

STATE OF NEW MEXICO NATURAL RESOURCES DEPARTMENT WATER RESOURCES DIVISION

> S.E. Reynolds, State Engineer Bataan Memorial Building Santa Fe, New Mexico 87503 (505) 827-2526

October 9, 1979

Mr. H. J. Abbiss, P.E. Vice President Environmental & Safety Services United Nuclear Corporation Post Office Box 3951 Albugerrue, New Mexico 87190

Dear Mr. Abbiss:

We have reviewed Mr. Booth's qualifications which you hand delivered on October 5, 1979 and find your designation of him to supervise the continuing construction of United Nuclear Corporation's Church Rock tailings dam and to supervise the discharge of liquids and tailings into the central pond and below grade borrow pit acceptable. By copy of this letter, Mr. Booth is requested to immediately notify the State Engineer upon completion of construction of the sand beaches in accordance with condition 4. of my October 5, 1979 letter to Mr. Turberville.

Sincerely S. E. Reynolds State Engineer

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cc: Stanley Crout Tom Bacav Robert Booth



STATE OF NEW MEXICO

STATE ENGINEER OFFICE SANTA PE

S. E. REYNOLDS STATE ENGINEER

October 9, 1979

BATAAN MEMORIAL BUILDING STATE CAPITOL SANTA FE, NEW MEXICO 87503

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Mr. Thomas E. Baca, Director Environmental Improvement Division P. O. Box 968 Santa Fe, New Mexico 87503

Dear Mr. Baca:

In reference to your letter to me dated October 9, 1979, please be assured that my letter of October 5 to Mr. Turberville authorizing the United Nuclear Corporation to discharge liquids and tailings is based on my carefully considered opinion that the safety and stability of the existing dam structure and northern and central cross dikes are adequate for the disposal of liquids and tailings, subject to the conditions set out in my letter. My opinion is based principally on the unanimous advice of qualified professional engineers employed by this office to deal with matters of dam safety. If you have some reason to differ with my opinion, please so advise me; I would be pleased to consider it.

Your letter also asks whether I have approved a supervising professional engineer for United Nuclear Corporation. By letter dated October 9, 1979 to Mr. Abbiss I have approved Mr. Robert Booth as supervising professional engineer for the discharge of liquids and tailings and continuing dam construction by United Nuclear Corporation.

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a. A cross section of the breach area is requested which will show the depth and extent to which the failure extended. A profile should be drawn showing the boundary of the unfailed portion of the embankment and natural sollar. This profile should show the surface of the breach area after the breach and should delineate between zones of material brought into that area during the failure and zones of undisturbed material. This was item 1 in the previous NRC letter.

FROM DR. MESON'S RODORT TO NRC AS. ROND 900779

b. The Corps of Engineers requested borings with continuous split spoon sampling. The purpose of these borings was primarily to aid in the delineation of the existence of any soft or instable layers beneath the embankment. These borings have not been conducted. In addition, we have requested two borings be drilled at distances of 125 feet and 200 feet downstream from the downstream toe. These borings were not conducted either. Perhaps these borings can be replaced by the logs of the holes drilled for the piezometers that were requested. In that case all sampling should be continuous sampling using split spoon samplers.

c. Stability analyses should be conducted to duplicate prefailure conditions. These stability analyses should include considerations of longitudinal and transverse cracks in the embankment filled with water. These stability analyses are required so as to be able to properly assess the stability of the toe and perhaps provide information as to the manner of instability which finally resulted in total failure of the embankment. In addition to circular are analyses, appropriate wedge analyses need to be considered.

d. The bedrock profile along the entire access of the tailings dams should be defined on a continuous basis. We had earlier requested that a seismic refraction survey be conducted to accomplish that. To date 3 have received no information in that regard.

e. Piezometer readings should be provided as requested in the previously referenced NRC letter.

f. I would like to receive aerial photographs taken of the site prior to construction and during construction, if possible.

g. A contour map should be constructed of the existing ground water (piezometric) surface under the impoundment. This map should show piezometric levels both under the impoundment and downstream from the embankment at least as far as the existing arroyo. This contour map is particularly necessary in order to assess potential for future collapse of foundation soils as the ground water mound develops further and as a higher embankment is constructed over it.

h. Seepage calculations and an aerial flow net should be constructed for purposes of predicting ground water mound formation, further development of the ground water mound, eventual steady state location of the ground water mound, and dissipation of the ground water mound after abandonment. Means of preventing or collecting seepage to keep it from contaminating the existing groundwater and surface water should be presented. The impact of these methods on the groundwater mound growth should also be discussed.