December 21, 1990

The Honorable David L. Boren
United States Senator
440 South Houston
Suite 602
Tulsa, Oklahoma 74127

Dear Senator Boren:

This is in response to your letter of November 28, 1990. As the Tulsa Phoenix article enclosed with Ms. letter stated, the Nuclear Regulatory Commission (NRC) did issue to Sequoyah Fuels Corporation (SFC) a Demand for Information, a copy of which is enclosed.

The Demand resulted from concerns that developed during recent, intensive NRC inspections of the SFC facility. We believe that the Demand and an earlier Order, a copy of which is enclosed, show that NRC has taken appropriate action with the owners of the facility.

To date, SFC management has responded properly to the Demand and the Order. Their continuing efforts to characterize environmental uranium contamination, to take appropriate corrective action regarding uranium currently in the environment, to prevent further environmental releases, and to comply with NRC regulations and the conditions of the SFC license should ensure that the public is not endangered by SFC activities.

With regard to Ms. concern that SFC activities might have been a cause of cancer in her area, be assured that NRC is not aware of any information or data that establishes such a connection.

We hope that you and Ms. find this letter responsive to her concerns. If you require additional information, please let us know.

Sincerely,

Original Signed By:
James M. Taylor

James M. Taylor
Executive Director
for Operations

Enclosures:
As stated

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions
FOIA- 2006-0009

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	Docket No. 40-8027
SEQUOYAH FUELS CORPORATION	)	License No. SUB-1010
Sequoyah Facility	)	EA 90-158
I-40 and Highway 10	)	
Gore, Oklahoma 74435	)	

DEMAND FOR INFORMATION

I

Sequoyah Fuels Corporation (SFC or Licensee) is the holder of Source Material License No. SUB-1010 issued by the Nuclear Regulatory Commission (NRC or Commission) pursuant to 10 CFR Part 40. The license authorizes the Licensee to possess and use source material for the purpose of refining uranium from uranium ore concentrates and converting this uranium to uranium hexafluoride. (UF_6) for use by enrichment facilities. The license, which was due to expire on September 30, 1990, remains in effect on the basis of a timely renewal application submitted by the Licensee.

II

A number of responsible Licensee managers played key roles in the sequence of events described in this document. These events include the identification of uranium contaminated soil and water during the excavation for and construction of a concrete vault around below-ground storage tanks, uranium contaminated soil and water beneath the solvent extraction (SX) building, and uranium contaminated soil and water beneath the main process building. The President

of SFC, who has been at SFC since the purchase of the facility from Kerr-McGee in 1988, is responsible for the entire operation of SFC, its programs, and assurance that NRC license requirements and responsibilities are satisfied.

The responsibility for conducting the excavation and vault construction project rested with the Senior Vice President, who has been employed at SFC since April 1987. Responsibility for the operation of the plant process, including operation of a pump that removed contaminated water from the ground under the process building back into the plant process (referred to in this document as the "subfloor process monitor"),[1] also rests with the Senior Vice President. The Senior Vice President and several line managers assigned to him admit knowledge of the existence of and purpose of this subfloor process monitor for an extended period of time. This monitor is not shown on plant drawings or covered by written operating procedures.

The Vice President, Regulatory Affairs,[2] who previously had been Manager, Regulatory Compliance and Quality Assurance, since January 1989, has been at SFC since 1986. He was promoted into his current position in September 1990. In both his previous and current positions, he was and is responsible for

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[1] Since October 11, 1990, this monitor is referred to by the licensee as a "denitration subfloor monitor."

[2] SFC has proposed organizational changes but has not yet applied to the NRC for a license amendment authorizing these changes.

interpreting regulatory requirements, providing advice on regulatory matters to the SFC President, providing regulatory compliance oversight for environmental compliance, and ensuring that the entire organization understands regulatory responsibilities and executes them. He is also directly responsible for the timely, accurate, and comprehensive flow of information from the Licensee to the NRC.

The Manager, Health, Safety, and Environment, has been at SFC since 1988. He has the direct responsibility for implementing the health, safety, and environmental programs necessary to ensure compliance with the NRC license; to protect plant workers and the public health and safety; and to meet environmental standards and limits. This includes assurance that uranium does not contaminate ground water and is not released offsite in significant concentrations, and that the site characteristics are correctly understood. The Manager is also responsible to assure that records of spills or other unusual occurrences involving the spread of contamination in and around the facility are maintained. These records should contain information where contamination remains after any cleanup procedures have been implemented or when there is a reasonable likelihood that contaminants may have spread to inaccessible areas. These records are necessary so that at the time of decommissioning the site can be properly and comprehensively cleaned up to NRC standards.

The Manager, Environmental, is responsible to the Manager, Health, Safety, and Environment, for the SFC environmental program and has been at SFC for 11

years. At SFC, she is responsible for developing and implementing programs and procedures to comply with all environmental monitoring requirements required by federal and state agencies.

On August 22, 1990, during an outage of SFC's UF_6 production facility,[3] SFC notified NRC Region IV that uranium contaminated water had been discovered in an open excavation immediately adjacent to the SX building at the SFC site. The water was discovered while excavating around two underground storage tanks for the purpose of constructing a reinforced concrete vault around the tanks. One tank is used to store hexane, while the other tank is used as emergency storage capacity for all SX building solutions. At the time of notification, the walls of the concrete vault had been placed, and reinforcing steel had been set for the placement of the concrete floor in the vault (the floor was actually placed on August 23, 1990, prior to the arrival of an NRC inspector). In addition, the Licensee did not indicate that any efforts were being made to determine the cause of the seepage.

The August 22, 1990, report from SFC indicated that "some ground water seepage occurred, along with some accumulation of rainwater during periods of rainfall. When sampled and analyzed, this water indicated levels of uranium substantially above SFC's environmental action level for uranium in water, 225 µg/l

[3] In late July 1990, the facility had been shut down for a major outage.

(micrograms of uranium per liter). Some samples were in the 1-8 g/l (grams of uranium per liter) range." The concentration for naturally occurring uranium for restricted areas specified in 10 CFR Part 20, Appendix B, Table 1, Column 2 is equivalent to 1.5 g/l.[4]

The NRC considered these levels of uranium to be very high for below-ground contamination concentrations and dispatched an NRC Region IV inspector to the site. Based on a review of the circumstances including the lack of appropriate evaluation by the Licensee to understand the circumstances of the contamination and the apparent lack of awareness by SFC of the potential significance of the elevated concentrations, the NRC dispatched an Augmented Inspection Team (AIT) to the site. The purpose of the AIT was to develop factual information concerning the causes, conditions, and circumstances associated with the high uranium-bearing water discovered during the excavation work at the facility.

The AIT established that excavation activities began on July 31, 1990, and on August 1, water was found in the area of the vault excavation. A sample of this water, available from the process lab on August 2, showed uranium concentrations of 0.02 g/l. The AIT also established that a sewer pipe ruptured on August 4 during excavation activities, dumping water into the

[4] Although 10 CFR Part 20 does not specifically refer to this as the restricted area concentration, this high level provided another indication that should have prompted further investigations.

excavation pit. An analysis of a sample of this water taken on August 4, available from the process lab on August 6, provided the first indication of the presence of significant levels of uranium in the water. This sample indicated 2.06 grams of uranium per liter, approximately 1.4 times the MPC for restricted areas.

By coincidence, also on August 6, 1990, a routine quarterly NRC inspection of SFC activities began. Two inspectors were onsite for the purpose of a project inspector turnover. During a tour of the facility, NRC inspectors noted workers in the excavated pit and casually questioned SFC personnel as to why there was yellow water in the excavated pit since yellow water may be an indication of the presence of uranium. Licensee officials present at that time were Mr. James Mestepey, Senior Vice President, and Ms. Carol Couch, Manager, Environmental.

Although sample results were available in the process lab indicating significant levels of uranium in the water, Mr. Mestepey and Ms. Couch remained silent as to the source of water or the levels of contamination in the water. Although the inspectors did not pursue the matter further, they noted that the area was controlled in the fashion of a contaminated area since the area had been roped off with a step-off pad at the entry to the pit. However, Mr. Mestepey and Ms. Couch indicated to the inspectors that these controls were not because of contamination concerns, but because of explosion hazards related to hexane and because of other industrial safety concerns.

Ms. Couch stated to the AIT that on August 7, 1990, she first saw results of the August 4 sample of 2.06 g/l uranium. She then talked with Mr. Mestepey regarding the contamination in the excavated area and had additional soil and water samples taken in the excavated pit. Although laboratory records indicated that these additional sample results were available that same day (August 7), for reasons that could not be determined during the AIT Inspection, responsible site personnel were apparently not aware of the analysis results for the August 6 and 7 samples until August 17, 1990. On August 17, Mr. Michael Chilton, the UF_6 Area Manager, who was then acting for Mr. Mestepey, reviewed the analysis results. Mr. Chilton had been requested by Mr. Mestepey, who was out of town, "to look at water sample results."[5] The sample results received by Mr. Chilton included those which showed the highest concentration of uranium (8 g/l) measured by the Licensee, several of which were in excess of the maximum permissible concentration (MPC) for restricted areas. However, Ms. Couch stated that she did not see the results until August 23, 1990.

On August 6, 1990, an engineer in the Engineering Department decided to pump contaminated water from the excavation pit into 55-gallon drums. As time passed, the Engineering Department continued pumping water into drums and allowed the excavation work to continue uninterrupted.

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[5] When Mr. Mestepey requested Mr. Chilton to review sample results, he was referring to sample results obtained from water being pumped into 55-gallon drums. Instead, Mr. Chilton received and reviewed water sample results taken from water in the drums as well as the August 6 and 7 samples from the excavation taken by Ms. Couch.

On August 13, 1990, after a heavy rainfall, the Engineering Department pumped about 3,000 gallons of water from the excavation site to the north ditch which is used to collect contaminated water that is potentially above the unrestricted area MPC. After monitoring, the water in this ditch, which had been diluted by uncontaminated water, was then discharged. Two samples of the water were taken prior to pumping to the north ditch and analyses indicated uranium concentrations of 0.01 and 0.04 grams per liter, less than the MPC for unrestricted areas.

Subsequent samples from the excavation (after August 13) indicated higher concentrations and additional contaminated water was later pumped into more drums for storage. By August 22, the day of the notification to the NRC, SFC had recovered approximately 6,000 gallons of contaminated water from the excavation. By September 10, 1990, a total of approximately 21,000 gallons of this water in the vicinity of the solvent extraction building had been recovered. Over 3,950 drums of contaminated dirt plus another 10,640 cubic feet of contaminated dirt had been removed from the excavated area and was subsequently stabilized on the yellow cake pad. (Reference Section 6.2 of the Augmented Inspection Team Report 40-8027/90-04 (AIT Report), dated October 11, 1990.)

The work in the excavation area was performed by contract workers. Although information available to the NRC indicates that most of these workers received general radiation training and while it appears that routine controls were implemented at the change area and access points to the unrestricted area, contract workers were allowed to continue working in the excavation area

without being informed either of the presence of uranium in the water or of the necessary precautions to take to minimize or eliminate the possibility of personnel or equipment contamination, as required by 10 CFR Part 19. In fact, during routine bioassays conducted by the Licensee beginning on August 22, 1990, two workers who were involved in moving contaminated aggregates subsequently indicated slightly elevated levels of uranium in their urine.

In addition, NRC was informed that a contract worker, who worked in these excavation activities, may have taken home contaminated equipment. The worker drove his truck to the excavation (in the restricted area) every day and, at the end of the day, put the boots he wore in the excavation into the back of his pickup. He then would drive his pickup to the gate, where the tires of his vehicle were surveyed, but not the items in the pickup. On the last day, the items in the truck were also surveyed and his boots were found to be contaminated.

On August 17, 1990, as discussed above, Mr. Chilton reviewed the analysis results of the sampling performed on August 6 and 7. Mr. Chilton and Mr. Lee Lacey, Regulatory Affairs, met to discuss the elevated values. Part of the discussion between Mr. Chilton and Mr. Lacey focused on whether the NRC should be notified, and a call was placed to Mr. Mestepey who was still out of town. On August 20, Mr. Mestepey returned to the site, and a decision was reached to recommend to Mr. Graves, the President of SFC, that the NRC be notified of the elevated levels. Mr. Graves had been on vacation since

August 4, 1990. On August 21, he returned to the site and was informed of the elevated uranium levels.

On the afternoon of August 22, 1990, the information involving the elevated concentrations of uranium in and around the concrete vault was provided to the NRC, 5 days after Mr. Chilton became aware of the elevated levels and 15 days after Ms. Couch and Mr. Mestepey discussed contamination in the excavation area. August 22 was the first time since August 4 that local radiological air samples were taken, and it was the first day that some workers began to wear lapel samplers provided by the Licensee. As noted earlier, urinalysis of workers in the excavation pit also began on August 22. However, the Licensee failed to conduct radiation surveys of the pit as required by 10 CFR Part 20 until prompted to do so by an NRC inspector on August 24.

On August 27, 1990, the AIT inspection began, and an exit meeting was conducted on August 29. As a result of the AIT inspection, specific to the contamination around and under the solvent extraction building, the Licensee confirmed by letter dated August 30, 1990, its commitments to: (1) assure integrity of the floor and sump in the solvent extraction building; (2) complete actions necessary to adequately characterize the quantity and location of the pockets of licensed material under or around the solvent extraction building; (3) identify all potential pathways that could contribute to migration of licensed material away from the solvent extraction building; and (4) control and maintain contaminated soil and water removed from the excavation north of the solvent

extraction building. In addition, the Licensee committed to the NRC that a party independent of the SFC operations would review SFC's entire response to the elevated contamination levels found in the water in the excavation pit.

On September 10-13, 1990, the NRC performed a follow-up inspection to the AIT inspection. The NRC reviewed issues raised in the AIT report and concluded that the Licensee: (1) failed to properly survey the excavation area prior to workers entering the pit; (2) failed to identify the contamination beneath the SX building in its decommissioning file; and (3) failed to properly report the contamination discovery to the NRC. Subsequent to the AIT follow-up inspection, the NRC identified the failure by SFC to provide suitable monitoring for the workers in the excavation pit and adequate surveys of equipment leaving the site. These are examples of failure to follow established procedures and/or have adequate procedures to assure that requirements were satisfied.

During the AIT follow-up inspection, the NRC also verified that the Licensee had completed the actions described in its August 30 letter. Based on the Licensee having met these commitments, on September 13, 1990, NRC verbally concurred in the Licensee's plans to restart the solvent extraction process portion of the UF_6 production facility.

On September 14, 1990, as the facility was starting up from its outage, the NRC began a 7-day-per-week inspection coverage at SFC. Also, on the morning of September 14, the Licensee reported a second source of uranium-contaminated

water under a different building, the main process building. Mr. Lacey reported that uranium-contaminated water had been sampled that morning from a standpipe, which was installed approximately 6 feet down into the ground underlying the floor of the process building, and that the sample analysis showed a concentration of approximately 6 grams of uranium per liter. The onsite NRC inspector also was informed on the same date that Mr. Lacey had known of the potential for contamination under the process building for approximately 2 weeks. Mr. Lacey had been told of it by a retired manager after that manager had read in the local newspaper about the discovery of contamination coming from beneath the SX building.

It was subsequently determined that in approximately 1976, the standpipe had been installed by the Licensee (when SFC was owned by Kerr-McGee Corporation) and served as part of a system (referred to in this document as the subfloor process monitor) which included a permanent pump and piping connected to the process. This pump is not shown on any plant drawings, and its operation is not governed by any plant procedures. Operations Department personnel indicated that "about one to two gallons per shift" were routinely put back into the process from this subfloor process monitor.

Since 1976, the operator had recognized that contaminated liquid was escaping to the ground beneath the process building floor and periodically pumped liquid from the subfloor process monitor back into the process. SFC was unable to verify to the NRC that the liquid had been analyzed for uranium content until just prior to notifying the NRC of its existence the morning of

September 14, 1990. The Licensee was asked by the NRC if it could assure that the process was not continuing to deposit additional contamination into the ground. No such assurance was given.

On September 16, 17, and 18, 1990, NRC inquired as to the basis for the Licensee's presumption that this contamination was limited, that the volume was reasonably known, and that unacceptable migration had not occurred. In discussions with the NRC staff, the Licensee presumed, without evaluation, that what was pumped from the subfloor process monitor accounted for all the liquid beneath the floor, even though a 1986 Kerr-McGee internal memorandum, obtained from SFC files, documents the fact that the previous owner knew that migration of this contaminated liquid material was probable. (A review of decommissioning file records identified no information related to the subfloor process monitor.)

The Licensee also presumed that all ground water migration occurred to the northwest, where monitoring wells would provide indications of any ground water contamination. Furthermore, the Licensee was not effective in identifying man-made underground pathways that would serve as potential migration paths for contaminated water. Because of NRC's pursuit of these matters, the Licensee began testing these presumptions.

Based on the Licensee's failure to recognize the need to aggressively pursue these issues, NRC issued an Order on September 20 requiring the Licensee to take steps to fully evaluate and address the potential problem

of contamination in, around, and under the main process building. On or about September 27, 1990, the Licensee found the first indications of contamination (2,450 micrograms uranium per liter) in a trench outside the restricted area southwest of the main process building. For comparison, the license contains a 225 micrograms of uranium per liter environmental action level for water samples that are collected for the required environmental monitoring program. This location is still within the Licensee's owner-controlled property; however, additional characterization work to quantify the extent of contamination is continuing at the SFC site.

The NRC has concluded that the Licensee's presumptions, described above, were incorrect. Migration did not just occur to the northwest. The contamination was not contained under the process building, and migration did, in fact, occur to the southwest.

III

As a result of sworn testimony provided to the NRC during ongoing evaluations of these matters, the following information about the performance of the Licensee's managers became known. On August 7, 1990, Mr. Mestepey was aware of contamination in the SX building excavation but did not take any action to either stop work, further evaluate the situation, or notify NRC. Although Mr. Mestepey does not recall the conversation, Ms. Couch informed the AIT inspectors and OI investigator that contamination concerns in the excavated

pit were discussed with Mr. Mestepey on August 7, 1990, and further said that Mr. Mestepey dismissed those concerns by relying on "the French drain to take care of it." This decision did not take proper account of the fact that workers were continuing to be allowed to be contaminated within the excavation as the project continued. In addition, it was subsequently demonstrated that the French drain, which was installed to remove water from the area around the vault, could not have performed such a function since it did not extend far enough below the excavation.

Mr. Mestepey was also aware of the subfloor process monitor in the main process building. He knew of its location, the type of pump installed to pump liquids from the standpipe, and even the manufacturer's name of the pump. However, even though interactions by NRC with the Licensee during this sequence of events should have alerted Mr. Mestepey of the need to notify NRC promptly of significant uranium contamination problems, he failed to recognize that the process building contamination was similar to the SX building excavation contamination and required prompt evaluative action and NRC notification.

Separately, Mr. Lacey claims not to have known about any contamination in the excavation until approximately August 17. However, Ms. Couch indicated in her OI interviews that she informed Mr. Lacey that the NRC inspectors onsite during the week of August 6 had asked about the source of the "yellow" water in the excavation pit and had never been given an answer. In addition, some time early in the excavation activities, she stated she informed Mr. Lacey of

"yellow" chunks of uranium in the excavation area. He contacted Mr. Michael Nichols, Manager, Health, Safety, and Environment, to have the yellow chunks cleaned up and put into drums. Further, although Mr. Lacey did not attend a meeting with the Oklahoma Water Resources Board in late July 1990, he was aware that the potential for uranium contamination in the excavation pit had been discussed during that meeting since Ms. Couch, who had attended the meeting, stated that she briefed him on this issue. Testimony from various SFC individuals to the NRC, and testimony from Mr. Lacey himself, indicated that he was aware as early as 1988 of the SX building contamination problem. Since Mr. Lacey is responsible to provide regulatory compliance oversight for environmental compliance and other regulatory areas, enough information had been made available to Mr. Lacey which should have prompted him to cause an investigation of the conditions at the excavation area.

During interviews by NRC, Mr. Lacey failed to provide an explanation as to why he did not pursue these matters more aggressively, other than that the excavation was the Operation Department's responsibility. At no time during the course of the excavation work did Mr. Lacey take action to halt the excavation and construction work to properly evaluate, remedy, control the continuing leakage of uranium contaminated water into the excavation area, or stop the continuing contamination of workers. In fact, during this period, the Licensee completed construction of the concrete vault knowing that there was significant contamination in, under, and around it.[6] At no time during this period did

[6] The Licensee had in place a significant monetary incentive which could have motivated a hurried completion of the excavation.

Mr. Lacey take action to evaluate or deal with the potential environmental consequences of this large volume of contaminated water remaining in and around the excavation area.

Moreover, Mr. Lacey felt that the solvent extraction building excavation problem was not reportable to the NRC, and Mr. Mestepey was informed of this while he was still out of town. The reporting regulation, 10 CFR 20.403, contains four criteria to be judged in determining whether immediate notification is required and four criteria to be judged whether 24-hour notification is required. Mr. Lacey stated that no "event" had occurred and that the material had been there for years. Therefore, he felt the issue of contamination in the excavation was not reportable. The NRC staff noted that his reasons for not reporting to the NRC did not reference any of the reporting criteria. (Reference Section 5.0 of the AIT Report.) The NRC staff finds that the discovery of uranium contamination in the excavation pit was a reportable event and should have been reported to the NRC within 24 hours of its discovery, as required by 10 CFR 20.403(b)(4).

Mr. Lacey subsequently gave sworn testimony to OI that he learned of the potential for contamination under the process building when told by a retired SFC manager, approximately 2 weeks prior to deciding to sample the water and subsequently report it to NRC. He waited 2 weeks to report the event to the NRC despite recognizing the information was significant enough to ask Mr. Mestepey about it a few days after it was brought to his attention. As indicated earlier, Mr. Mestepey verified the existence of the contamination beneath the process building as well as the subfloor process monitor, but both

Mr. Lacey and Mr. Mestepey failed to analyze a sample of the water at that time and to provide this information to the NRC until after NRC gave permission to restart the plant. On September 14, 1990, shortly after the production facility began operation after its outage, Mr. Lacey informed Mr. Graves and subsequently notified the NRC of the main process building contamination.

Mr. Nichols was directly responsible for properly controlling, evaluating, and surveying the radiological aspect, if any, of the excavation project. However, he maintained that he was unaware of the possibility that uranium contamination might be at significant levels or quantities. (One of his employees, Ms. Couch, did investigate and was aware of elevated levels, but informed Mr. Mestepey rather than her responsible manager, Mr. Nichols.) Mr. Nichols, in sworn testimony to OI, admitted to walking around the excavation, admitted to having frequently been to the excavation and looked into it, admitted knowledge that the presence of yellow water in the excavation might indicate uranium contamination, but failed to explain why he did not become conscious of the potential for uranium contamination. Mr. Nichols was also directly responsible for establishing suitable safety controls from uranium exposure or contamination for contractor personnel but failed to do so. In addition, he is also the manager responsible for maintaining decommissioning records. As of the end of the AIT follow-up inspection, Mr. Nichols had failed to include information in these records with regard to the SX building contamination issue.

Mr. Nichols provided no explanation to the inspectors or during his sworn testimony as to why he did not fulfill his responsibilities described above.

In addition, at no time did Mr. Nichols or any other Licensee personnel from the Health, Safety, and Environmental department survey the earthen walls of the excavation or take note of the large section of yellow stained earth which was part of the excavation face immediately under the SX building. This readily apparent indication was not surveyed or otherwise evaluated until an NRC inspector requested that it be done on August 24, 1990. That survey identified radiation levels in local areas in excess of 6 mrad/hr. Mr. Nichols is responsible for surveys of departing contract workers and materials and failed to assure that contaminated materials were not removed from the site.

Similarly, Ms. Couch also had information that should have led her to take some further evaluative action. Testimony of witnesses indicates Ms. Couch was in and around the excavation on numerous occasions during the period. Although she states that, on August 7, 1990, she discussed potential contamination concerns in the excavation pit with Mr. Mestepey and took additional water and soil samples, she failed to follow up on those results for an extended period of time. Further, she also stated she informed Mr. Lacey that on August 6, 1990, the NRC inspectors questioned the yellow water in the excavation pit. As indicated earlier, although Mr. Lacey failed to take any follow-up actions with the NRC, Ms. Couch also failed to take any further action to respond to the NRC question, even though she later stated she was aware of potential contamination concerns at the time and even discussed them with Mr. Mestepey on August 7, 1990. Ms. Couch stated that she did not discuss her concerns with Mr. Nichols, her immediate supervisor.

IV

The mode of operation of the SX building and the main process building allowed unknown quantities of uranium-bearing solutions to escape from the process and facility confinement systems which created the potential for offsite contamination of the environment. The contamination of the ground under the buildings led to unnecessary exposures of site workers and releases of radioactive material to the environment. These activities were not in accordance with the "as low as is reasonably achievable" (ALARA) requirement in 10 CFR Part 20.

The failure of the management control system to assure that water survey results were forwarded to the key managers needing the survey information contributed to exposure of personnel, further contamination of soil with consequent decommissioning problems, and offsite releases by contract workers. The management control system also failed in that information about contamination under both the SX and the process buildings was not communicated to SFC key managers so that radiation and environmental controls could be established. Specifically, Licensee management (a) failed to promptly and properly evaluate the discovery of uranium in excess of restricted area MPC, (b) failed to have an effective site-wide well monitoring program, (c) failed to properly keep contract workers informed of the hazards of working in the excavation area as required by 10 CFR 19.12, (d) failed to properly identify and evaluate the subfloor process monitor issue, (e) failed to identify and control migration of licensed material outside

the restricted area, and (f) failed to report the event to the NRC within 24 hours of its discovery as required by 10 CFR 20.403(b)(4).

In general, the Licensee initially failed to recognize the uranium contamination, and once the Licensee did recognize that such contamination existed, the Licensee failed to understand the potential significance of such a problem. No evaluation of the source of the uranium contaminating the water or the potential for release of contamination to unrestricted areas was performed. Although Mr. Mestepey, Mr. Lacey, Mr. Nichols, and Ms. Couch were fully aware of the contamination problem beneath the solvent extraction building floor at least by August 22, 1990, work activities were allowed to progress to the extent of placing the concrete floor in the vault over contaminated material in the bottom of the excavation pit early on the day after the issue was communicated to the NRC. Although Mr. Mestepey was aware of the subfloor process monitor for at least 2 years and Mr. Lacey was aware of the monitor for about 2 weeks, neither of these individuals mentioned to the NRC the potential significance of that issue even though the NRC onsite team requested the SFC staff to identify other potential areas of concern. The NRC's review of the occurrence of the vault excavation contamination, SX building uranium leakage, process building ground contamination, and related issues and evaluation of the Licensee's ability to effectively respond to these occurrences has resulted in the determination that significant weaknesses in this Licensee's organization and management exist. Key managers in responsible positions failed to exercise their regulatory responsibilities throughout this period, and therefore,

contributed to the problems outlined herein. Those failures appear to be the result of serious and, in some cases, long-standing organizational and management deficiencies which include the following:

(a) A long-standing problem, carried over from the previous owner, of poor communication between organizational elements, up the management chain, and to the NRC. Present managers have not corrected this problem and appear to have contributed to it.

(b) Procedural deficiencies, both in terms of procedural adequacy and in terms of individuals understanding and following procedures.

(c) Lack of clearly established responsibility and accountability (e.g., while the Regulatory Affairs, Health and Safety and Environmental functions are represented to have regulatory responsibilities, those responsibilities have, in practice, been abdicated to the Operations Department for certain plant processes and individual work activities).

(d) Lack of technical and managerial effectiveness in understanding regulatory requirements and in ensuring that they are followed at the site.

(e) Lack of sensitivity to the potential for uranium contamination and lack of initiative to maintain control of licensed material and assure that such material is not migrating offsite.

(f) A lack of independent initiative to define problems, analyze conditions, propose solutions, and recommend actions, relying instead on the NRC to do so.

It appears that both personnel and organizational weaknesses resulted in this Licensee violating NRC regulations, not recognizing these violations until pointed out by the NRC, failing to properly inform workers of contaminated liquids and allowing them to work in contaminated water on a continuing basis, failing to independently and promptly respond to contamination incidents and the potential ground water contamination that may have resulted, and failing to accurately and completely inform the NRC of material facts in a prompt manner. Therefore, the NRC staff concludes that such management failures raise serious concerns as to the commitment and ability of the Licensee's management to control licensed activities.

V

The staff has not been able to determine, however, whether the fundamental causes of these failures can be attributed to: (1) deficiencies in the organizational structure; (2) weaknesses in the management processes employed at the site; (3) lack of proper experience, qualifications, training, and development of key site managers; or (4) all or some combination of the above. Therefore, the Commission requires further information from the Licensee in order to determine whether there is reasonable assurance that the Licensee can and will properly manage its activities in accordance with the Commission's

regulations and License No. SUB-1010. This information is also needed in order to determine whether the Licensee's application dated August 29, 1990, to renew the license pursuant to 10 CFR 40.43, should be granted. Pursuant to 10 CFR 2.108(a), the Licensee's failure to respond to this Demand for Information could result in denial of renewal of License No. SUB-1010.

Accordingly, pursuant to Sections 161c, 161o, 182, and 186 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR 40.31(b) and 10 CFR 40.71(b), in order for the Commission to determine whether your license should be modified, suspended, or revoked or other enforcement action taken to ensure compliance with NRC regulatory requirements, and whether your license renewal application should be granted, the Licensee is required to submit to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, the following information, in writing and under oath or affirmation:

A. Within 5 days of the date of this Demand, provide the NRC Region IV Administrator with information, as an interim action to assure adequate management controls, describing an oversight program the Licensee is willing to put into place while management deficiencies and weaknesses in the permanent organization are being remedied. The oversight would need to be provided by persons acceptable to the NRC Region IV Administrator who have not been employed at the Sequoyah facility by SFC but are experienced in the management of radiation and chemical safety and environmental protection at regulated facilities similar to SFC.

The oversight program should contain the elements itemized below:

1. The oversight program should provide additional assurance to the NRC that NRC regulatory requirements are being satisfied during operation of the facility. Based on the performance of the management of this facility in response to the contamination events described earlier in this document, the NRC believes that enhanced oversight at this facility is needed to assure protection of public health and safety and of the environment.

2. A guidance document should be issued which identifies the purpose of the oversight program, the responsibilities of the personnel assigned to the program, reporting requirements, and the authority given to the members of the oversight team to act where necessary to prevent personnel error and to assure performance of activities in accordance with NRC regulatory requirements. A copy of such duties and responsibilities is to be provided to the NRC. At a minimum, the evaluators should report observations of immediate safety significance to the Licensee's President or his designee. Daily reports summarizing the activities of the oversight group as well as addressing any identified operating practices that do not appear to meet NRC regulatory requirements should be made to the President. A weekly summary report along with a compilation of daily reports shall be provided to the Region IV Administrator.

3. Following the Licensee's review of the results of the independent appraisal program referred to in Section B, the Licensee may seek to terminate the oversight program. Written justification for the termination should be provided to the Region IV Administrator, explaining the basis for termination after considering the significance of any appraisal or oversight findings in the area of plant operations.

If the Licensee believes that this oversight program should not be implemented, the Licensee shall explain why this program is not necessary, or why an alternate program may be more appropriate.

B. Within 5 days of the date of this Demand, the Licensee shall inform the Region IV Administrator whether the Licensee is willing to submit, within 30 days of the date of this Demand, for review and approval, a plan for an independent, written appraisal of site and corporate organizations and activities that would develop recommendations, where necessary, for improvements in management controls and oversight to provide assurance that personnel will comply with regulatory requirements and site procedures. The appraisal should be completed within 6 months of the NRC's approval of the plan. The plan should include at least the elements itemized below:

1. A description of the appraisal program, the qualifications of the appraisal team, a discussion of how the appraisal is to be conducted and documented, and a schedule with appropriate milestones.

2. An independent organization retained by the Licensee to serve as the appraisal team to evaluate the current organizational structure, responsibilities, management controls, improvement and upgrade programs, staffing levels and staff competence, communications, the safety review process, training, quality assurance, and operating practices at the Sequoyah Fuels site. The Licensee's programs for personnel motivation should also be examined to determine if production practices override health and safety or environmental requirements.

3. A review by the appraisal team of the Licensee's management and supervisory personnel including, but not limited to, the personnel identified in Sections II through IV as well as a representative number of site working-level personnel to determine their understanding of both regulatory and administrative requirements.

4. The appraisal report should include the views of the independent organization on the causes of the deficiencies referenced in Section II through IV of the Demand and an evaluation of the adequacy of the current and planned improvement and upgrade programs and management changes to achieve lasting improvements in compliance with Commission requirements. Past efforts to improve performance relating to site activities should be reviewed including, but not limited to, the 1986 incident and the current oversight group report. Recommendations should be made for procedural, organizational, personnel, or other changes to improve compliance with Commission requirements.

5. Periodic meetings should be provided between the outside organization and the Licensee to alert the Licensee of potential safety and environmental issues that may need immediate correction.

6. The Licensee shall direct the independent organization to submit to the Region IV Administrator a copy of the final appraisal report within 30 days of the expiration of the 6-month appraisal period referenced above at the same time they are sent to the Licensee or any of its employees or contractors. The appraisal report should be provided to the President, Sequoyah Fuels Corporation.

7. Prior notice shall be given to the Region IV Administrator of any meeting between the Licensee and the organization to discuss the results, recommendations, or progress made on the appraisal.

8. In addition, the Licensee shall provide to the Region IV Administrator, within 30 days of the receipt of the final appraisal report, an analysis of each recommendation by the appraisal team and the action to be taken in response to each recommendation. The Licensee shall also provide at that time a schedule for accomplishing these actions. Justification shall be provided for any recommendation of the appraisal not adopted.

If the Licensee believes that this appraisal should not be conducted, the Licensee shall explain why this appraisal is not necessary, or why an alternate appraisal may be more appropriate.

VI

The Regional Administrator, Region IV, may relax or terminate in writing any of the provisions in Section V for good cause.

FOR THE NUCLEAR REGULATORY COMMISSION

Hugh L. Thompson

Deputy Executive Director for
Nuclear Materials Safety, Safeguards,
and Operations Support

Dated at Rockville, Maryland,
this 5th day of November 1990

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

SEP 2 0 1990

Docket No. 40-08027
License No. SUB-1010
EA 90-162

Ruau Graves, President
Sequoyah Fuels Corporation
Sequoyah Facility
I-40 and Highway 10
Gore, Oklahoma 74435

Gentlemen:

Subject: Order Modifying License

Enclosed is an Order Modifying License requiring that Sequoyah Fuels Corporation characterize the site, take actions to prevent further releases of contaminated water, and conduct appropriate monitoring of ground water. The Order is based on concerns that uranium contaminated water seeping from underneath the main process building may contaminate ground water and the environment in the plant's unrestricted area.

The issuance of this Order does not preclude the NRC from considering and taking enforcement actions for the contamination that led to the issuance of this Order. In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and the enclosed will be placed in the NRC's Public Document Room.

Sincerely,

James M. Taylor
Executive Director for Operations

Enclosure: As stated

9009270014

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 40-08027
	)	License No. SUB-1010
SEQUOYAH FUELS CORPORATION	)	EA
Sequoyah Facility		
I-40 and Highway 10		
Gore, Oklahoma 74435		

ORDER MODIFYING LICENSE

I

Sequoyah Fuels Corporation (SFC or Licensee) is the holder of Source Material License No. SUB-1010 issued by the Nuclear Regulatory Commission (NRC or Commission) pursuant to 10 CFR Part 40. The license authorizes the Licensee to possess and use source material for the purpose of refining uranium from uranium ore concentrates and converting this uranium to uranium hexaflouride (UF6) for use by enrichment facilities. The license, was most recently renewed on September 20, 1985, and will expire on September 30, 1990, and the licensee has submitted an application for timely renewal.

II

On August 22, 1990, the Licensee notified the NRC that uranium contaminated water had been discovered seeping from under the solvent extraction building into a nearby excavation. The excavation had been dug around two hexane tanks in preparation for enclosing the tanks in a concrete vault. The floor and walks of the vault had been installed and the seepage was discovered in the soil to the south and west sides of the newly constructed vault.

By letter dated August 30, 1990, the Licensee committed to take the following actions prior to the restart of the solvent extraction process:

1. SFC will provide NRC with sufficient information relating to assuring the integrity of the floor and sump of the Solvent Extraction Building to demonstrate that current operations are not contributing to the inventory of licensed material that may have seeped beneath the building.

2. SFC will complete such actions as are necessary to adequately characterize the quantity and location of the pockets of licensed material under or around the Solvent Extraction Building.

3. SFC will identify and check all potential pathways that could contribute to migration of licensed material away from the Solvent Extraction Building.

4. SFC will properly control and maintain contaminated soil and water removed from the excavation north of the Solvent Extraction Building.

In addition, SFC committed that in the very near future, SFC will have an independent party review SFC's entire response to this situation, and a written report of this review and SFC's response to it will be made available for NRC's review. In addition, further commitments establishing a temporary oversight group, additional staff in the health, safety and environment functions, and attention for organizational deficiencies, were made. On September 14, 1990, based on these commitments, the NRC approved SFC's

restart of the solvent extraction process. Subsequent to the above, on September 14, 1990, SFC reported another discovery of uranium-contaminated water seeping from under the Main Process Building within approximately fifty (50) yards or less of an unrestricted area. The Licensee cannot assure the NRC that all migration pathways to the unrestricted area are known or that the groundwater has not been contaminated through seepage under or around the building.

III

Based on the above, the NRC is concerned that the ground water and environment in the plant's unrestricted area could be contaminated with uranium contaminated water seeping from underneath the main process building or its environs. Consequently, the public health and safety require that the site be characterized, action be taken to prevent further releases of contaminated water, and appropriate monitoring of ground water be conducted. Therefore, because of such concerns and because of the need to have complete and accurate information, License SUB-1010 is being modified to require the Licensee to obtain information and develop characterization studies regarding the seepage of uranium contaminated water from under the main process building and its environs.

IV

Accordingly, pursuant to sections 62, 161b, 161c, 161i, 161o, 182 and 186 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR 2.204, 10 CFR Part 20, and 10 CFR Part 40, IT IS HEREBY ORDERED, THAT LICENSE NO. SUB-1010 IS MODIFIED AS FOLLOWS:

The Licensee shall within seven (7) calendar days from the effective date of this order:

1. Obtain sufficient information to ensure the integrity of the floor of the Main Process Building and repair the floor as necessary. Minimize process liquids in sumps and on floors. Stop all activities that intentionally place liquids in sumps and on floors until the integrity of sumps and floors has been ensured.

2. Characterize the quantity (volume and activity) and location of licensed material under the Main Process Building floor and outside the Main Process Building, and obtaining, as necessary, soil borings and corings and digging intercept trenches to determine the direction and extent of underground migration.

3. Identify all potential pathways for migration beneath and beyond the Main Process Building, considering the effect of building structures and utilities, the nature and extent of

underground shale and other formations, and construction activities that could have affected the integrity of groundwater barriers.

4. Examine present and past monitoring well data for evidence of licensed material attributable to Main Process Building activities, determining whether the present and past monitoring well program has been adequate, in terms of well location, depth, and sampling, to identify migration from the Main Process Building.

5. Determine whether licensed material is being or has been released beyond the restricted area by migration from the Main Process Building.

6. Develop a plan to identify and characterize other locations on SFC property where past or present operations could have resulted in contaminating the environment.

The Regional Administrator, NRC Region IV, may, in writing, relax or terminate any of the above conditions upon demonstration by the Licensee of good cause.

After reviewing the Licensee's response, the NRC will determine what further action is necessary to ensure compliance with regulatory requirements.

V

The Licensee or any other person adversely affected by this Order may submit an answer to this Order or request a hearing on this Order within 20 days of the date of this Order. The answer shall set forth the matters of fact and law on which the Licensee or other person adversely affected relies and the reasons why this Order should not have been issued. Any answer filed within 20 days of the date of this Order may include a request for a hearing.

Any answer or request for a hearing shall be submitted to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555. A copy shall be sent to the Assistant General Counsel for Hearings and Enforcement at the same address, and to the Regional Administrator, USNRC Region IV, 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas 76011, and to the Licensee if the answer or hearing request is by a person other than the Licensee. If a person other than the Licensee requests a hearing, that person shall set forth with particularity the manner in which his or her interest is adversely affected by this Order and shall address the criteria set forth in 10 CFR 2.714(d).

If a hearing is requested by the Licensee or a person whose interest is adversely affected, the Commission will issue an Order designating the time and place of any hearing. If a hearing is held, the issue to be considered at such hearing shall be whether this Order should be sustained.

If no hearing is requested, this Order shall become effective upon the Licensee's consent or upon expiration of the time within which a hearing may be requested.

FOR THE NUCLEAR REGULATORY COMMISSION

Hugh L. Thompson, Jr.
Deputy Executive Director
for Nuclear Materials Safety, Safeguards
and Operations Support

Dated at Rockville, Maryland
this 19 day of September 1990

DAVID BOREN
OKLAHOMA

RUSSELL BUILDING
WASHINGTON, DC 20510

621 NORTH ROBINSON
OKLAHOMA CITY, OK 73102

440 SOUTH HOUSTON
TULSA, OK 74127

MUNICIPAL BUILDING
SEMINOLE, OK 74868

United States Senate

WASHINGTON, DC 20510

CHAIRMAN,
SELECT COMMITTEE ON INTELLIGENCE

MEMBER, COMMITTEE ON FINANCE
CHAIRMAN, SUBCOMMITTEE ON
ENERGY AND AGRICULTURAL TAXATION

MEMBER, COMMITTEE ON AGRICULTURE,
NUTRITION, AND FORESTRY
CHAIRMAN, SUBCOMMITTEE ON
AGRICULTURAL CREDIT

MEMBER, COMMITTEE ON SMALL BUSINESS

November 28, 1990

Mr. John C. Bradburne, Jr.
Director, Congressional Affairs
Nuclear Regulatory Commission
One White Flint North Building
11555 Rockville Pike
Rockville, MD 20852

Dear Mr. Bradburne:

Enclosed you will find a copy of correspondence I have received from [illegible]

Because of my desire to be responsive to all inquiries and communications, I will appreciate your consideration of this material. Please direct your response to my office at 440 South Houston, Suite 602, Tulsa, Oklahoma, 74127.

Thank you for your assistance in this matter.

With best regards,

Sincerely,

David L. Boren
United States Senator

DLB/mc

Enclosure

11-8-90

Dear Senator Boren:

Enclosed is the latest report on the Sequoyah Fuel plant in Gore. The NRC needs to come down hard on the owners of this plant and monitor it more closely, they never do, until it's to late.

I never did receive a Cancer report from the Okla. Health Dept. I knew it would not, for this area for if the real truth is ever told on that plant, and the Cancer in this area there will be hell to pay and the NRC, EPA, Oklahoma Health Dept will be right in the middle of it, is our opinion.

Again Congratulations on your Win.

Sincerely

Mrs. [illegible]

SEN. DAVID BOREN

RECEIVED

NOV 09 1990

Oklahoma City, Oklahoma

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

ACTION

EDO Principal Correspondence Control

DUE: 12/19/90

EDO CONTROL: 0006045
DOC DT: 11/28/90
FINAL REPLY:

FROM:

Sen. David L. Boren

TO:

OCA

CRO NO: 90-1240

FOR SIGNATURE OF: ** GRN **

Executive Director

ROUTING:

DESC: Ex: 7c

ENCLOSES LETTER FROM [redacted] CONCERNING SEQUOYAH FUELS

Taylor
Sniezek
Thompson
Blaha
Bernero, NMSS

DATE: 12/07/90

ASSIGNED TO: RIV CONTACT: RMartin

SPECIAL INSTRUCTIONS OR REMARKS:

REPLY TO TULSA, OKLAHOMA OFFICE.

OFFICE OF THE SECRETARY
CORRESPONDENCE CONTROL TICKET

PAPER NUMBER: CRC-90-1240 LOGGING DATE: Dec 6 90

ACTION OFFICE: EDO

AUTHOR: David Boren---Const Ref
AFFILIATION: UNITED STATES SENATE

LETTER DATE: Nov 28 90 FILE CODE: IDR-5 Sequoyah

SUBJECT: Monitoring the Sequoyah Fuel plant in Gore, Oklahoma

ACTION: Direct Reply

DISTRIBUTION: OCA to Ack, DSB

SPECIAL HANDLING: None

NOTES:] Ex. 7

DATE DUE: Dec 21 90

SIGNATURE: DATE SIGNED:
AFFILIATION:

Rec'd Off. EDO
Date 12-7-90
Time 9:15 A

EDO --- 006045
9[illegible]-13225-A-01