



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

MAY 20 1992

MEMORANDUM FOR: Richard E. Cunningham, Director
Division of Industrial and Medical
Nuclear Safety, NMSS

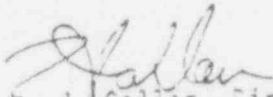
FROM: L. J. Callan, Director
Division of Radiation Safety and Safeguards
Region IV

SUBJECT: REVIEW OF SEQUOYAH FUELS CORPORATION (SFC)
APPLICANT'S ENVIRONMENTAL REPORT

This memo forwards the results of the Region IV review of SFC's revised Applicant's Environmental Report. SFC submitted the environmental report by cover letter dated January 10, 1992. Gary Konwinski from our Uranium Recovery Field Office performed the review, and his detailed comments are attached.

The attachment describes two basic areas of concern regarding the environmental report. First, the environmental monitoring program appears dated. It relies upon monitoring locations that have not been adjusted based upon recent environmental findings. Secondly, the environmental report does not seem to recognize that environmental impacts already have taken place, nor does it discuss operational changes that will be implemented to mitigate these impacts. SFC implies that contamination within the property boundary does not represent an impact. In our view, such contamination represents an impact, the mitigation of which should be discussed in the environmental report.

Should you have any questions about our comments, please contact myself or Gary Konwinski at FTS 0 (303) 231-5800.


L. J. Callan, Director
Division of Radiation Safety
and Safeguards, Region IV

Attachment:
As stated

cc: w/att.
R. D. Martin, PIV
J. T. Greeves, NMSS
J. W. N. Hickey, NMSS
M. Tokar, NMSS
Merri Horne, NMSS
R. E. Hall, URFO

920526005 XA

B/3

Richard E. Cunningham

-2-

bcc:
PDP/DCS
URFO r/f
LJCallan, PIV
LLUR Branch, LLWM
GKonwinski
6027/grk/92/05/04/SFC

*PM:URFO
GKonwinski/lv
05/ /92

*DD:URFO
EHawkins
05/ /92

D:DRS & BIV
LJCallan
05/ /92

*Previously concurred

ATTACHMENT

Review of Sequoyah Fuels Corporation Applicant's Environmental Report

Section 1.3 indicates that the principal environmental impacts are a result of effluent streams to the environment. From NRC inspection report findings, it appears that the majority of the impacts at the site have resulted from process and pond leakage. These pathways have been shown to have caused ground-water contamination. Similarly, widespread soil contamination has caused surface water degradation and sediment contamination at the various monitoring locations. This situation should be fairly represented in the environmental report. Additionally, operational changes should be discussed that will mitigate the existing impacts.

Figure 2-1 is dated. Not shown on this figure is the storm-water retention basin. This basin is an important feature that may affect the environment in the vicinity of the plant. Similarly, Pond 2 and the contaminated soil storage area are not represented as they currently exist.

Section 2.1.6 discusses ponds, basins, and impoundments. The language associated with these features does not indicate the state of disrepair that several of these ponds are in. NRC inspection reports, review memorandums, and SFC correspondence have confirmed that many of the lined impoundments are leaking. Furthermore, the unlined impoundments are contributing to ground-water contamination as are the leaking lined ponds. To fairly address the environmental effects of these ponds, their contribution to the ground water must be presented. Additionally, a commitment to repair the leaking ponds as well as decommission the unlined ponds is needed. The automated underdrain systems that have been installed, in several of these ponds, are discussed in the environmental report. Although they collect much of the seepage, plumes continue to grow. This situation needs to be corrected.

Pond 2 decommissioning is discussed in Section 2.1.6. There is no mention of the fact that the sludge and the clay liner was removed to an action level of 2000 pCi/gm U. Due to this, the soil liner and remaining sludge represent an ongoing source term. Additionally, SFC placed a liner within Pond 2 and breached the southwestern berm. This was done to allow rainwater to gravity drain to the stormwater runoff basin. However, settlement has taken place in the northern part of the basin which now ponds water. This could reactivate leakage and mobilize constituents known to be in the underlying materials.

The surface water impoundment discussed in Section 2.1.6 warrants some type of monitoring program. Outfalls 004, 005, and 007 have been diverted to this structure and planning is underway for a similar action at outfall 008. Data associated with a previous SFC surface water study indicate that constituents of concern flow in these water courses. This situation warrants a surface water, ground water, and sludge monitoring program.

- ° Section 2.2.2 discusses the ammonium nitrate fertilizer program. NRC inspection reports document that ground-water monitoring of nitrate concentrations is an unreliable method to assess the environmental effects, if any, of this program. Rather, accumulation in the soil of various constituents of concern should be evaluated. Furthermore, no documentation of the ground-water monitoring wells, in the form of completion reports, is presented in the environmental report. Consequently, the zones that are being monitored are unknown. This, in turn, makes the ground-water data questionable.
- ° Section 2.2.3 discusses solid wastes. However, contaminated soils stockpiled at the site, as well as those that are drummed, are not discussed. These sources represent a significant amount of material that warrants discussion of environmentally-sound techniques utilized for its disposal.

The discussion of packaging contaminated wastes to minimize the spread of contamination is not representative of what actually occurs. Wastes that are stored or buried at the site are source terms for soil and water contamination. These sources need not only minimization, but also elimination by way of appropriate disposal in a licensed disposal area. This comment also has application relative to the other sludges in the various basins. MPC has calculated the volume of these sludges to be roughly 2,560,000 cubic feet. This does not include contaminated soils that are barreled, stockpiled, or in place. Similarly, buried sludges are not included in this figure.

Section 2.3 presents an inadequate discussion of decommissioning. SFC should design a decontamination/decommissioning plan and set aside financial resources for its implementation. An acceptable recommissioning plan must contain a credible bonding vehicle based upon a justifiable cost estimate.

The licensee's renewal application does not contain a decommissioning funding plan as required by 10 CFR 40.31(f) and 40.36. Under the provisions of Part 40.36(c)(2), the licensee currently has \$750,000 in either a funding plan or certification of financial assurance. The renewal application is required to contain a cost estimate and a description of the funding method, as required by Part 40.36(d). This should be detailed in the environmental report.

The current licensee arrangement utilizes a uranium mill for disposal of contaminated material. Due to reclamation at this facility, this option may not be available to the licensee in the future. Based upon this, other waste disposal options should be assessed.

It is not clear whether any material from the site could be considered "byproduct material" for the purpose of disposal. If it is not considered byproduct material, disposal would have to be at a licensed low-level

waste facility. Alternatively, an onsite disposal option would have to be licensed. The environmental report must address these issues.

Table 3-2 discusses water quality criteria. The discussion is based upon dated references. This discussion should, at a minimum, cite the current published Oklahoma Water Quality Standards (1988). Additionally, the State of Oklahoma is formulating new regulations that were draft as of December 1991. If these are final, they should be incorporated into the environmental report.

Section 4.1 discusses air monitoring, and the monitoring locations are shown on Figure 4-1. The constituents that are being monitored appear to be adequate. However, the location of the environmental monitoring stations is impossible to evaluate without knowing the wind distribution at the site. SFC should supply a site-specific wind distribution diagram.

Section 4.1.2 discusses effluent concentrations. This discussion should be expanded to incorporate the pending revisions that will appear in 10 CFR 20. These concentrations will likely be regulatory standards during the term of the license and therefore will represent operational constraints.

Also within this section, SFC states that other responsive actions are planned, based upon the January 1992 Action Plan. This report was previously reviewed and found to be weak from the standpoint of corrective action commitments. The "responsive actions" should be defined and their implementation discussed.

The surface water management project is discussed within Section 4.1.2; however, no monitoring program has been proposed. The pool of water that will be contained behind this structure and the sediment that will accumulate in it may have an impact on the ground water in the area. Both the ground water and the sediment that accumulates should be monitored for constituents that are known to exist at the site.

Section 4.2 discusses environmental monitoring. The environmental monitoring program, as specified in this section, is dated. All monitored environs should be revised to account for the most recent data that has been developed for the site. Certainly, water, soil, and vegetation monitoring locations should be reviewed for their adequacy based upon the information contained within the FEI. Additionally, some of the current monitoring locations show no monitored constituents during the period of record. Consideration should be given to deleting these locations. The monitored constituents are also inadequate. For instance, arsenic is absent in the monitoring program, although it is known to be a contaminant at the site. The environmental monitoring program should establish background concentrations of monitored constituents in the various environs, address monitoring frequency and propose reporting requirements.

Section 4.2.3 discusses surface water monitoring. The State of Oklahoma, Department of Health, has implemented a surface water monitoring program at this site. The monitoring stations associated with this program should be considered as locations in the SFC program. If these locations are not appropriate, it should be stated in the environmental report.

SFC also uses a series of procedures to report exceedance of action levels. Rather than filing reports at every exceedance of an action level, an annual report should be submitted for NRC review. The report should discuss the licensee's analysis of the data, the effects on the environment, and the corrective actions that have been taken.

Water quality comparisons should be made to establish background concentrations, permit limits, and/or mixing equations. If action levels are utilized, the levels need to be justified based upon a defensible criteria.

Section 4.2.4 discusses sediment monitoring. Independent sediment samples collected by the NRC indicate that the combination stream effluent is contributing to uranium concentrations in sampled sediments. Previous action to mitigate this situation involved extension of the combination stream pipeline up to the 100-year flood plain. This did not modify the effluent quality, but rather relied upon providing a more direct disposal path. The sediment data that is presented indicates that uranium is present in elevated levels at the monitoring points. There is no discussion or licensee attempts to see that constituent concentrations are reduced to ALARA levels.

Section 4.2.5 discusses ground-water monitoring wells. The data presented for these wells in Appendix B.3 in most cases comes from wells without adequate completion details. Due to this, the data was considered unreliable and therefore was not reviewed. Again, the action level concept is discussed. Meaningful comparisons should be made to established background values or defensible action levels. Action level exceedance reporting should be abandoned in favor of implementation of a corrective action program and the evaluation of the program on ground water quality.

Section 4.2.6 discusses the recently installed ground-water monitoring wells. Repeated references are made to the Action Plan. Regional comments on the adequacy of this plan have been previously furnished.

It is implied in this section that the three recovery wells that have been installed and are controlling existing as well as potential uranium releases at the site. The environmental report presents no analyses of the zone of influence that has been created, if any, relative to these pumping wells. Therefore, SFC's statement relative to control is not justified.

This section indicates that a new ground-water monitoring program will be developed and submitted for review. This submittal should be obtained prior to expending any additional effort on review of the unreliable system that is currently in place.

- ° Section 4.3.1 discusses the SX sand wells and the data that was collected from these monitoring points. In this discussion, it is stated that the monitored water is not ground water. The water in this area has been, and remains to be, free to move under saturated conditions. This is evidenced by the transport of constituents from known sources. Consequently, these waters do represent ground water, both in the area of the SX sand wells and in the area of the MPB subfloor process monitor.

URL 1

S:\SFC\INST.PEV

DRAFT

MEMORANDUM FOR: Charles L. Cain, Chief
Nuclear Materials Inspection Section
Region IV

FROM: Ramon E. Hall, Director
Uranium Recovery Field Office

SUBJECT: SEQUOYAH FUELS CORPORATION

Our office is in receipt of your October 14, 1992, memorandum transmitting the SFC Environmental Monitoring Program and the License Renewal Application, Revision 1. Both of these documents are dated September 30, 1992. As you have requested, URFO staff members Gary Konwinski and Paul Michaud have preformed the review of these documents. Their comments are attached. Should you have any questions concerning these comments, relative to the environmental issues and waste streams, please contact Gary directly. Questions concerning the radiological safety and process controls should be directed to Paul.

Ramon E. Hall
Director

Attachment:
As stated

as Sections I
and II respectively.

Linda,

Simply E-mail comments to:
M. Vasquez, C. Cain, L. Kasner, G. Konwinski & P. Michaud

bcc:
URFO s/f
URFO r/f
LJCallan, RIV
LLJR Branch, LLWM, 5E2
GRKonwinski
PWMichaud
S:\INS1.SFC

PM:URFO	PM:URFO	DD:URFO	D:URFO:RIV	
GKonwinski /lv	PWMichaud	EFHawkins	REHall	
11/ /92	11/ /92	11/ /92	11/ /92	

ENVIRONMENTAL PROGRAM

Specific Comments:

Page 1-3 Currently SFC has four monitored outfalls: 008, 009, 010, and 01A. Eventually all of these outfalls with the exception of 01A, will be diverted into the storm-water reservoir. This situation should be discussed in the document. A monitoring location that represents the ultimate outfall, the outlet to the storm-water reservoir, should be the monitoring point during the renewed term of the license.

Page 1-4 The copy of the monitoring plan that was reviewed did not have a Figure 1 attached to it.

There is a limited discussion of the emergency basin and the north ditch. Both of these impoundments are unlined and have been or are scheduled to be used for storage of process waste products. The drawings that are included in the FEI and its addendum indicate that these impoundments are slowly contributing undesirable constituents to the ground water. The use of these ponds should be discontinued as a condition of the renewal.

Page 1-5 The sanitary lagoon is also known to leak and be an active discharger of constituents to the ground water. This impoundment should also be taken out of service. Based upon the

sanitary treatment system that SFC has in place, it appears that this impoundment is no longer necessary for waste treatment.

The fluoride sludge basins that are discussed on this page and the following page use misleading language. From the discussion that is presented, it would appear that these impoundments were constructed with a "natural" clay liner. This does not agree with the discussion in an October 22, 1990, SFC document entitled: Sequoyah Facility Impoundments. In this document, these impoundments are noted to be unlined. Additionally, these ponds, regardless of their construction details, are leaking and discharging constituents to the ground water. This practice should not be allowed in the renewed license.

Page 1-6 On this page and the following page several basins are discussed. The types of linings that these basins have are discussed, but there is no mention that these basins are leaking and contributing varying amounts of constituents to the ground water. Again, this practice should not be allowed in the renewed license.

There has been a lot of discussion about leaking ponds in the preceding paragraphs. If this situation is allowed to continue, then there should be a monitoring and corrective action program built into the license process. Such a program would make the license enforceable, demonstrate a progressive approach by the NRC, and limit environmental damage.

PAGE 1-7 The storm-water reservoir is discussed on this page, but there is no discussion of the sludge that will accumulate in it. Similarly, there is no mention of a ground-water monitoring program associated with the permanent pool that has already been created. This water body will require some form of monitoring.

Page 2-1 A statement is made on this page regarding the type of constituents that will be monitored. The philosophy of monitoring constituents "which are most likely to indicate detrimental environmental impacts" is flawed. These species are undefined and likely include heavy metals, radionuclides, and organics. These species are attenuated in the subsurface and do not present a picture of the ground-water movement that is taking place. A highly mobile constituent that is easy to detect and analyze should be a portion of the monitoring program.

Page 2-2 The discussion of monitored constituents on this page does not include a species as discussed above. Some form of additive measurement should be included in the monitoring program. An ideal constituent would be conductivity.

Page 3-2 The surface water monitoring schedule makes no mention of sampling at three obvious locations: the storm-water reservoir, the decorative pond, and the surface water pond due west of the treated raffinate storage ponds. These locations should be included in the monitoring program.

Page 4-2 The sediment monitoring schedule makes no mention of sediment monitoring associated with the storm-water runoff basin. This feature will receive runoff from the entire site and will build up a sludge that will have constituents that are of regulatory concern. This sludge should be monitored.

Page 6-4 Figure 5 is cited on this page. It appears to be an error, because it shows the locations of the vegetation monitors.

Page 6-7 A statement is made on this page that SFC is not contributing organics to the environment. It continues that SFC will only monitor for these constituents if this situation changes. Because organics are associated with the SFC process, which has been demonstrated to leak in the past, a limited number of organics should be monitored at selected locations on a defined frequency.

Page 6-9 The ground-water monitoring schedule that is shown on this page and accompanying pages should include additional measurements. As previously discussed, some form of additive measurement such as conductivity should be included. Similarly, water level and pH are parameters that have meaning at the site and should be included into the program.

Further review of the tables indicates that there is no mention of the wells that are associated with the treated raffinate storage ponds. Certainly these ponds, that have been documented

to be leaking by SFC and NRC inspection reports, should be included into the monitoring program.

Page 7-2 Figure 6 on this page is cited in error. Figure 7 is the appropriate diagram.

Page 7-3 Air monitoring station 2111 is discussed and shown as a monitoring site, but it is not shown in Table 7-1. This table should be revised to include this monitoring location.

Page 8-2 There is a statement on this page that bermuda grass is dormant during the warmer months. This statement is in error.

Page 8-5 Table 8-1 and the associated text discuss the groundwater monitoring associated with the fertilizer program. The usefulness of this data should be reconsidered. It appears that collecting this data is a waste of effort and resources. Currently, the treated raffinate is tested at the holding location. An NRC inspection report documents the quality of the material as well as the efficient treatment and quality control that accompanies its utilization. Additionally, SFC is spreading these materials at about one-half of the licensed rate, which is well within the accepted agricultural range for nitrate applications. This should be sufficient justification to allow application of the material.

The monitor well locations that currently support fertilizer application have had their data reviewed during a recent inspection. There are no identifiable trends over the period of record.

Sampling nitrate concentrations at 15 well locations and considering this to be representative of 10,000 acres is probably meaningless. Control of the product and the spreading method is sufficient to operate the program.

Page 8-6 Surface water sampling associated with the fertilizer program is discussed. Nitrates are monitored in a number of farm ponds. If elevated nitrates are found a more frequent monitoring program is utilized. This is a meaningless program. Water temperature and natural denitrification processes have always corrected any elevated nitrate concentrations. A recent NRC inspection report indicates that the procedure associated with the spreading protocol include a 100-foot wide buffer strip around the farm ponds has been sufficient to avoid buildup of nitrates in these water bodies. The current program collects data for the sake of data. This program serves no function and should be discontinued.

Page 8-7 A statistically sound sampling program is said to exist for the vegetation that is harvested from the site. The document that was reviewed shows no evidence of such a program. The vegetation is the medium that should be monitored, if any

monitoring is necessary. It should be noted that the constituent content of the treated raffinate contains lesser concentrations of constituents of concern than commercial fertilizer. Monitoring of this program could, and should be, reduced considering the quality of the product that is being placed on the fields.

Page 8-8 The soil monitoring program in its current form is not supplying useful data. Monitoring for nitrates in the soil column can be greatly misleading. There are many natural gains and losses of nitrates that take place in the soil depending upon moisture content, soil temperature, biological activity, and the vegetation that is present. A previous NRC inspection report discusses this situation in detail. If any monitoring is necessary, metal accumulation in the soil would be the area of interest.

Page 9-3 The liquid effluent monitoring schedule is discussed in the footnotes to the table on this page. It appears that the current 10 CFR 20 effluent limits are utilized. The new 10 CFR 20 limits will be in effect as of January 1, 1994, and as such, should be utilized in this section. Where applicable, the new limits should be utilized for all radionuclides of concern.

Page 9-7 There are 22 air emission monitoring locations discussed on this page. However, procedure HS-102 discusses 44 locations. This discrepancy should be explained.

Page 9-9 The underdrain monitoring schedule does not include monitoring for arsenic or lead. NRC sampling of the clarifier pond contents indicate that there are large concentrations of these constituents at these locations. As a consequence of this, these constituents should be a portion of the monitoring program.

Also in this section, there is no monitoring defined for the trench monitors and the sumps that have been installed at the site. The amount of liquid removed from these locations as well as the quality of the recovered liquid must be a portion of the monitoring program.

Page 10-2 The statement of "any sampling location on SFC property of uncontained material" is not clear. This should be rewritten in language that would allow this item to be inspected.

Unexpected lab results are discussed as are the expected range. This range should be defined. If two standard deviations is used, then it should be stated in this document.

Page 10-4 Environmental action levels are discussed on this page. This concept has been continually discussed as relying upon numbers that have no basis. Where do these numbers come from? Generally, NRC uses 25 percent of MPC as an action level. This should be used where it is appropriate. Specific comments follow.

Is the 0.005 ug/l fluoride air concentration measurable? A gross alpha action level of 0.5 MPC is listed. Is there an MPC for gross alpha in air?

Surface and ground-water action levels are combined. These two mediums are different and should be treated differently. For instance, the 15 pCi/l gross alpha concentration is the maximum amount of this parameter that is allowed to be present in drinking water. A similar value for radium-226 is 5 pCi/l, but the table discusses 3 pCi/l. What is the basis for establishing these radionuclides at different percentages of their respective published values.

A similar situation exists for nitrate. The EPA published drinking water standard is 10 mg/l; however, the table shows 20 mg/l as an action level. These values are inconsistent.

A fair comparison should include the measured background for the constituents of concern at a location that is representative of the site. These numbers exist in the SFC data base. From these values, a statistically valid action level could be determined that has as its basis in published values considering a percentage of site background concentrations.

Page 10-6 Laboratory detection levels are shown on this page. There are no levels for arsenic, gross beta, and the organics that are mentioned in the report. This table should be expanded

to include all of the constituents that will likely be in the monitoring program. The limits of detection should be determined based upon the needs of the site.

Page 10-7 A biennial reporting frequency is recommended for updating the monitoring action that takes place at the site. An annual frequency would be applicable to assess the changes that are taking place at the site. Currently, the fertilizer program has an annual completion report that is issued. That would apparently place more emphasis on this program than on the contamination that is demonstrated to exist at the site. This appears to be a misdirection of priorities.

Previous comments on the data associated with the fertilizer program also apply to this section. There is no frequency stated for the fertilizer program reporting discussed on this page.

Page 10-10 Changes to the environmental program are discussed on this page. It is assumed that the environmental program and the associated monitoring will be submitted in the form of a proposal for licensing action. If this is the case, then changes to the license would require a license amendment. Therefore, the NRC would be required to preform a review and licensing action prior to SFC implementing the changes.

Page 11-7 Periodic audits of the environmental monitoring program are mentioned. There should be a defined frequency

associated with these audits that is suited to the needs of the site. The frequency should also be incorporated into the renewed license.

General Comments:

In the document, there are many vague references to times that tasks will be completed. For this document to be something that can be enforced and utilized in an inspection, specifics need to be incorporated.

The monitoring program makes no reference of the action plan. If the action plan is to be assessed, some form of monitoring designed to determine results is necessary.

The environmental program is not a program, but a monitoring plan. In the most recent team inspection at SFC, there was discussion of a nitric acid recovery system that would be installed as well as an ion exchange column. The operation of these components as well as their effect on the site are not mentioned in the document. Similarly, there is no mention of the waste streams that these components will produce or eliminate.

It was also stated in the inspection that the calcium fluoride sludge would be removed from the site, processed, and have the uranium returned to SFC for additional processing. This plan is not discussed in the environmental report.

These process changes and waste elimination actions are items that must be considered in the future of the site. They not only affect the environmental issues at the site, but also the decommissioning costs and liabilities. These are issues that must be considered in the renewal of the license. Additionally, firm timing and construction commitments, from SFC, must be incorporated into a license condition to assure that these programs will be implemented. Without such a license condition, there are no items that can be inspected against and subsequently enforced. This site needs to be brought to a new level of environmental sensitivity. The license renewal system is the ideal pathway to see that this takes place.

LICENSE RENEWAL APPLICATION, REV. 1

Specific Comments:

Page 1-2 Apparently, the SFC license will be renewed for a period of 10 years. In consideration of this, the events that are known to take place during that time frame should be discussed to the best of SFC's ability. The move to eliminate the fertilizer program should be a topic for consideration in this document. Similarly, the elimination of the waste products that are stored on the site as well as targeted waste streams should be discussed.

Page 1-5 The fertilizer program and related conditions are discussed on this page. Item e discusses the quantitative analysis for metals and isotopes that is outlined in the environmental program; however, this section and the related information could not be located in the referenced document.

The fertilizer application control areas are discussed in item f. This type monitoring associated with the fertilizer program has limited or perhaps no usefulness. Consideration should be given to phasing out the collection of data that is not pertinent.

Additional monitoring is discussed in item k. Previous comments in the environmental section question the necessity of collecting certain of these data.

Items l. and m. discuss the need for a representative sample of the fertilizer product and spare pond capacity. These issues are not discussed in the environmental document. If these are to be part of the renewed license, then they should be license conditions. Additionally, more thought should be given to basing the spreading of millions of gallons of fertilizer solution on a single annual sample of this solution.

Page 2-1 The organizational and responsibilities section does not include a tie to the environmental department or the individuals in that department.

Page 2-4 The ALARA concept that is discussed on this page fails to consider application of this process to the effluent and wastes that are produced at the site. This is stated in an NRC order as a process that applies not only work health and safety, but also to effluent.

Page 2-8 The first partial paragraph on this page should be expanded to include a discussion of the ALARA concept.

Page 4-1 The effluent control systems that are discussed have been previously commented on.

The description of the environmental monitoring program should be expanded to include mention of the biological community, specifically benthic organisms, that will be monitored.

Page 4-2 The environmental program objectives are not discussed in detail in this section or in the environmental program document. There is an absence of data assessment, commitments to take action, and administrative controls. These are issues that need licensee attention in the renewed license as well as license conditions that assure their implementation.

A statement is made that the environmental program will establish actions to be taken when action limits are exceeded. A review of the environmental document that accompanied this report does not indicate any such actions. This is an issue that needs licensee

attention as well as license conditions incorporating commitments into the renewed license.

Changes to the environmental program as well as the frequency of the "environmental" report have been previously discussed.

A general comment on this section concerning the lack of a discussion about the nitric acid recovery system, the ion exchange column, and pond decommissioning is warranted. These are issues that SFC has discussed in inspections, but they are not reflected in the renewal application.

Page 5-5 The fluoride and raffinate waste streams and the basins that they discharge to are discussed; however, there is no mention of the fact that these impoundments leak. Additionally, several of these impoundments are unlined. Failure to address this situation in the renewal and require a solution to this problem is irresponsible.

Page 5-6 The solid waste and byproduct locations that are discussed do not include the sludge in the sanitary lagoon or the contaminated soils that reside at the site.

Page 6-1 The decommissioning chapter is pointless. There are no commitments of resources or formulation of plans to address this issue.

Page 7-1 The emergency plan again discusses the concept of SFC changing the plan without first receiving NRC approval. The emergency plan needs to be contained in a license condition. Due to this, prior approval from the NRC in the form of a license condition would be needed to revise this plan.

Page 9-13 Barium is noted to be a precipitant that is added to a waste stream. However, this constituent is not included in the ground-water monitoring program. Because it is added to a basin that is known to leak, it should be a monitored parameter in selected locations.

Page 11-4 Storm-water runoff monitoring is discussed on this page, but there is no mention of it in the environmental document. Because this is a monitored environ, it should be discussed in the environmental monitoring program.

SEQUOYAH FUELS LICENSE RENEWAL APPLICATION REVIEW

1. Throughout the document, references and definitions are made based on the existing 10 CFR Part 20. With the implementation of the new Part 20 in 1994, and considering the time frame within which a license renewal could likely be granted, the renewal application should be based on the new Part 20. Considering that the license will reference the renewal application and the 10-year term of the renewed license, we would be remiss in not requiring the appropriate definitions and conditions of the new Part 20 in any license renewal application. Specific sections of the renewal application which should be revised to conform to the new 10 CFR Part 20 include Sections 1.6, 1.7.1, 3.2, and Chapter 11.
2. On page 1-3, the definitions of "Depleted UF4" and Depleted UF6" should include or reference the term "Depleted Uranium: which is also defined.
3. Several times within the document, the same subject is addressed in two separate places. An example is Section 2.1, "Organizational Responsibilities and Authority" and Section 10.1, "Organizational Responsibilities;" Section 2.3.2, "ALARA Committee" and Section 3.1.1, "ALARA Policy;" and Chapters 3 and 11, both entitled "Radiation Protection." These sections do not contain the same

details, but they should at least reference each other since one generally implements statements made in the other.

4. On page 2-7, Sections 2.7.1 through 2.7.3 do not specify a frequency for inspections by the Manager, Health & Safety, or the Manager, Environmental.
5. On page 2-8, Section 2.8 contains the statement, "Investigations of incidents are conducted in accordance with written procedures." This is an open ended statement which is essentially unenforceable. The licensee need only implement a procedure, which itself may not adequately define what an incident is or when or how to conduct an investigation, in order to be in compliance.
6. Section 3.1.1, "ALARA Policy," includes statements of goals and areas to be addressed, but provides no substance. For example, one statement is "Instructions will be provided for all personnel to promote understanding of and support for the ALARA program." This provides no definition of how or when such action will be implemented.
7. On page 3-4, Section 3.2.1.f, "Personnel Monitoring," contains actions which are followed in the change room. These statements do not agree with the procedures currently in place at the facility. This is one area where it is suggested that the renewal application should contain less

detail in order to allow the plant staff to adjust the change room procedures as necessary.

8. On page 5-4, Section 5.3.1, "Emergency Electrical Power," contains the statement, "Emergency diesel generator testing is performed weekly and annually." Some distinction should be made between the type of testing performed weekly and annually, or reference should be made to Section 9.2.1, "Electrical power," where the tests are defined.
9. On page 5-4. Section 5.3.2, "Emergency Cooling Water," the third and fourth sentences of the first paragraph appear to be repetitions of the same terms.
10. Chapter 6, "Decommissioning," refers to a decommissioning funding plan which is to be revised and updated for submittal by November 30, 1992. 10 CFR 40.31(i) and 40.36, specifically, require a decommissioning funding plan to be submitted with the renewal application. Also, 10 CFR 40.36(d) requires a cost estimate and a description of the method of assuring funds. 10 CFR 40.36(e) requires either (1) prepayment, (2) a surety method, or (3) an external sinking fund. These items have not been addressed to date, and can be expected to involve a significant effort to review. The renewal application cannot be considered complete until all of this information has been submitted.

11. Section 6.1 refers to decontamination of the facility and site for unrestricted use "except for those portions of the site, where, under approvals to be obtained from NRC, materials such as soils with limited uranium concentrations will be permitted to remain in place or to be disposed of in approved locations." Absent specific authority from the NRC, the decommissioning plan must assume 100 percent cleanup with no residual radioactive material left in place. Thus, appropriate decontamination, transportation, and disposal costs must be included in the decommissioning cost estimate.

12. Section 6.4 is prospective in nature and does not include the specific information required by 10 CFR 40.31(1) and 40.36.

13. Chapter 7, "Emergency Plan," states that a plan "was developed pursuant to the requirements." This is deficient in both detail and substance. The renewal application must address the specific requirements of 10 CFR 240.31(j)(3).

The statement "SFC may make changes to the Plan without prior NRC approval if the changes do not decrease the response effectiveness of the Plan," is not acceptable as written. No criteria for making such an evaluation are specified nor are any responsibilities identified. Also, changes to the Plan should be submitted to the NRC earlier

than 6 months after the change is made, as stated in Chapter 7.

14. Sections 8.8.1, 8.8.4, and 8.8.5 appear to be repetitions of the same information.
15. Section 10.7, "Training," does not include the information on emergency response training required by 10 CFR 40.31(j)(3)(x).

APR 24 1992

MEMORANDUM FOR: Richard E. Cunningham, Director
Division of Industrial and Medical
Nuclear Safety, NMSS

FROM: L. J. Callan, Director
Division of Radiation Safety and Safeguards
Region IV

SUBJECT: REVIEW OF SEQUOYAH FUELS CORPORATION (SFC) ACTION PLAN

By this memo I am forwarding the results of the Region IV review of SFC's environmental Action Plan. SFC submitted an Action Plan and a Revised Environmental Report by cover letter dated January 10, 1992. Gary Konwinski from our Uranium Recovery Field Office performed the review and his detailed comments are attached. Mr. Konwinski will also perform a review of the SFC Environmental Report and his comments will be forwarded to NMSS on or before May 31, 1992.

The attachment describes two basic areas of concern regarding the Action Plan. First, its focus is narrow, in that uranium is the only constituent that is given consideration. In our view, effective corrective actions cannot be implemented without considering other constituents (arsenic, fluoride, nitrate, radium, and thorium) that are known to be present in the plumes. Secondly, the plan doesn't provide a commitment to remediate known contamination.

Should you have any questions about our comments, please contact myself or Gary Konwinski (FTS & (303) 231-5800).

Sincerely,

ORIGINAL SIGNED BY:
LJ. CALLAN

L. J. Callan, Director
Division of Radiation Safety
and Safeguards, Region IV

Attachment:
As stated

cc: w/atch.
R. D. Martin, RIV
J. T. Greeves, NMSS
M. Tokar, NMSS
Merri Horne, NMSS
R. E. Hall, URFO

RIV:URFO
GKonwinski
4/ /92

D:URFO
REHall
4/ /92

D:DRS
LJCallan
4/2/92

930670289 2pp

B/2

Richard E. Cunningham

-2-

bcc:
P. D. Martin
J. M. Montgomery
L. J. Callan
J. P. Jaudon
R. E. Hall
G. Konwinski
C. Cain
M. Vasquez
L. Kasner
PIV File
DRSS File

ATTACHMENT

Detailed Comments from the Review of SFC's Environmental Action Plan

- The Action Plan lacks definition and a commitment to pursue source elimination. During the inspections, it has been stressed that many impoundments are leaking and that widespread contamination exists at the site. The sources of this contamination have been adequately characterized in the Facility Environmental Investigation dated July 1991. A suitable Action Plan should begin with the systematic elimination of these sources. A priority of the areas targeted for cleanup needs to be established.
- SFC states that the scope of the Action Plan is to define response actions principally for licensed material and that other constituents such as nitrate, molybdenum, and arsenic are not addressed in the Action Plan. Any waste or contamination that is encountered at the site in the soil or liquid mediums is a combination of various constituents. Due to this, corrective actions must assess all constituents. The impacts of operating a corrective action, such as sludge disposal and waste water handling, need to be quantified considering a complete spectrum of constituents present in the waste streams. Similarly, the environmental benefits, attained from operation of a corrective action, must be quantified considering the recovery of all constituents known to exist at the site.
- In its Action Plan, SFC makes a statement that "limiting uranium migration beyond the restricted area boundary is justifiable as a prudent and sufficient level of response at this time." This statement is not supported by NRC findings. NRC inspection report 40-8027/90-04 stated that "...the entire site should be fully characterized from a ground water and surface water standpoint to ensure that contamination onsite will be detected and remediated before it can migrate offsite." The concept of "containing" contamination is self-defeating in that the plume will continue to grow in width, depth, and length, as will licensee remediation liability. Source elimination is necessary as a first step followed by remediation.

The concept of using a limiting strategy will allow plumes to grow in size and appears contrary to the ALARA principle that has been stressed with the licensee. Additionally, there is evidence that uranium has migrated beyond the restricted area boundary in both the soil and water. Similarly, other constituents have followed these migration paths. The effect, if any, of corrective actions in these areas should be assessed and quantified.

- The Action Plan further concludes that "limiting migration of uranium in the ground-water system beyond the restricted area boundary can be accomplished by installing ground-water recovery wells." This statement is unsubstantiated by the work that has been completed to date. Water level data has not been sufficiently developed to confirm the ability to contain contaminated ground water. Furthermore, no vertical

quantification of the trench sumps has taken place to determine its potential zone of influence.

- ° The Action Plan discusses three recovery wells that have been installed and states that it is anticipated that two more will be installed. There is, however, a lack of details on the specifics of these wells. It appears that SFC has simply put dots on a map. No analysis has been conducted on the changes in ground-water flow that could be expected based upon the combination of the existing wells, trench sumps, and proposed wells.
- ° It is assumed that high uranium content as well as other constituents are currently being recovered with pumped ground waters. Presumably, the proposed components would recover additional waters. There is no discussion of the disposal of these wastes. Simply transporting these wastes to other ponds or holding areas to be diluted and discharged from the site in the combination stream does not represent an acceptable corrective action and is incompatible with ALARA.
- ° The Action Plan specifies evaluation of locations for additional ground-water recovery wells and their installation as well as development of a ground-water monitoring program. These tasks are scheduled to take place between March 1992-December 1992 and October 1991-March 1992, respectively. These timeframes are not responsive to the issues that exist at the site. Sufficient geological and analytical data have been collected to locate recovery wells immediately. This data has been available for over a year; therefore, there is no need for additional delays. Similarly, sufficient monitoring wells have been installed as part of the Facility Environmental Investigation to design a credible monitoring program. The existing monitoring program has been documented by SFC and the NRC as being insufficient to monitor the plumes that exist at the site.
- ° SFC intends to plug and abandon the sanitary sewer line in-place. Such an action will assure that the contamination that is in the pipeline sludge will remain in it. It is not clear if SFC intends to excavate this line and properly dispose of the yellowcake sludge. This is similar to the interim decommissioning of Pond 2. In this situation, uranium in the soils was cleaned up to a 2000 pCi/gm level prior to placing a liner. Very little additional effort would have been required to completely clean up the excavation and thereby eliminate any additional contribution from this area. Considering this example, a similar "partial" cleanup of the sanitary sewer line should not be approved.
- ° SFC discusses in-place stabilization of the upper 6 inches of soil in Units 10 and 11. This represents limited control of a problem, not systematic elimination of problems. They state that when this task is implemented, a reduction in uranium concentrations in surface water is projected. If the area is cleaned up and contaminated soils removed, a reduction in uranium concentrations can be assured.

- ° Waste water treatment is discussed; however, there are no flow sheets in the Action Plan. Without such information, a water treatment system cannot be evaluated. If a water treatment system is to be implemented, its design and waste streams need to be quantified.