

40-8743

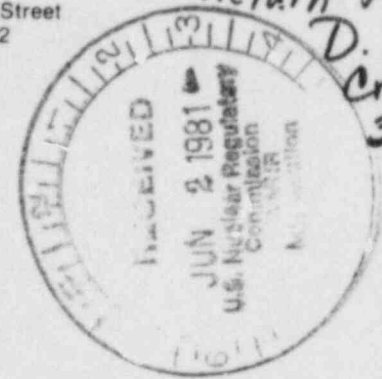
PDR

Return to  
D. Cramer  
39655

T. W. Quigley  
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Sand Rock Mill  
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May 29, 1981



Mr. Tom Fleming  
Project Manager  
Nuclear Regulatory Commission  
7915 Eastern Avenue  
Silver Springs, MD 20910

Re: Additional Responses to NRC Comments on the Sand  
Rock Mill Project - Docket No. 40-8743

Dear Mr. Fleming:

Please refer to D. E. Martin's letter dated April 13, 1980. Enclosed you will find responses (12 sets) to Comments 17, 18, 32, 37, 40 and 49. Under separate cover, three sets of these responses are being forwarded to Dr. M. Kelley at Oak Ridge.

Due to other staff commitments and the necessity to renew agreements with some outside consultants, Conoco is unable to provide responses to Comments 1, 21, 23 and 26 at this time. However, we expect to be able to forward responses to these four remaining comments by June 12, 1981.

In Conoco's May 12, 1981 responses to the bulk of the April 13 comments, there were two cases in which lab work was in progress to support the response: Comment No. 6 (aquatic biota/water analysis) and Comment No. 20 (clay analysis). We also hope to provide you with these results by June 12.

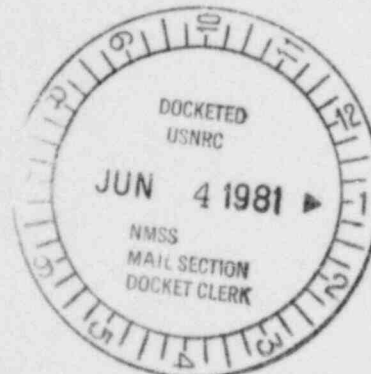
Please contact me if you have any questions concerning the enclosed materials.

Sincerely,

*T. W. Quigley*  
T. W. Quigley

TWQ/en

cc: J. E. Cearley (encl.)  
D. W. Bollig (encl.)  
Dan Martin - NRC (encl.)  
Dr. M. Kelley (3 encl.)



10115

Comment No. 17

Does CONOCO, at this time, plan to--either alone or in concert with others--establish any mitigation programs to alleviate impacts to local counties and/or communities? If so, what programs are under consideration?

Response

Various programs will be explored by Conoco after consultation with local officials. No specific set of programs has yet been adopted, nor can they be until it becomes clearer which areas will be impacted and what types and degrees of impact will occur.

It is anticipated that the construction and operation of the Sand Rock Mill will not have a major impact on the regional socioeconomics. Construction labor requirements will be satisfied mainly by the already existing concentration of skilled labor in the Casper and Gillette areas, and, secondly, by sources in the rural communities nearby the project site. Operation of the mill will have a minor impact on the region. Eighty-two people will be employed at the mill, many of whom may already be residents of the local area.

Conoco will insure that any future mitigation programs will be consistent with state and local planning agencies to guarantee the maximization of benefits for not only Conoco employees, but for the local communities.

Comment No. 18

Does CONOCO plan to initiate any programs--such as the bussing of employees to and from the mill, or aiding in the search and purchase of residences--to alleviate the impacts on or of employees?

Response

A number of programs are under consideration but none have been formalized. Conoco has routinely, however, provided its employees with both transportation assistance (in the form of van pools) and housing assistance (in relocation, interest supplements and home finding services). Details of the transportation assistance would be worked out after the actual distribution of employees' residences in the area is known.

Conoco employees at the Sand Rock Mill will have the full spectrum of employee benefits along with any future programs specifically designed for the project.

Comment No. 37

Dam #2 will collect runoff from the mill with no planned discharge from the impoundment during the operating life of the mill. What alternate reclamation plans will CONOCO employ if contamination of the Dam #2 area on Figure 3.7-12 is more extensive than shown on Figure 3.7-13? (Section 9.3.3.1)

Response

The high-water-level for Dam #2 (Figure 3.7-12) is the 5,347 ft elevation. The reservoir area below this elevation would be the maximum area affected behind Dam #2, and only after two back-to-back 100-yr floods have been experienced. It is anticipated that during the majority of the project life Wash #2 will be dry or contain only a small amount of ponded water. If an appreciable quantity of water does collect behind Dam #2, it will be pumped to the mill to be used as makeup water.

During final reclamation of the mill site, any contaminated ground in the pond area behind Dam #2 will be stripped and hauled to the tailings disposal area or Pit 35S for burial. The amount of stripping would be determined at the time of final reclamation, based on surveys, and would comply with the decommissioning criteria described in Section 9.2.2.



Comment No. 32

What is the feasibility of correcting the subsurface shortcomings of evaporation pond sites #1 and #4 to make them viable options?

Response

The analysis of the 14 alternative tailings disposal and/or evaporation pond sites is presented in ER Section 10.2. As explained in the introduction to the section, all sites were evaluated according to the following criteria:

- . remoteness to the public
- . minimum disruption and dispersion by natural forces
- . subsurface conditions at site should minimize potential seepage.
- . proximity of site to mill
- . minimize obstruction of future natural resource development.

As described in ER Section 10.2.3, seven of the eleven surface disposal sites were eliminated in a preliminary site selection. Elimination was based on a "fatal flaw" determination on each site based on the above criteria.

The three surface sites, Areas 10, 4, and 1 (Area 1 and Area 2 were considered similar), were all considered viable sites. All three sites went through a detailed evaluation of rating and ranking according to the environmental criteria described in ER Section 10.2.4. This comparison and ranking of the sites is presented in ER Tables 10.2-1 and 10.2-2 of the three surface sites, Area 10 had the

Continuation to Comment No. 32

highest overall ranking. Areas 1 and 4 were not deemed infeasible, they just had lower overall rankings than Area 10.

From Table 10.2-2, Area 1 was given as high a ranking for seepage potential as Area 10 (a "10" - lowest seepage potential). The subsurface at Area 1 consists of dense to very dense silty sands and silty clays. There are indications of perched water 12 to 40 feet below the surface. The extent of this perched water table would have to be determined before the site could be used as an evaporation pond. It may be necessary to place a clay liner on all or a portion of the pond bottom depending on the significance of the perched water.

Area 1 has more significant drawbacks to its use as an evaporation pond and temporary tailings site than subsurface conditions. Included in these are the proximity of the site to State Highway 387 with an increased chance of exposure to the public, the indications of uranium mineralization below the site, and the need for transporting tailings and decant solutions off the present permit site and under the highway.

The subsurface conditions present at Area 4 are described in ER Sections 10.2.1.4 and 10.2.3.2. The ramifications of selecting Area 4 over Area 10, as related to groundwater and potential seepage, are described on ER page 10-24.

Continuation to Comment No. 32

Mitigation measures that could be undertaken in Area 4 include stripping the highly permeable sandy alluvium in the pond basin and the installation of clay liner or a slurry cut-off trench to retard seepage into the 70 sands. These procedures are similar to those proposed for Area 10. As stated on ER page 10-26, these mitigation measures could give Area 4 a seepage potential equal to Area 10.

Comment No. 40

Section 5.7.1.2 states that a groundwater supply of 3,800 /min (1,000 gpm) for the initial two years and 1,900 /min (500 gpm) for the remaining ten years for the mill is needed and that the "50" and "40" sands and the Roland coal are the proposed sources for the water supply. However, Section 3.3.6.1 (p. 3-14) states that eight wells will be required to produce 75 /sec (1,200 gpm) from the Roland coal aquifer and "40" and "50" sands. Confirm the expected groundwater usage year by year. For each water supply well indicate the exact location by map, the aquifer to be tapped, and the anticipated withdrawal rate by year.

Response

The groundwater requirements for the Sand Rock Mill will average 1,000 gpm for the initial two years and 500 gpm for the remaining years of mill operation. The 1,200 gpm figure used in Section 3.3.6.1 (p. 3-14) was a design value used in the preliminary mill water supply analysis conducted in November 1979, and, as such, is conservative. The higher rate for makeup water during the first two years is necessary because the conditions necessary for the maximum recycle of process solutions from the evaporation pond will not be completely established at that time.

The eight potential well locations are shown in Figures 2.1-2 and 3.7-1 (labeled "proposed water well"). As stated in Section 5.7.1.2, the Roland coal and all sand intervals between the 70 sands and the Roland coal will be used as a source of water. Using Conoco nomenclature, this would include the 60, 50, and 40 sands.

The sand intervals plus the Roland coal would be screened in each of the wells. As stated in Section 5.7.1.2, the water quality from the sands and coal is



Continuation to Comment No. 40

compatible. Piezometric heads in the sands and coal are nearly equal with greater heads in the upper stratigraphic units. Wells completed in both units should produce approximately 570 l/min (150 gpm) with consideration of well interference.

Under normal conditions, at least four of these wells will be needed to supply the desired quantity of water. Eight wells are proposed to allow for a contingency to cover well maintenance downtime, short-term variations in makeup water requirements, and well efficiencies. In addition to the every day operational water requirements, the water supply system must have the capacity to handle fire fighting demands. Most insurance companies recommend a minimum flowrate on the order of 1,000 gpm for a facility the size of the Sand Rock Mill to qualify for lower-risk coverage. This flowrate could require the use of all eight wells.

Additional information on the mill water supply system, including potential aquifers investigated and proposed, water quality, recommended well completion, and test results, can be found in the following Reference Document transmitted to the NRC on November 3, 1980.

Hydro-Engineering, Analysis of a Groundwater Supply for the Moore Ranch Mine and Sand Rock Mill, November 1979

Comment No. 49

Provide available information regarding off-site ore sources.

- A) What CONOCO and KMNC owned or partially owned mines are potential sources of ore? For these mines indicate the ore production rate, ore grade, expected life, and fraction to be processed at Sand Rock as a function of time (by year).
- B) What tentative or actual agreements have been made concerning toll ore supplies from CONOCO, KMNC, and other mines?
- C) Provide available information on uranium mines within 50 miles now operating, including production rate, ore grade, expected life, ownership, and location.

Response

A) Several Conoco-owned or Conoco/KMNC-owned ore bodies, in addition to the ore located at the Moore Ranch Mine, are located within hauling distance to the Sand Rock Mill. The Pinetree 18 and 19 ore body is located less than ten miles northeast of the Sand Rock Mill site, and is owned by Conoco, Kerr McGee, and Cleveland Cliffs. Reserves are one million pounds  $U_3O_8$  plus. The Southwest Powder River Basin Project, a joint venture of Conoco and PNC of Japan, is located approximately 20 miles from the Sand Rock site. Exploration is currently underway on this property with potential uranium resources of 10 to 15 million pounds  $U_3O_8$ .

In addition to Conoco and Kerr McGee properties, there are a number of properties owned by other uranium producers in the Pumpkin Buttes district that are within haulage distance to the Sand Rock site and could provide mill feed.

CONTINUATION OF COMMENT 49

These projects are in various stages of exploration and development as a result of the changing uranium market.

B) Conoco and Kerr McGee have a joint venture agreement to share in the costs and revenues of developing and mining the ore on the Sand Rock Mill/Moore Ranch Mine permit area. Conoco and Pathfinder Mines Corp. have a joint venture agreement to share the costs of obtaining a source materials license for the Sand Rock Mill. It is possible that before mill construction, others may join in the mill joint venture. At the present time, no other joint venture agreements exist covering the mine or mill.

C) The following figures refer to the list of uranium facilities within 50 miles of the Sand Rock Mill project site shown on ER page 2-12.

- . Highland Mill and Mines  
Exxon Minerals, USA  
Production rate--3,000+ tpd mill feed
- . Bear Creek Mill and Mine  
Bear Creek Uranium Company (a joint venture  
between Rocky Mountain Energy Company and Mono  
Power Company)  
Production rate--2,000 tpd mill feed  
Project life--early 1990's
- . Bill Smith Mines  
Kerr McGee Corporation  
Production rate (pre-1961)--1,000 tpd  
(Section 28-33 and Section 3-10 surface mines)  
All Kerr McGee operations are  
currently on standby
- . Morton Ranch Mill and Mine  
United Nuclear Corporation  
The following figures are taken from the Morton  
Ranch Final Environmental Statement.

CONTINUATION OF COMMENT 49

Production rate--2,000 tpd mill feed  
Average grade--0.077% U<sub>3</sub>O<sub>8</sub>  
Mill life--20 years

- . Collins Draw In-Situ Project  
Cleveland Cliffs operator  
R&D demonstration phase  
Well field production--50-100 gpm
  
- . Ninemile Lake In-Situ Project  
Rocky Mountain Energy Company  
R&D demonstration phase  
Well field production--50-100 gpm
  
- . Reno Ranch In-Situ Project  
Rocky Mountain Energy Company  
R&D demonstration phase  
Well field production--50-100 gpm
  
- . Irigary In-Situ Project  
Wyoming Minerals Corporation  
Commercial in-situ plant  
The following figures are taken from the  
Wyoming DEQ Permit to Mine Application for the  
Irigary Project  
Well field production--400 -1,600 gpm  
Mine life--approx. 12 years