August 17, 2004

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

SUBJECT: SEQUOYAH FUELS CORPORATION - MATERIALS LICENSE NO. SUB-1010 - SECOND REQUEST FOR ADDITIONAL INFORMATION - GROUND WATER MONITORING PLAN (TAC L52529)

Dear Mr. Ellis:

The U.S. Nuclear Regulatory Commission (NRC) has completed its detailed review of your June 12, 2003, submittal of Sequoyah Fuels Corporation's ground water monitoring plan (GWMP) as supplemented by your submittal of January 5, 2004. A GWMP is required by license condition 49 of Materials License No. SUB-1010. Our review has identified deficiencies in the ground water monitoring plan; we will need the additional information identified in the enclosure, in order for us to reach a decision on the acceptability of your proposed GWMP. Within 30 days of this letter please either provide the requested information or a schedule to provide the information.

If you have any questions concerning this letter please contact me at (301) 415-6629 or via e-mail to mhf1@nrc.gov/

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," 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. .

Sincerely,

/RA/

Myron H. Fliegel
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: Second Request for Additional Information

cc: William Andrews, USGS
Patricia Ballard, NRMNC
Michael Broderick, OK DEQ
Kelly Burch, Esq., OK AG
Will Focht, OSU
Alvin Gutterman, Esq., Morgan Lewis & Bockius
Pat Gwin, Cherokee Nation
Jeannine Hale, Esq., Cherokee Nation
Craig Harlin, SFC
Jim Harris, USACE
Troy Poteete, Cherokee Nation
Charles Scott, USFWS
David Smit, OK DEQ
Kim Winton, USGS
Rita Ware, EPA
Merritt Youngdeer, BIA

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OFC	FCFB		FCFB		FCFB	
NAME	M.Fliegel		B.Garrett		R.Nelson	
DATE	08/17/04		0817/04		08/17/04	

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Sequoyah Fuels Corporation
Ground Water Monitoring Plan
Second Request for Additional Information

1. We conclude that your proposed compliance monitoring well coverage is inadequate to monitor the movement of existing groundwater contaminant plumes and to monitor areas downgradient of the plumes. In addition, a groundwater divide that trends east to west through the center of the facility's main process building has been observed yet Sequoyah Fuels Corporation (SFC) has not proposed adequate coverage in the flow directions to the north, south, and west of the divide. The ground water monitoring plan (GWMP) must include sufficient monitoring points to adequately define the plumes and their movement.

   It has been demonstrated through site characterization that preferential flow occurs at the site and sampling points at seeps and drainage outfalls are necessary to account for this phenomena. Therefore, all seeps, outfalls, and recovery trenches must either be added to the compliance monitoring network as part of the GWMP or SFC must provide justification for not including them. Trench recovery rates should be recorded and reported in monitoring reports along with estimated seep discharge rates. A map should be provided that illustrates all proposed sampling points along with drainage outfalls, and plumes for uranium, nitrate, arsenic, and fluoride.

   Based on the above, we conclude that additional sampling locations are needed as described below. SFC can propose to use existing monitoring wells (where available) or install new wells. If SFC disagrees with the need to include any of the locations identified below, it should provide, for each such location, justification showing that the specific layer will be adequately monitored without that monitoring point.

   <u>Terrace/Shale 1:</u>

   We conclude that the following locations (identified by the location of the nearest well) need to be included in the compliance monitoring network: MW62, MW45, MW56, MW19, MW08, MW53, MW54, MW36, MW75, MW80, MW83, MW72, MW21, MW79, MW77, MW49, MW35, MW86, MW 14, MW25, MW72, MW70, and MW73.

   <u>Shale 2:</u>

   We conclude that the following locations (identified by the location of the nearest well) need to be included in the compliance monitoring network: MW57, MW58, MW42A, MW67, MW47A, and MW 62A. Coverage is also needed to the south of MW65 towards the edge of the shale 2 boundary within the arsenic plume, to the south of MW48, to the north of MW121A within the arsenic plume, to the west of MW50A outside the current uranium plume, to the southeast of MW26A in the uranium plume hot spot, to the northeast of MW26A within the uranium hot spot, and to the northeast of the cell boundary and the nitrate plume.

Shale 3:

We conclude that the following locations (identified by the location of the nearest well or sampling point) should to be included in the compliance monitoring network: sampling points 2346, 2303A, trench 005, MW115A, MW49A, MW84A, and MW86A. Coverage is also needed to the northwest of sampling point 2342 at the western edge of the nitrate plume and the shale 3 boundary, to the southwest of MW123A, to the west of MW89A, to the south of MW86A within the uranium plume hot spot, and to the east of MW89A within the uranium plume hot spot.

Shale 4:

We conclude that the following locations (identified by the location of the nearest well or sampling point) need to be included in the compliance monitoring network: MW108, MW107, MW111a, MW114A, MW97A, MW99A, 2245, MW95A trench, sampling points 2244, 2242, 2241, and 2243.

Shale 5:

We conclude that the following locations (identified by the location of the nearest well or sampling point) need to be included in the compliance monitoring network: MW90B, MW98B, MW100B, and sampling point 2241. Coverage is needed to the southeast of MW105B near the edge of the property boundary and to the west of MW59B outside the waste management area boundary.

Seeps/Drainage:

We conclude that seeps must be monitored at outfall locations 001, 004, 005, 007, 008, and 009 as identified in figure 2-5 from the June 2003 GWCAP, or the current monitoring points 2201, 2243, 2241, 2242, 2244, 2245, 2246, 2202, 2203, and 2204 identified in Figure 25 of the December 2003 GWMP transmitted by letter dated January 5, 2004 (some of these are mentioned above).

Basis: NUREG-1620 Section 4.1.3 (page 4-13) describes NRC guidance relating to defining the extent of groundwater contamination. An adequate groundwater monitoring program can not be properly developed until groundwater contamination has been fully defined vertically and horizontally. Adequate coverage is a fundamental requirement for a groundwater monitoring plan and is explained in detail in section 4 of NUREG-1620.

2. All sampling points must be named “compliance monitoring points”. This was stated in item 2 of our October 31, 2003 Request for Additional Information. Point of compliance wells will be established for the reclamation cell at a later date but is not part of the GWMP for existing contamination.

Basis: All points within the plume need to be compliance monitoring wells or corrective action monitoring wells. 10 CFR Part 40, Appendix A, Criterion 7A states that “once ground-water protection standards have been established pursuant to paragraph 5B(1), the licensee shall establish and implement a compliance

monitoring program. The purpose of the compliance monitoring program is to determine that hazardous constituent concentrations in groundwater continue to comply with the standards set by the Commission. In conjunction with a corrective action program, the licensee shall establish and implement a corrective action monitoring program. The purpose of the corrective action monitoring program is to demonstrate the effectiveness of the corrective actions."

NUREG-1620 section 4.4 outlines the staff's guidance for compliance monitoring programs. In order to protect human health and the environment from groundwater contamination, ground water monitoring plans must be able to detect contamination prior to any potential exposure, monitor corrective action performance, and monitor plume movement over time and distance.

3. A groundwater sampling plan, addressing purge methods, sample analysis procedures, quantification levels, and including a QA/QC plan, must be provided. This can be provided as an appendix to the GWMP.

Basis: It must be demonstrated that samples are indicative of true groundwater conditions and that the quality of sample analysis is reliable.

4. A well abandonment plan that complies with the State of Oklahoma's regulations on well plugging and abandonment, must be submitted. This can be provided as an appendix to the GWMP.

Basis: Well abandonment must be implemented so that the bore hole will not become a conduit for future contamination.

5. A discussion on background determination must be provided. It should include background well locations, aquifer, well construction data, and statistical analysis used. Note that using a 95% confidence level would be acceptable. This can be provided as an appendix to the GWMP.

Basis: NUREG-1620 section 4.1.3.3(b) outlines the staff's guidance for the determination of background water quality.

6. As stated in item 1 of our October 31, 2003 Request for Additional Information, groundwater contamination as a result of facility operations has not been fully characterized. SFC has satisfied some of the original concerns, however, the following concerns have not been addressed:

   a. arsenic down-gradient of MW095A in the shallow bedrock has not been adequately delineated, and
   b. further delineation is needed down gradient of MW50A in shale 2.

Please revise the GWMP to address these concerns.

Basis: NUREG-1620 Section 4.1.3 (page 4-13) describes NRC guidance relating to defining the extent of groundwater contamination. An adequate GWMP can not be properly developed until groundwater contamination has been fully defined vertically and horizontally.