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THE STATE OF WYOMING

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Department of Environmental Quality

LAND QUALITY DIVISION

DISTRICT IV OFFICE

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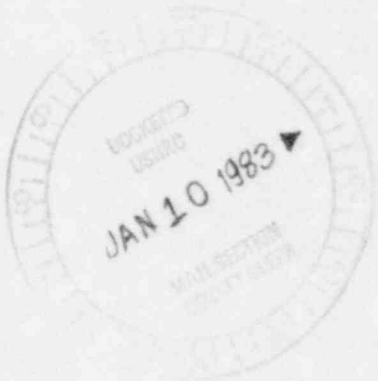
December 27, 1982



Mr. Truman Louderback
Administrator of Health and Safety
Cleveland-Cliffs
P.O. Box 3140
Casper, Wyoming 82602

RE: Collins Draw Project, RD3

Dear Mr. Louderback:

We have reviewed the 1982 annual report for the Collins Draw in-situ uranium leach project and find that the report is quite deficient and raises more questions than it answers.

The lack of information is especially serious because of the anomalous uranium values in Monitor Well 238 and in well 298 which have never been satisfactorily explained and because of the pending request for the acceptance of the restoration of Well Field A.

Discrepancies and areas where answers or additional information is required is as follows:

A. Potentiometric Map(s)

This portion of the annual report merits close review.

1) Potentiometric Map - Production Zone Aquifer

a) Use of Average Water Levels

The map is constructed from an annual average of the water levels in the monitor wells. This practice is not a desirable method since it may not really represent the direction of groundwater flow and may disguise large water level fluctuations. For example, there was over a 200 foot water level change in Well 238 in this time covered by the annual report. Some discussion should be included in the text as to the cause of such changes in water levels and the effect such changes have on the site.

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b) Contours

How this map was constructed and what data points support its bizarre contours must be explained. Certainly, using a linear interpolation procedure, the four data points given do not support the contours shown on this map.

2) Potentiometric Map - Other Aquifers

It is stated in the annual report that the average water level elevations in Wells 230, 245, 263 and 264 are approximately the same for this reporting period as for the first reporting period. Since no significant changes were noted by Cleveland Cliffs, they concluded that no potentiometric maps needed to be submitted.

There are two problems with Cleveland-Cliffs' decision. First, there was a change in the average water levels between the two periods. The average levels for 245 and 264 have increeased a foot or more and Well 230's average water level has decreased over a foot. Individually, those wells have depth changes of 4 feet to 14 feet during the time period covered by the annual report.

Second, in Department of Environmental Quality, Land Quality Division's Rules and Regulations, Chapter XXI, Section 4.d. it states: "An updated potentiometric surface map(s) for all aquifers that are or may be affected by the mining operation."

Unless Cleveland Cliffs has a reasonable scientific explanation (with documentation) for the above described water level fluctuations, potentiometric maps should be produced for these aquifers also.

3) Potentiometric Maps

a) Potentiometric maps for each of the three aquifers at the site must be submitted. It is suggested that the Table 7 format be continued, but that the maps be constructed not from an annual mean but rather from one common sampling day.

b) The construction method for the map(s) should be reviewed and either corrected or explained.

c) Why weren't water level readings taken every time water samples were obtained?

B. Data Analysis

In Table 1, the dates and wells are listed during which insufficient analytical limits were used in water quality analysis to detect an excursion.

TABLE 1

INSUFFICIENT MONITORING

Well	Date
239	10/28/81 11/11/81 11/25/81 12/09/81 12/23/81 2/17/82
240	12/23/81
241	10/28/81 11/11/81 12/25/81 12/09/81 12/23/81 2/17/82

C. High Parameters in the Water Quality Monitoring Data

1) Cleveland Cliffs should discuss why the uranium values became so high and have continued at elevated levels in Well 238. They should also discuss the high uranium values in 239 and the high uranium, sulfate and TDS in 240 and the high uranium in 241. These high values are of special interest since Cleveland Cliffs has been in restoration phase during the time period covered by this annual report.

2) What happened about February 3, 1982? The water levels in wells 238 and 240 were reportedly too low to sample, although those water level readings were not given. The water chemistry of those two wells changed drastically after that date. This should be fully explained.

D. Well 238

1) What is the meaning of the word "pumping" which replaces many water level readings for Monitor Well 238 listed in the Second and Third Quarter Reports beginning about December 9, 1981? Is the monitor well being pumped?

Why wasn't this activity explained in the quarterly or annual reports?

Why wasn't the pumping mentioned at all in the annual report, particularly since pumping of monitor wells is strongly discouraged by the Division as it actually may encourage excursions and limits their usefulness as monitor wells?

2) Water quality data for 1/81 to 12/81 is missing for Well 238.

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E. Well 298W

1) Explain why Well 298 was listed in the Second Quarter Report as "pumping" in March and April, 1982 particularly since this well is outside the license area.

2) Explain why there was no mention at all of Well 298 in the Annual Report document.

3) Does Cleveland Cliffs have any reason to believe from data gathered from Well 238 that lixiviant has spread outside the license area boundary?

F. Response of Monitor Wells to Pumping

1) Why did the monitor wells recharge as fast as their response to pumping from the B wellfield?

2) Why did the monitor wells recharge to the extent they did even though surface discharge was reduced from 66,000 gal/day in the first quarter of 1982 to 55,000 gal/day in the second quarter of 1982? A reduction of only 11,000 gal/day does not seem to account for the almost complete recovery in water levels of the surrounding monitor wells.

The above observations and questions need to be explained and answered as they have considerable bearing on the Division's review of Cleveland Cliffs' restoration operations and excursion control.

Accordingly, an answer to the above will be required within thirty (30) days of the receipt of this letter.

Sincerely,

Glenn Mooney

Glenn Mooney
Geologist

GM:kn

cc: Kathy Ogle - LQD Chey.
Tony Mancini - WQD Chey.
John Linehan - NRC Wash.

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RAC 29 Dec