



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

11/18/96

Plateau Resources Limited
ATTN: Mr. Kenneth Webber
877 North 8th West
Riverton, Wyoming 82501

SUBJECT: NRC STAFF ACCEPTANCE REVIEW COMMENTS ON THE DETAILED SITE
RECLAMATION PLAN FOR THE SHOOTARING CANYON URANIUM MILL

Dear Mr. Webber:

The U.S. Nuclear Regulatory Commission staff has completed the initial processing, which is an administrative review, of Plateau Resources Limited's (PRL's) detailed site reclamation plan for the Shootaring Canyon uranium mill site, submitted by letter dated September 9, 1996. As was discussed in our meeting of October 10, 1996, the NRC staff identified omissions or deficiencies which make the submittal unacceptable for the purpose of conducting a detailed technical review to further evaluate the proposed plan. These deficiencies, which were discussed in part during the October 10th meeting, are provided as Enclosure 1 to this letter.

As guidance in revising the Shootaring Canyon reclamation plan to address the identified deficiencies, PRL has been provided previously with the following NRC documents:

- NRC Regulatory Guide 3.11, "Design, Construction, and Inspection of Embankment Retention Systems for Uranium Mills,"
- NRC Regulatory Guide 3.11.1, "Operational Inspection and Surveillance of Embankment Retention Systems for Uranium Mill Tailings,"
- NRC Regulatory Guide 3.64, "Calculation of Radon Flux Attenuation by Earthen Mill Tailings Covers,"
- NRC Staff Technical Position "Design of Erosion Protection Covers for Long-Term Stabilization of Uranium Mill Tailings Sites," and
- NRC's "Standard Review Plan for the Review of Remedial Action of Inactive Mill Tailings Sites under Title I of the Uranium Mill Tailings Radiation Control Act."

In addition, during the October 10th meeting, the NRC staff agreed to provide a copy of another site reclamation plan to PRL as a guide in developing its own plan. Enclosed please find a copy of the reclamation plan submitted for the Atlas Corporation's Moab uranium mill site (Enclosure 2). The NRC staff has not completed its technical review of the Atlas plan, but the staff considers that this plan provides a good example of the subject areas to be addressed and the level of detail expected in PRL's revised site reclamation plan.

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The NRC staff considers an approved site reclamation plan to be integral to ensuring that an adequate financial surety is in place, in accordance with Criterion 9 of 10 CFR Part 40, Appendix A. The scheduled completion date for the NRC staff's technical review of the operational aspects of the renewal application, which includes review of the proposed surety amount, is March 31, 1997. In order that this date not be adversely impacted, the NRC requests that a revised detailed reclamation plan for the Shooting Canyon mill site be submitted to the NRC by January 31, 1997.

If you have any questions regarding this letter or the enclosures, please contact Mr. James Park at (301) 415-6699.

Sincerely,

Original Signed By

Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material
Safety and Safeguards

Docket No. 40-8698
License No. SUA-1371

Enclosures: As stated (2)

cc (w/o Encl. 2): W.Sinclair, UT DEQ

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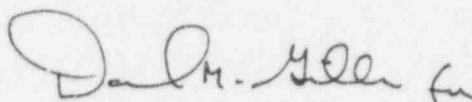
K. Webber

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If you have any questions regarding this letter or the enclosures, please contact Mr. James Park at (301) 415-6699.

Sincerely,

A handwritten signature in dark ink, appearing to read "Joe J. Holonich", followed by a small flourish.

Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material
Safety and Safeguards

Docket No. 40-8698
License No. SUA-1371

Enclosures: As stated (2)

cc (w/o Encl. 2): W.Sinclair, UT DEQ

Request for Additional Information
Detailed Site Reclamation Plan for Plateau Resources Limited's
Shootaring Canyon Uranium Mill

PRL should provide the following information in its revision to the September 10, 1996, Reclamation Plan for the Shootaring Canyon Uranium Mill:

Surface Hydrology

The following information, calculations, and analyses should be provided:

1. Detailed calculations, maps and drawings of hydraulic design features, including riprap layers, channels, swales, etc.
2. Diversion channel bottom profiles, water surface profiles, and erosion protection design analyses.
3. Sedimentation analyses for channels, showing how much sediment, rocks, and debris will be transported into the diversion channels and how much will be flushed by routine flood events.
4. An analysis of landslide potential along the west side of the cell and the effects that this buildup will have on flows that could run on the top of the cell, potentially as concentrated flows.
5. Rock source information, including results of durability testing, location, and general ability of the rock to meet NRC criteria.
6. The specifications for rock production, testing, and placement, including frequency of testing, inspection criteria, quality assurance/quality control (QA/QC) procedures, and types/number of construction tests to be performed.
7. An analysis of potential for erosion of the dam face, even if there are no designs proposed where flows will be discharged over the dam face (face of dam must be stable for rainfall events on the face).
8. An analysis of riprap needed for bends in channels.
9. An analysis of the potential for erosion of channels, due to concentrated inflows discharging directly into the channels from large or small gullies that are tributaries to the diversion channel.
10. Channel outlet design details, including the design of the rock toe that will be needed to prevent gully intrusion into the channel. Information needed includes: estimates of scour depth, potential gully depth, gully headcutting rates, size and gradation of rock needed, etc.
11. The location of any hydraulic jumps that could occur in the diversion channels or outlet areas.

Geotechnical

The following information and analyses should be provided:

1. Embankment stability - This is usually accomplished by evaluating the embankment(s) for long- and short-term, considering both static and dynamic (usually modelled as pseudo-static) cases. Commercially available slope stability programs for micro-computer use are generally used.
2. Frost Penetration - This is typically evaluated by using the Modified BERGGREN code by the USACE CRRL. The NRC staff can make this code available to the licensee upon request. Alternatively, PRL may be able to make a case that frost penetration is not an issue at this site.
3. Settlement Potential - This is usually evaluated by committing to measuring for 90 percent consolidation on completion. Alternatively, an exploration and engineering evaluation can be performed. Both total and differential settlement must be addressed. Tailings must be properly characterized.
4. Cover Cracking - The cover geometry and plasticity are used to evaluate cracking potential. The NRC staff can provide standard methodologies used for this purpose, if requested.
5. Liquefaction Potential - This may be evaluated by considering soil types, groundwater conditions, seismic forces, and soil density. Alternatively, a deformation analysis can be conducted. Examples from the file are available on request.
6. Construction Considerations - Complete specifications must be submitted.

Radiological Aspects**1. Site Cleanup**

No information was provided. The licensee should provide general information on soil, equipment, and building cleanup to be performed at the end of site operations. Also, a commitment should be made to provide a detailed decommissioning plan (characterization of radiological contamination, cleanup and verification procedures, and quality assurance/control program) to NRC at least 120 days before decommissioning of the facility begins. See NRC Regulatory Guide 3.65 for general guidance, and 10 CFR 40.42(g)(4).

2. Radon Attenuation

Appendix C indicates at least 3 feet of clay material will be placed on the tailings pile to limit release of radon. Appendix F contains the RADON computer code calculation of the radon barrier layer thickness required to reduce the radon flux to the regulatory limit. Some conservative parameter values were used, but others must be substantiated.

- a. For all density and porosity parameters, the licensee should provide data, reference submittals containing the data, or commit to providing the data as soon as reasonably possible.
- b. The rock layer should not be considered in the radon attenuation model because it may not remain intact for the design period.
- c. The licensee must address stability, durability (freeze-thaw damage), and constructability of the clay layer (see geotechnical comments).
- d. The licensee should commit to measuring the Ra-226 content of the upper 10 feet of contaminated material in the completed pile, or else demonstrate that the tailings Ra-226 parameter is conservative (e.g., the annual ore grade is limited to 0.15 percent).
- e. The licensee should provide data on the background value for soil Ra-226 and demonstrate that the Ra-226 concentration of the cover clay and native soil will comply with Part 40 Appendix A criterion 6 (5).

3. Cost Estimates

- a. Some of the cost estimates in Appendix G are from the 1988 Reclamation Plan and apparently have not been updated to 1996 values.
- b. No costs have been included to cover decontaminating and performing surface measurements on equipment to be released from the site.
- c. The cost for the radiological survey (cleanup and verification) appears too low. The cost should include performing radon flux measurements on the completed radon barrier.
- d. The costs for preparing the decommissioning plan and completion report should be considered.
- e. No costs have been included for testing material during cover construction.