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FEDERAL-AMERICAN PARTNERSHIP

Telephone 410-535-1000
Gas Plant Building
RIVINGTON, MARYLAND 21158
October 17, 1980

Mr. John J. Linehan, Section Leader
Uranium Recovery Licensing Branch
Division of Waste Management
7915 Eastern Avenue
Silver Springs, MD 20906

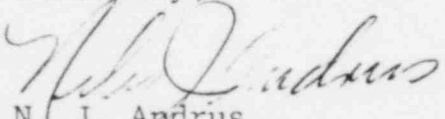
Dear Mr. Linehan:

In response to your letter of October 6, 1980, please find attached the responses to the hydrologic questions from our August 29 submittal. These responses have been punched and may be added to the August responses.

In regard to your comment on supplying a date for the items requiring additional field work dealing with the solar evaporation pond, this study is nearly complete. It will be submitted to us by Dames and Moore for consideration and decisions.

If we may be of further service to you on these questions, please do not hesitate to contact us.

Sincerely,



N. J. Andrus
Project Manager

NJA/KW/smh

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(1) Question

"The No. 1 pond, or the current solar evaporation pond is currently under study for possible continued use to fulfill the evaporation requirement. In the event that facility should prove unsatisfactory, a proposal for broadening the scope of the Dames & Moore work program to encompass evaluation of an alternate site is in hand."

"Is this study complete? If so, what are the results?"

Response

A feasibility study to determine suitable alternate evaporation pond sites within the confines of existing permitted areas is in progress but is not complete at this time. We expect that the final report will be submitted to Federal-American Partners by the end of October. Preliminary results of the study indicate that the amount of area which is suitable for new evaporation pond sites is limited. Because of the limited size of the suitable areas, several sites may have to be utilized.

With regard to the existing evaporation pond, our mathematical modelling studies completed to date indicate that the rate of movement in chemical constituents present in the ground water due to pond operations has been very slow in the past five years compared to the first five years of operation. Stated in another manner, chemical concentrations in the pond vicinity are nearing a "steady state" condition.

Therefore, assuming no major changes in the chemical make-up of the process water, continued operation of the existing evaporation pond should result in relatively little change in the position of contaminant concentrations if operated over the next five years. With a functioning pumpback system, we anticipate that dewatering of the upper unconfined aquifer will result in improved aquifer conditions with continued operation of the existing pond. Predictive modelling of continued operation is in progress.

(2a) Re: Question No. 2a

"Samples from the monitor wells are obtained by bailing."

Please verify that at least one, and if possible, two casing volumes of water are removed from each borehole prior to water quality sampling.

If bailing one or two casing volumes of water results in a "dry" borehole, then the water shall be allowed to recover to such a level that sampling is then possible. Please comment on how much water is being removed prior to sampling, and how the volume is determined.

Response

The paragraph beginning with "Samples from the monitor wells are obtained by bailing" should be expanded to include the following:

Prior to sampling one casing volume of water is removed from each monitor well. Casing volume is determined as follows:

(depth of casing-depth to water) πr^2 x 7.48 gal/cu.ft.=#gal.

When static water level is regained, the wells are sampled. Temperature, conductivity and pH are taken immediately.

(2b) Re: Question No. 2b

"Wells Fox 1 through Fox 6, which were installed in October, 1979 are yielding anomalously high concentrations of dissolved solids. In particular, Well Fox 5 displays total dissolved solids of approximately 2,000 ppm although pH is approximately neutral."

Please evaluate and verify the source of this contamination.

If the source of contamination is the tailings pond, evaluate the impacts, both qualitatively and quantitatively on water quality and potential water use near the Fox Wells and down-gradient of them.

Response

Further review of the water quality data indicates that all parameters, with the exception of sulfates, chlorides and nitrates, are near back ground levels. Furthermore, surface elevations in the area of the Fox Wells are 6,350 feet or lower which would indicate a pinching out of the upper unconfined aquifer in the Wind River Formation. This also would imply that the area where these concentrations are observed is a ground water discharge area.

A site visit was conducted on September 30, 1980. Visual observations of the area in the vicinity of Fox Wells 1 through 6 revealed heavy salt encrustations at the surface with a whitish color. A review of serial photos taken in 1960 and 1979 indicate that the whitish soils may have been present during the entire operational history of Federal-American Partners' Mill. Reproductions of the air photos are attached.

Discussions with Federal-American Partners' personnel who were on site during 1960 revealed that sewage may have been discharged from a trailer camp immediately to the north and a general store, which at that time, was located immediately to the east of the existing tailings pond No. 2. Sewage could possibly account for the presence of high nitrates (as N) in the ground water samples analyzed which ranged from .42 to 128 mg/l with an average of 35 mg/l, whereas the average nitrate (as N) concentration of the tailings liquor is approximately 4. mg/l.

Plotting of dissolved solids concentrations obtained at Fox Wells 1 through 6 on a location map shows that concentrations are decreasing toward the evaporation pond which is physically inconsistent with the pond being the source area.

Therefore, we conclude on the basis of the available evidence, that the elevated levels of sulfates, chlorides and nitrates represents a possible combination of past sewage disposal and natural ground water discharge and evaporation and are probably unrelated to the operation of Tailings Pond No. 1, the existing evaporation pond.

LEGEND

PHOTO 2b-1

August 1960

T33N, R90W, Section 20, 21, 28 and 29

0 Fox 2 = Monitor Well

- - - - = Salt Encrustation Boundary

PHOTO 2b-2

August 1979

0 Fox 2 = Monitor Well

- - - - = Salt Encrustation Boundary