



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV
URANIUM RECOVERY FIELD OFFICE
BOX 25325
DENVER, COLORADO 80225

Return to URFO - 467-85
Docket File 40-8745
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URFO:FWR
Docket No. 40-8745
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MEMORANDUM FOR: Docket File No. 40-8745
FROM: Frederick W. Ross
Uranium Recovery Field Office
SUBJECT: SEPTEMBER 22, 1982 CONFERENCE CALL BETWEEN OGLE
PETROLEUM, INC. AND NRC

A September 22, 1982 conference call was held between staff members of Ogle Petroleum, Inc. (OPI) and the Uranium Recovery Licensing Branch of the NRC to discuss the NRC's review of OPI's mining unit #2 aquifer pumping test. The major issue discussed was the NRC's position, as stated in the September 10, 1982 letter to OPI, that a second aquifer test needs to be conducted prior to licensing injection of lixiviant into mining unit #2, because the mining unit #2 aquifer test did not adequately demonstrate ore zone confinement with respect to the lower sandstone unit. Representing OPI in the conference call were Glenn Catchpole of OPI, and Steve Playton and George Hoffman hydrologic consultants to OPI. Representing the NRC were John Linehan and Fred Ross of the NRC, and Roy Williams hydrologic consultant to the NRC.

Details of the NRC's review of the unit #2 aquifer test are documented in the attachment to the September 10, 1982 letter from the NRC to OPI. Conclusions of the review are as follows:

- 1) Values of transmissivity and storativity that were estimated by use of the Jacob Straight line method of analysis are not valid.
- 2) The middle fault and north fault definitely are flow retarding boundaries. However, hydraulic connection does exist across the north fault.
- 3) Actual values for transmissivity and storativity for the ore sand aquifer probably fall within the range of values that were estimated by Hydro-Engineering (1982) by use of image well theory. Transmissivity probably ranges between approximately 100 gal/day/ft

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and 200 gal/day/ft. Storativity probably ranges between 10^{-4} and 10^{-5} .

- 4) The fact that early drawdown data simply were not measured (or were not presented) for several observation wells is a deficiency with respect to analysis for boundary conditions and potential leakage. The case for boundaries and the absence of leakage could have been strengthened if these measurements had been taken and analyzed.
- 5) The "ratio method" as utilized by Hydro-Engineering to estimate the vertical hydraulic conductivity of the lower aquitard is invalid. The wells used in the test are not located properly or screened in the correct hydrostratigraphic units to qualify for use in the ratio method.
- 6) Very little can be determined with respect to potential leakage between aquifers with the data that are available.

During the conference call Roy Williams raised three additional objections to the aquifer test that were not discussed in his initial review. The first objection concerned the rise in water levels observed in all three aquifers (upper sand aquifer, ore zone aquifer, and lower sand aquifer) during the two weeks prior to conducting the test and after the upper sand aquifer supply well was shutdown. Dr. Williams stated the rises in water levels were not adequately explained in the pump test report and that they may indicate that the three aquifers are hydraulically connected.

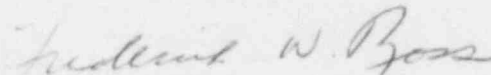
Dr. Williams' second objection concerned the assumption under which the pump test was conducted and analyzed. It was assumed that the two faults crossing mining unit #2 behave as barrier boundaries and as such no groundwater can move laterally in the ore zone aquifer across the faults. However, other evidence indicates that the faults are merely retarding boundaries, allowing for at least some movement of water across them. In addition, George Hoffman contradicted the barrier boundary assumption when he explained that water changes in the ore zone aquifer prior to the pumping test were influenced by mining operations in unit #1 across the south fault.

The final objection raised by Dr. Williams concerned the periodic pump failure that occurred over a half hour period about one hour into the test. Dr. Williams stated that it would have been prudent to halt the test at first signs of trouble, wait for water levels to recover in all

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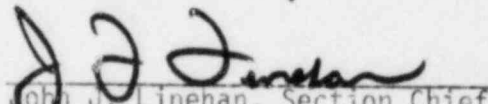
wells, and rerun the test.

After our general discussion of the pump test, the major issue of ore zone confinement with respect to the lower sand aquifer was raised. As an alternative to conducting a second aquifer test in unit #2, OPI proposed to provide additional excursion monitoring of the lower sand aquifer during mining and to analyze a core of the lower confining unit. The NRC remained firm on its position that there are too many problems with the way the original pump test was conducted and that a second test would be the only method for demonstrating ore zone confinement. The discussion was concluded with OPI stating that conducting another pumping test to demonstrate ore zone confinement in mining unit #2 is unacceptable. Mr. Linehan replied that OPI should notify the NRC in writing of their intentions regarding a second mining unit #2 pumping test as requested in the September 10, 1982 letter from the NRC to the OPI. If OPI holds to the position that another test is unacceptable, OPI's amendment request to authorize mining in unit #2 will be denied because of an inadequate demonstration of ore zone confinement.



Frederick W. Ross
Uranium Recovery Field Office

Approved By:


John J. Linehan, Section Chief
Uranium Recovery Field Office

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