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Pursuant to 10 CFR 40, Cleveland-Cliffs requests that Source Material License No. SUA-1352 be amended to incorporate the enclosed program for disposal of byproduct materials generated by the Collins Draw Project and to authorize surface discharge of wastewater during restoration. Attached is a check for \$760.00 for the Minor, Safety and Environmental Amendment fee.

If you should have any questions in regard to either the "Program" or the request to surface discharge, please contact me personally at your earliest convenience.

Sincerely,

CLEVELAND-CLIFFS

Truman E. Louderback
Truman E. Louderback
Director of Environmental Affairs

TEL:alm:ceg

Attachments

Certified Mail No. P213038377

xc: Land Quality Division
Wyoming Department of Environmental Quality
401 West 19th Street
Cheyenne, Wyoming 82002

Land Quality Division
Wyoming Department of Environmental Quality
30 East Grinnell Street
Sheridan, Wyoming 82801

Region IV
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission

S6/TLI/U

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DOCUMENT/ PAGE PULLED

ANO. 8111170014

NO. OF PAGES 1

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