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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APR 17 1980

Mr. Dan Herlihy
Teton Exploration Drilling Company, Inc.
P. O. Drawer A-1
Casper, Wyoming 82602

Dear Mr. Herlihy:

The NRC Uranium Recovery Licensing Branch has received and reviewed the information Teton Exploration Drilling Company, Inc. (Teton) submitted in response to Condition No. 32 of the Source Material License issued (license number SUA-1373) for uranium in situ extraction operations at the Leuenberger site. The submitted information concerned the design, construction and testing of the Leuenberger site evaporation pond embankment. Since the pond wastes will be similar in composition to wastes in tailings ponds, the Leuenberger embankment was evaluated to determine its conformance to the design of tailings pond embankments described in NRC Regulatory Guide 3.11. A copy of Regulatory Guide 3.11 is enclosed.

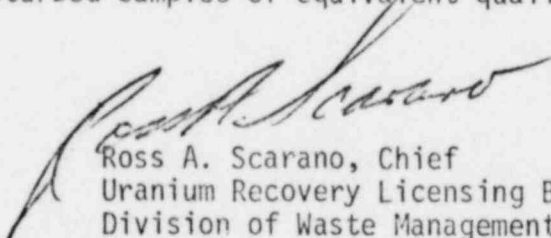
There were three items in the embankment evaluation for which the Leuenberger site embankments did not meet Regulatory Guide 3.11.

- 1) The calculation of surcharge capacity performed by Teton used only a 24-hour 100-year storm. Regulatory Guide 3.11 requires that this calculation be made with the maximum flood series (PMF + 0.4 PMF) preceded or followed by a 100-year flood. Estimated surcharge capacity for the Leuenberger pond with the maximum flood series indicates the need for about twice the freeboard Teton has calculated.
- 2) Of the fifteen site soil investigation borings, only one was drilled in the embankment foundation materials. In addition, Teton has not submitted any standard penetration nor soil strength laboratory tests. The information on the foundations is insufficient for a Regulatory Guide 3.11 evaluation.
- 3) Of the fourteen (14) locations on the embankment tested for field density, nine (9) showed percent compaction values less than the required 90 percent and only two (2) of the failing tests have records of retesting.

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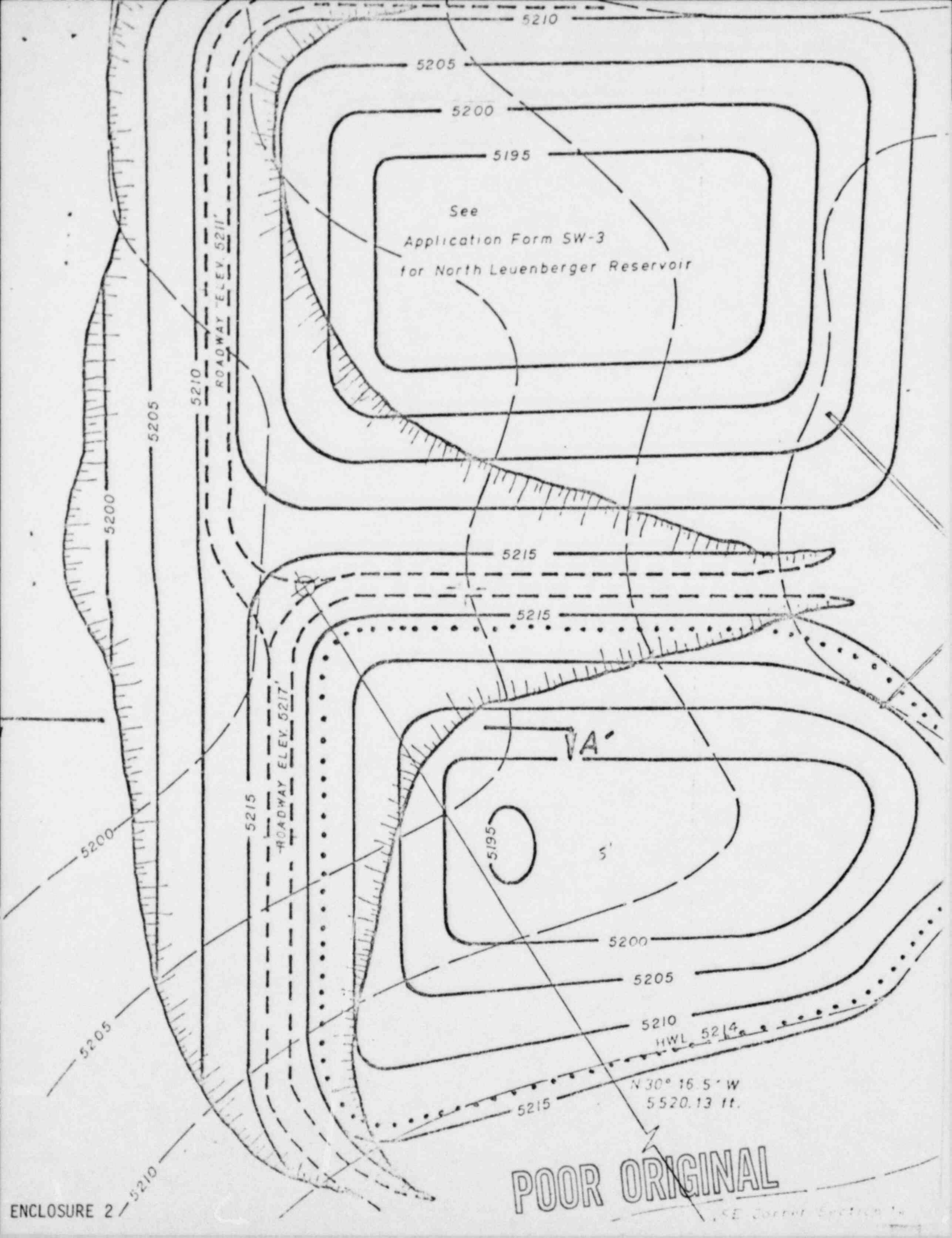
Based on the above questions concerning the Teton submittal, the staff requests that the following additional evaluations be performed and the results submitted for our review:

1. The freeboard analysis should be reevaluated using the probable maximum flood series preceded or followed by the 100-year flood as required by Regulatory Guide 3.11. In addition, since TETON has indicated in case of a pond leak, that one pond would be emptied into the other so the leak can be repaired, TETON should provide some assurance that if all waste were in one pond, there would still be one (1) foot of freeboard.
2. Three (3) borings should be drilled at approximately the locations shown on the attached figure. The borings should extend through the embankment and then a minimum of 15 feet into natural foundation materials, and should not be terminated in weak or highly compressible or loose soils. Continuous sampling (disturbed or undisturbed) should be performed in the three borings in order to assess the strength characteristics of the embankment and foundation materials. Disturbed sampling of soils should be with split-spoon sampler and hammer and conducted in conformance with the Standard Penetration Test Procedure (ASTM D 1568-67). Undisturbed samples should be at least 3 inches in diameter and should be obtained with a suitable fixed piston-type, thin-wall tube sampler (ASTM D 1587-67) or method that yields undisturbed samples of equivalent quality.


Ross A. Scarano, Chief
Uranium Recovery Licensing Branch
Division of Waste Management

Enclosures:

1. Regulatory Guide 3.11
2. N. Leuenberger Reservoir Figure



See
Application Form SW-3
for North Leuenberger Reservoir

VA

5195

5'

HWL 5214

N 30° 16.5' W
5520.13 ft.

POOR ORIGINAL

ENCLOSURE 2

SE Corner Section 14