



PDR

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Department of Environmental Quality

LAND QUALITY DIVISION

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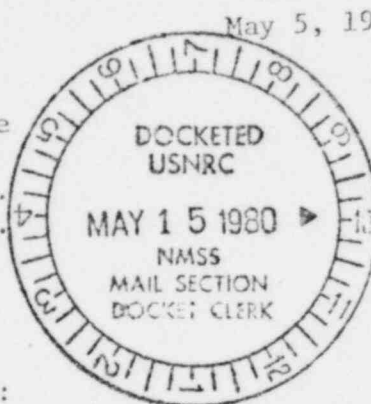
CHEYENNE, WYOMING 82002

May 5, 1980

Mr. Glenn Catchpole
Project Manager
Ogle Petroleum Inc.
150 N. Nichols Ave.
Casper, WY 82601

RE: TFN 1 1/149

Dear Mr. Catchpole:



Second review of your application for permit to mine TFN generates the following comments:

Baseline data should be submitted as soon as possible consistent with the annual report agreement on additional mining units so DEQ determination can be made in a timely manner. Hydrology data in fault zones is particularly important and DEQ may require additional monitor wells at fault zones. Ogle should obtain geologic data during development drilling so a determination of locations of sands, etc. may be made in order to anticipate fault performance with respect to the mining hydrology.

Particular attention must be focused on obtaining baseline for additional mining units before the new mining units hydrology data is affected by the present adjacent mining operation unit. Water levels in wells is particularly important. The boundary between units I and III and between units I and IV must be addressed and Ogle must be prepared to place additional monitor wells in unit III ore body so if an excursion is detected the additional well may be used immediately for baselining. An extra monitor well between units I and IV may be required to determine if mining in unit I has affected the baseline of Unit IV.

REVIEW

The application must be modified to reflect the Francis-Mancini letter to Ogle of May 1, 1980. This constitutes LQD's review response for the subjects of Upper Control Limits, monitor well distance, and Restoration criteria. Please realize that some maps must be revised to reflect approved monitor well distance.

Additional Review Items

1. Any roads or trails that are upgraded in any way from present condition in the permit area should have topsoil removed to a depth of six inches

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and stored for later replacement. This indicates that the application should provide a statement to this effect, or a statement that no roads or trails will be upgraded.

2. The application must be modified to reflect that injection of mining units following unit no. 1 will not occur until DEQ has approved the baselining program and monitor well spacing. See particularly pgs. 194 and 196.
3. The 5 mg/l restoration value for uranium shall be expressed and meet the limit as U₃O₈. All references to uranium values shall clearly indicate the method of expression.
4. DEQ requires baselining of two additional restoration wells for unit no. 1. These wells should be placed in those areas where Ogle is not certain where the ore body may be mined. At time of restoration, a decision will be made by DEQ whether these baselined wells will be used or not in restoration sampling.
5. The evaporation pond location and specific design parameters remain in question. The specific details of the pond should be submitted to both Land Quality Division and Water Quality Division to facilitate review. Documented approval by Water Quality Division is required before Land Quality Division approves the plan. DEQ needs specifications as soon as possible.
6. A lower aquifer pump test will be required before approval of mining unit no. 2. If the aquifer is leaky, monitor wells must be placed in the lower aquifer. For mining unit no. 1, below the ore zone monitoring will be required. See page 193-for revision.
7. A tabulation of the locations of abandoned drill holes and wells including depth, type of use, condition of casing, plugging procedures and date of completion where known from public records and a reasonable inspection of the property is required.
8. Please refer to the "Responses to Comments" for Frank Putman's memo of February 8, 1980. Logs for cross-sections B-B' through G-G' (Figure 8.4-10, Vol. I) are not represented completely by logs furnished March 28, 1980.
9. Lixiviant Movement Along Faults. Section 15.5.

Ogle's plan for operational management in fault zones is basically sound. The following additional steps are required.

- a. Pump tests of the D sand are required using observation wells in the B and D sands on each side of a fault. The test should be over a long enough period to develop a definite response curve to pumping, if such a response exists.

- b. The material balance check on fluid injection and recovery is said to have a minimum accuracy of 8% by Ogle. If the flow capacity is ultimately to be 1200 gpm, then the fluid loss per day could theoretically reach a total of 138,240 gallons per day over the production area. This loss is too large and the monitor wells completed for the pump tests discussed above should be used to monitor for vertical excursions in fault zones when the mine is operational. Parameters measured and monitoring frequency must be the same as for horizontal excursion detection.

10. Hydrology. Appendix D-6. Pages 49-109

A. Groundwater Hydrology. Section 9.1. Baseline Information.

- (1) The extent, water levels, chemical quality, and hydraulic properties of the water table aquifer briefly mentioned on page 49 of the application need further definition. The location of the evaporation pond monitoring wells is not justified at present, because properties of the water table aquifer are unknown. Would the monitor wells detect leakage, "i.e.", what is the direction of flow in this aquifer? The application provides that the chemical baselining will be provided with the annual report and this is sufficient. But the extent and piezometric surface are unknown.
- (2) Water Quality and piezometric surface of the B sandstone are not totally described in the present application. The water quality data is to be provided as outlined in paragraph 16.1.2 on page 194. This is adequate. However piezometric surface needs further definition, and this may be provided by double-completion of the wells to be placed in the NW $\frac{1}{4}$ and NE $\frac{1}{4}$ sec. 25, so that water level for the "B" sands may be monitored at these sites. Water levels should also be monitored on the 3 upper zone wells in mining unit no. 1.
- (3) The application should propose revision of the "D" zone piezometric surface map as information becomes available.
- (4) A piezometric surface map for the "B" zone must be provided with the first annual report.
- (5) A map showing all data points with water elevations and identification numbers must be provided with the first annual report.

- (6) Pump tests for determination of leakage from underlying and overlying aquifers will be required for mining units after no. 1. A conservative approach calls for a pump test to determine leakage from the beds underlying the D sandstone. The faults in the area, the large number of exploration holes, and the variation of the underlying sands make such a test necessary. Pump test no. 1, discussed in Section 9.1, is inconclusive about this matter due to the inability of the submitted data to distinguish between leakage due to inter-communication, and leakage due to poor well completions. Previous hydrology comments (see Putman memo of February 8, 1980, Section III.A.1.c.) cover the amount of detail necessary for the tests. Please revise sections 9.1.3 through 9.1.5 to reflect this requirement and avoid cumbersome stipulations to approval.
- (7) How often would fluid balance checks for leakage in fault areas be done? How closely can a fluid loss be tied to a specific area? How long would an imbalance be allowed to continue before corrective action began? What specific steps would be taken to locate and correct the imbalance area? Please add material to 15.5 to address these questions.

B. Baseline Water Quality. Sections 16.1.3 and 16.1.4

OPI is reminded that the WQD-LQD letter of May 1, 1980 constitutes review of this section.

Please note that referencing from this section, or inclusion in this section is needed to fully address baseline water quality so that the B sand, and underlying sand monitor wells are also covered under the subject of Baseline Water Quality.

The WQD-LQD letter deals in generalities concerning baseline and restoration. It does not specify which wells in which sands. Some narrative in sections 16.1.3 and 16.1.4 will be needed to respond to item 4 of this memo.

11. Mine Plan. Section 15. Pages 170-192

A. Well Construction and Integrity. Section 15.6.

- (1) Ogle has changed its well design somewhat and Figure 15.9 on page 182 is no longer representative. This figure should be revised to show actual construction practices.
- (2) The term "significant pressure drop" in the test for well casing integrity should be defined. What pressure loss will be necessary for Ogle to rework the well?

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B. Evaporation Ponds. Section 15.8

Plans and a location map of the ponds have not yet been submitted and ponds cannot be reviewed until this is done. Monitoring of down gradient wells should be for the same parameters as used for excursion detection, "i.e." the WQD-LQD letter of May 1, 1980 also affects the statements in 16.1.3 concerning evaporation pond monitoring.

One final comment is needed concerning the shallow unconfined aquifer. This aquifer could become a "key groundwater issue", to quote A.J. Mancini's memo of April 24, 1980. It is felt by District III that it is too late in the process to introduce this as a "new" issue in finalizing this application. However, it would appear advisable that Ogle establishes a deadline for submitting pertinent detailed data for this aquifer including Guideline 4 sampling and aquifer definition by mapping of the piezometric surface. See comment 10.A.(1) which deals with this aquifer specifically related to the evaporation pond.

Sincerely,

Ed Francis

Ed Francis
District III Engineer

EF:rc

cc: A.J. Mancini
Frank Putman
Ron Kauffman, NRC ✓