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## UNITED NUCLEAR CORPORATION


 1700 Louisiana N.E.  
 Suite 230

 Albuquerque, New Mexico 87110  
 Telephone 505/262-1800  
 FAX 262-1809

40-8907

UNC/ASHQ-91-425M

March 4, 1991

RETURN ORIGINAL TO PDR, HQ.

 Mr. Ramon Hall  
 Director  
 U. S. Nuclear Regulatory Commission  
 Uranium Recovery Field Office  
 P. O. Box 25325  
 Denver, CO 80225


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Dear Mr. Hall:

Enclosed is United Nuclear Corporation's promised response to the remaining technical issues of concern to NRC regarding the Tailings Reclamation Plan for the Church Rock site. The attached document contains revisions to our February 13, 1991 submittal which addressed NRC's proposed license condition 34.

As discussed at our meeting of February 21, 1991, it is our understanding that United Nuclear and the NRC have reached mutual resolution of all outstanding technical concerns regarding the reclamation plan for the Church Rock site as represented by information contained in this response. The following briefly summarizes the agreed upon technical resolutions which are articulated in more detail in the enclosed submittal.

The February 13, 1991 submittal provided adequate information to address the technical concerns of the NRC proposed license conditions with the following exceptions:

1. Proposed License Condition 34.A- NRC staff required additional substantiation or modification of the long-term moisture contents of the fine-grained tailings and the soil cover material, and modification of the bulk density of the fine-grained tailings to account for consolidation. The attached response presents a reevaluated radon barrier design using lower long-term moisture contents for fine-grained tailings (6 percent versus 23.7 percent) and soil cover material (12.9 percent versus 13.4 percent), and a higher bulk density of the fine-grained tailings ( $1.45 \text{ g/cm}^3$  versus  $1.38 \text{ g/cm}^3$ ). Canonic and the NRC have also agreed to use of average, rather than outer-bound 95 percent confidence limit radiological parameters in the design.

NRC staff expressed a desire for a higher level of quality control during construction of the 1.5 ft. radon barrier designed for the tailings. United Nuclear has agreed to provide quality control testing and inspection in accordance with the NRC "Staff Technical Position on Testing and Inspection Plans," for placement of soil cover. The cover to be placed over the South Cell in 1991 will be placed using this criteria with the understanding that the quality control testing program may be relaxed for placement of future soil cover if a comparison of the results

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obtained in placing to the south cell cover in 1991 to those obtained in placing the soil cover on the north and central cells in 1989 and 1990, respectively, demonstrate that uniform and consistently acceptable quality of cover materials is obtained using either the method contained in the STP or the less rigorous QC testing conducted previously.

2. Proposed License Condition 34B- NRC staff required commitment to a prescribed settlement monitoring frequency and allowance of 90 percent primary consolidation of the tailings after placement of interim cover prior to placement of final soil cover layers. United Nuclear is committed to monitor settlement in accordance with the procedures described in United Nuclear's June 28, 1988 response to comment submittal and accepted by the NRC, as further clarified in the attached response.
3. Proposed License Condition 34D- NRC staff required riprap layer thicknesses of a minimum of the riprap  $D_{100}$  or 1.5 times the riprap  $D_{50}$ . Upon further discussion between NRC staff and Canonic it was agreed that Table 2 of the February 13, 1991 submittal presented design requirements which met that criteria.
4. Proposed License Condition 34E- NRC staff was concerned that potential riprap scoring minimum ratings for each individual soundness test specified in the February 13, 1991 submittal would not score the total minimum required rating of 50. As stated in the February 13, 1991 submittal, all riprap will score a minimum rating of 50. However, minimum scores for individual soundness tests have been revised in this response so that the riprap scoring using the minimum specified rating for each individual test will meet the total minimum required rating of 50.
5. Proposed License Condition 34G- NRC staff required that riprap gradations presented in the February 13, 1991 submittal be revised such that no riprap with a  $D_{50}$  smaller than a minimum  $D_{50}$  calculated to resist movement when subject to flows of the Probable Maximum Flood is specified for use. This response presents riprap gradations meeting that requirement.
6. Proposed License Condition 34H- NRC staff required a maximum thickness criteria for the soil layer of the soil/rock matrix on the order of 4 inches. This response includes specifications to ensure that the soil layer of the soil/rock matrix will be constructed to a depth of between 3 and 4.5 inches.
7. Proposed License Condition 34I- NRC staff requested that riprap to be placed

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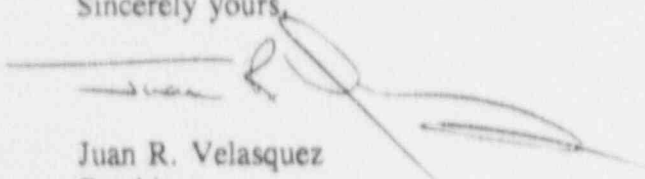
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in critical areas, (i.e., Pipeline Arroyo, Runoff Control Ditch, North and South Cell Drainage Channel, and North and South Diversion Ditches) score a minimum rating of 65. As demonstrated in the February 13, 1991 submittal limestone rock from the source considered for use as riprap ranges in rating from 57 to 67. Rock from a commercial basalt quarry, approximately 80 miles from the site, with a rating of 93, was investigated. Because of the distance from the site, the additional cost of transportation of this rock is approximately \$569,500. This additional cost was considered excessive in consideration of risks and benefits by United Nuclear. However, as agreed to in response to NRC's concerns, United Nuclear will endeavor to provide limestone riprap with a minimum rating of 65 for the critical areas identified above. In the absence of sufficient quantities of limestone with a minimum 65 rating, United Nuclear will provide the highest rated available limestone riprap, within the identified range of 57 to 67 rating, with appropriate oversizing for use in the critical areas.

It is our understanding that this submittal will fully resolve the remaining technical issues on the Church Rock reclamation plan. If we can be of further assistance, please do not hesitate to call.

Sincerely yours,



Juan R. Velasquez  
President

JRV:jkt

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