

March 24, 2003

Mr. John H. Ellis
President
Sequoyah Fuels Corporation
P.O. Box 610
Gore, OK 74435

SUBJECT: SEQUOYAH FUELS CORPORATION - MATERIALS LICENSE NO. SUB-1010 -
ACCEPTANCE OF RECLAMATION PLAN FOR DETAILED REVIEW

Dear Mr. Ellis:

The U.S. Nuclear Regulatory Commission (NRC) has completed its acceptance review of your January 28, 2003, submittal of Sequoyah Fuels Corporation's (SFC's) Reclamation Plan for the SFC facility in Gore, Oklahoma. The acceptance review is to determine if there is sufficient information in the submittal to warrant NRC proceeding to a detailed technical review. Our acceptance review identified no omissions or deficiencies significant enough to preclude continuing the review. The staff did, however, identify additional information that should be provided to us at your earliest convenience. These requests for additional information (RAIs) are provided in the Enclosure.

Additionally, the staff noted that the Reclamation Plan does not follow the organization of the "Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act," (SRP, NUREG-1620). Although there is no requirement to follow the SRP organization, the dissimilarity in organization could result in additional NRC staff effort to review the Reclamation Plan.

After receipt of your responses to the RAIs, we will set a schedule for further review of the Reclamation Plan.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS).

ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). If you have any questions concerning this letter, please notify the NRC point of contact, Dr. Myron Fliegel, at (301) 415-6629 or e-mail at MHF1@nrc.gov.

Sincerely,

/RA/

Susan M. Frant, Chief
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No. 40-8027
License No. SUB-1010

Enclosure: Requests for Additional Information

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Sequoyah Fuels Corporation
Reclamation Plan Acceptance Review
Requests for Additional Information

Geology

- G1. *Requirement to account for potential capable faults [criterion 4(e) of 10 CFR 40, Appendix A].* Please provide information to demonstrate that SFC has investigated and analyzed known and potential faults within 200 miles of the site that might be capable faults. The following types of information should be provided for each potential capable fault: name, location, length, distance from site, evidence that it is a capable fault (see 10 CFR part 100, Appendix A), evidence of the frequency and amount of displacement, and age of last movement. The investigation should seek to discover and include up-to-date information concerning potential capable faults, such as recent geological maps, geophysical surveys, and seismicity maps.
- G2. *Requirement to account for geomorphic stability [criteria 4(d) and 6(1)(i) of 10 CFR 40, Appendix A].* Please provide information to demonstrate that SFC has investigated and analyzed the terrain around the site to assure that there are not on-going or potential processes, such as gully erosion (e.g., gully #007), which would lead to impoundment instability over the next 200 to 1000 years. The types of information that should be provided are described in the geomorphic features and related sections of the "Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites under Title II of the Uranium Mill Tailings Radiation Control Act" (NUREG-1620). The analyses should consider the potential effects of headward erosion of gullies over the next 200 to 1000 years. The effects on the site geomorphic and hydrologic systems caused by future removal or degradation of nearby river-dams should be considered. [Note: criterion 4(d) refers to potential gully erosion of the terrain surrounding the planned impoundment; other requirements pertain to gully erosion of the cover material].

Seismology

- S1. Provide an updated listing and a map (up to the present) showing the earthquake distribution within 200 miles of the site.
- S2. Identify which tectonic province both the site and the June 20, 1926 earthquake are located in and the other tectonic provinces within 200 miles of the site. Estimate the acceleration at the site from this earthquake, using an updated attenuation equation.
- S3. Is the site located in the same tectonic province as the Black Fox NPP Station? Explain.
- S4. Discuss the effect of the earthquakes associated with the Nemaha Uplift, Ozark Uplift, Arkoma Basin-Ouachita Uplift, and Cherokee Basin-Central Oklahoma Platform on the site and estimate the acceleration, using a recent attenuation equation from the largest earthquake that has occurred or could occur in each of these uplifts and platform.
- S5. Provide and clearly explain the ground motion acceleration that will be used for the seismic design for the site and the basis for choosing this value.
- S6. Discuss whether recent fault mapping in the area identified any of the surrounding faults to be capable. If yes, estimate the maximum earthquake that could be generated from these faults (10-CFR 40, Appendix A).

Enclosure

Geotechnical stability

- GT1 In the discussion of infiltration modeling, the statement is made, that with sufficient time for tree development, drainage through the bottom of the cover is essentially zero. This is based, in part, on modeling results that show a portion of the precipitation is stored as biomass, litter and in the soil. This assumes that the storage of precipitation (in biomass, litter, and the soil) continues to grow for the design life of the cell. Please provide further justification that the storage capability of biomass, litter, and the soil will continue to grow, rather than reaching a steady state.

Surface water hydrology and erosion protection

- SW1. Provide background information and analysis for conclusion #1 listed on page 2-8 of the Reclamation Plan which states that the river flooding will have no effect on the impoundment.
- a. For example, where are the elevation changes being calculated, at the reservoir or at the nearest stream bank? Provide details.
 - b. Provide information on upstream dams and effects of failure.
- SW2. Provide a discussion of the effects of stream hydraulics for the drainage streams at the site near the impoundment and back up data and modeling, if necessary.
- SW3. Provide a discussion of the types of vegetation that will flourish on the soil cover.
- SW4. Provide maps and/or drawings delineating subbasins on and near the impoundment.
- SW5. Provide construction specifications and the QA/QC program for rock placement and re-grading.

Protecting water resources

- GW1. Liner configuration: According to figure 3-2, the liner will only partially underlay the tailings and will not have angled sides to the impoundment. This is not adequate from a groundwater protection perspective. In addition, the application has statements such as "if the clay liner is used." In order to review the design, staff must know what the liner material will be.

Per 10 CFR Part 40, Appendix A, Criterion 5A(2) the liner must be "installed to cover all surrounding earth likely to be in contact with the wastes or leachate." Per Criterion 5A(1) the liner must be "designed, constructed, and installed to prevent any migration of wastes out of the impoundment to the adjacent subsurface soil, groundwater, or surface water at any time during the active life (including the closure period) of the impoundment."

- GW2. Groundwater detection monitoring program: A groundwater detection monitoring program is absent from this application.

Per 10 CFR Part 40, Appendix A, Criterion 7A requires that a licensee “establish a detection monitoring program.” Therefore, a groundwater detection monitoring program must be proposed that complies with Criterion 7. Maps and cross-sections, with respect to the tailings cells, with proposed well locations and screened intervals as well as text giving a basis for the locations is needed. In addition, monitoring constituents and monitoring frequency must be proposed.

Disposal of non-11e.(2) byproduct material

- N1. Provide a complete description of the non-11e.(2) byproduct material proposed for disposal in the cell, including chemical analysis and radiological analysis. Identify locations where the non-11e.(2) byproduct material is currently located.
- N2. In the SFC response to RIS 2000-23 criterion 4, the following statement is made: “Testing has shown that uranium is less leachable from the CaF sludge than from most of the 11e.(2) materials that will be placed in the cell.” Provide details of the testing referred to.