



UNITED STATES

NUCLEAR REGULATORY COMMISSION

REGION IV

URANIUM RECOVERY FIELD OFFICE
BOX 25325
DENVER, COLORADO 80225

JUN 16 1994

Docket No. 40-6659

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Petrotomics Company
ATTN: Ron Juday, Supervisor
P.O. Box 8509
Shirley Basin, Wyoming 82615

Dear Mr. Juday:

Our office has reviewed your correspondence dated April 1, 1994, submitted in compliance with License Condition 27(E) of Source Material License SUA-551. During our review, we have found your recommended limit for the concentration of radium-226, 1727 pCi/l, in the Main Wind River sand (MWR) is significantly higher than any previously reported value. In your August 1986 submittal (Updated Ground-Water Hydrology of Petrotomics' Tailings Area), the highest concentration of radium-226 reported for 34 sample analyses from nine wells was 735 pCi/l; the average concentration was approximately 103 pCi/l. In your June 28, 1993, correspondence to this office, water quality analyses for samples from six MWR wells revealed the highest level of radium-226 was 207 pCi/l, with the average concentration at approximately 41.4 pCi/l.

Within the August 1986 submittal, you noted that a water mound at Pit 4 caused water to flow outward from the pit to the MWR aquifer, and that mine water discharged to Phase 10. The mound of water was expected to exist for several years after operations ended. Although this report indicated natural levels of radium can be high in the MWS aquifer, the highest reported level was 15 pCi/l. This information suggests that high levels of radium-226 in your samples of MWR ground water could be from seepage contamination.

In the April 1, 1994, submittal, it appears the proposed limit is based on only one round of sampling conducted for four newly constructed monitor wells. Our staff conclude this does not provide a sufficient data base for establishing ground-water protection standards (See NRC Regulatory Guide 8.14 and Staff Technical Position Paper WM-8102). Moreover, we question why previously reported well data was not incorporated into the data base for determining concentration limits. During a telephone conversation with Cynthia Corbett of our staff, you said the data from the wells listed in the 1994 submittal were not considered because these wells show contamination. This interpretation of water quality trends is discussed in the April 1981, and August 1986, Petrotomics submittals and is the basis for requiring a

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corrective action program for the MWR. The highest recorded level of contamination, 207 pCi/l at monitor well 12DC, is more than 1500 pCi/l less than your proposed limit.

Accordingly, it is our position that your proposed radium-226 concentration limit of 1727 pCi/l is unacceptable. You are requested to provide a more reasonable limit supported by an adequate data base of water quality data from the Main Wind River aquifer.

If you elect to attempt to justify your proposed limit of 1727 pCi/l, you will be required to provide substantial justifications in the form of water quality data over a sufficient time and area that supports your proposal. As noted above, the use of one sampling period for four new wells is not adequate. Furthermore, you will be required to provide detailed geologic information and well completion data to substantiate that the ground-water data is from the Main Wind River and is "natural." Hydrogeologic information will also be required that defines the direction and rate of ground-water flow in areas adjacent to the east and northeast perimeter of the tailings impoundment, including the area extending to Pit 5 and Phase 10.

Please note that we have not completed our review of your proposed concentrations limits for other constituents, and we may need additional information on them in the future. Because of the need for resolution of the radium-226 concentration limit, we felt it was important to convey our position as soon as possible.

Please submit the requested information to this office within 30 days from the date of this letter. If you have any questions regarding this matter, please call Ms. Corbett at (303) 231-5811.

Sincerely,


for Ramon E. Hall
Director

cc:
J. Hough, RCPD, WY
D. Finley, WDEQ
WDEQ-LQD

Petrotomics Company

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bcc:
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PDR/DCS
URFO r/f
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DBSpitzberg, RIV
RAScarano, RIV
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CDMiller/lv	EFHawkins	REHall <i>for</i>		
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