Return to: WMUR 4615S
Docket 40-8714
PDR

Distribution: 301
Docket file
PDR
IE HQ (2)
Mill file
WMUR c/f
WMUR r/f
WM r/f
NMSS r/f
JAPohle
JJLinehan
DEMartin
HJPettengill
REBrowning
JBMartin
BPFisher

WMUR:JAP
Docket No. 40-8714
SUA-1352

JUN 24 1981

MEMORANDUM FOR: Ross A. Scarano, Chief
Uranium Recovery Licensing Branch

THRU: John J. Linehan, Section Leader
Operating Facilities Section I
Uranium Recovery Licensing Branch

FROM: Jeffrey A. Pohle
Operating Facilities Section I
Uranium Recovery Licensing Branch

SUBJECT: REVIEW OF CLEVELAND CLIFFS IRON COMPANY'S QUARTERLY MONITORING REPORT FOR THE PERIOD JANUARY 1, 1981 TO MARCH 31, 1981

1. Program Status

Test pattern area A-1 was converted from production phase to restoration phase on November 4, 1980, and is still proceeding. Test pattern area B was put into production phase on December 8, 1980. The B area has 22 wells and an area of approximately 26,000 square feet.

In their report CCIC states "There were no major excursions, spills, or other permit or license events which would have resulted in a shutdown or change of operation". They also state "To date, no mine chemicals have shown up at the monitor well site" {Well 238}.

Findings

1. Based on data included in this monitoring report and on other information obtained from CCIC I disagree with CCIC's conclusion that "no mine chemicals have shown up at the monitor well site". This subject is discussed in more detail in the following section.

2. Water Quality and Lixiviant Migration Control

Baseline data and biweekly well field monitor well analyses have been included in the quarterly report as per Condition No. 29 of

OFFICE							
SURNAME	8107160638 810624 PDR ADOCK 04008714 C PDR						
DATE	6/25						

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY ☆ USGPO 1980—329-824

License SUA-1352. Quarterly full chemical analyses of all monitor wells is included as required by Condition No. 15.

On January 21, 1981, well field monitor Well 238 exceeded its upper control limit for sulfate. CCIC notified the NRC of this event by letter dated February 9, 1981. Included with this notice was a request to modify the existing sulfate UCL's or adopt the WDEQ excursion guidelines (4 of 6 parameters must be over UCL's before the event is considered an excursion).

On February 21, 1981, well field monitor well 238 also exceeded its upper control limit for total dissolved solids.

CCIC has concluded that to date, no mine chemicals have shown up in monitor well 238.

CCIC also reports that initially no corrective actions were taken as well 238 "has a long history of sulfate fluctuations." Since that time corrective procedures have been initiated. As listed by CCIC they include:

A. A pump has been placed in well 291 to attempt to draw any chemicals back towards the B pattern.

B. Well 238 is only 110 feet from well 291. A new monitor well could be drilled so that the distance between well 291 and the new monitor well would be 200 feet. In this situation, well 238 would become a trend well. The best position for this new well is now being studied.

C. Sampling of well 238 should be done on a weekly instead of a daily basis. The sample from well 238 should then be analyzed for the complete guideline of parameters.

Findings

2. In their quarterly report CCIC attempts to make a case that the elevated sulfate concentrations are due to excessive pumping of well 238 caused by the daily monitoring requirement set by Condition 17 of their license. They also set forth the idea that the elevated TDS concentrations are primarily due to the elevated sulfate concentrations. As an interim measure the NRC allowed CCIC to collect grab samples from well 238 rather than pump to alleviate any potential problems which might be caused by over-pumping. More recently the NRC amended

License SUA-1352 (Amendment No. 3, dated May 6, 1981) to temporarily allow CCIC to sample well 238 on a weekly, rather than daily basis as long as the sample was obtained by pumping at least one casing volume and was analyzed for the complete guideline of water quality parameters. To date, the varied sampling procedures have had minimal effect on the measured concentrations of sulfate and total dissolved solids.

Additional information contained in the monitoring report (quarterly full chemical analyses of all monitor wells) clearly shows that other constituents besides sulfate and TDS have increased in concentrations. They are chloride, nitrate, iron selenium, uranium, and radium. The rise in chloride concentration is particularly significant. The normal background concentration of chloride is 8 to 12 mg/l. The latest chloride analysis for well 238 shows a concentration of 124 mg/l. This is significant because chloride is not produced by reactions underground in the ore zone but must be introduced into the system by plant processes. It is my understanding from information obtained during our meeting with CCIC in Casper, Wyoming on April 9, 1981, that several drums of hydrochloric acid were accidently introduced into the lixiviant circuit. Therefore, it must be concluded that this is the source of the high chloride concentrations in well 238 and this excursion does indeed represent an excursion of mining chemicals despite CCIC's protestations. The only other potential source of chloride would be the use of a sodium chloride elution circuit. According to License SUA-1352, CCIC is limited to an ammonia carbonate elution.

The NRC recently received notification by letter dated May 7, 1981, from Cleveland Cliffs that concentrations of sulfate and TDS have exceeded their respective UCL's at monitor well 241. They report that corrective action was begun immediately by stopping injection of fluids into well 281 and placing pumps into wells 297 and 296 in order to draw "any mine chemicals back toward test pattern area A-1". In light of the existing excursion at well 238 and the additional excursion at well 241 the NRC sent Cleveland Cliffs a letter (dated May 15, 1981) confirming that Cleveland Cliffs was aware of the requirements of Condition No. 17 of their Source Material License. These requirements were discussed at length during a staff visit to CCIC's site on April 9, 1981. The requirements of Condition No. 17 are that after an excursion situation has existed for 120 days, injection of lixiviant in the area shall cease and restoration procedures initiated unless they are able to give

evidence showing that corrective actions initiated because of the excursion are working. CCIC was further informed that unless this evidence is received and meets with NRC concurrence by May 25, 1981, restoration procedures for pattern area B must be initiated.

The staff is currently working on the current excursion event and CCIC's amendment requrest on sulfate UCL's under other case numbers therefore, any follow-up actions will not be initiated by this review of the quarterly report. Any other follow-up actions regarding water quality and lixiviant migration control have previously been addressed in my review of CCIC's reports for the final two quarters of 1980 (memorandum dated April 21, 1981).

3. In-Plant Radiation Monitoring Program

Cleveland Cliffs quarterly report states that sampling results for radon/radon daughters still show levels below 25% of applicable maximum permissible concentration specified by 10 CFR, Part 20.

Radon daughters - No recordable amounts
Working Levels/Working Level months - 0.00

The measured uranium particulate concentrations are fractions of a percent of the applicable maximum permissible concentration specified by 10 CFR, Part 20.

Findings

3. All necessary changes or follow-up actions relating to the in-plant radiation monitoring program were previously addressed in my memorandum of April 21, 1981.

4. Process Drain Field Constituent Inventory

Data included in the quarterly report indicate that as of March 25, 1981, Cleveland Cliffs had released 32.2% of the total volume in gallosn allowed under their WDEQ permit. As of the same date they had released 64.8% of the uranium limit and 47.4% of the radium limit.

OFFICE ▶							
SURNAME ▶							
DATE ▶							

Summary of Follow-up Actions

1. Any necessary follow-up actions dealing with the ongoing excursion at monitor wells 283 and 241 are being pursued under other casework numbers.

2. Any other necessary follow-up actions dealing with water quality and lixiviant migration control, restoration, in-plant radiation monitoring or the process drain field were addressed in my memo dated April 21, 1981, and are currently being pursued.

Original signed by

Jeffrey A. Pohle
Operating Facilities Section I
Uranium Recovery Licensing Branch
Division of Waste Management

Approved by: 1s|
John J. Linehan, Section Leader
Uranium Recovery Licensing Branch

Case Closed: 04008714M03E

6/22/81 -- MAG II

OFFICE	WMUR	WMUR					
SURNAME	JAPohle:mb	JJLinehan					
DATE	6/22/81	6/24/81					