

CHAPTER 1. STANDARD CONDITIONS AND SPECIAL AUTHORIZATIONS

1.1 Name

Sequoyah Fuels Corporation is a wholly-owned subsidiary of Sequoyah Fuels International Corporation, which is a wholly-owned subsidiary of Sequoyah Holding Corporation, which is a wholly-owned subsidiary of General Atomics, which is a wholly-owned subsidiary of General Atomic Technologies Corporation. General Atomic Technologies Corporation is controlled by James N. Blue, a United States citizen. The Principal office of Sequoyah Fuels Corporation is located at Sequoyah Facility, I-40 and Highway 10, Gore, Oklahoma 74435.

1.2 Location

The Sequoyah Fuels Corporation, Sequoyah Facility is located 2-1/2 miles southeast of Gore, Oklahoma, on State Highway 10 south of U.S. Highway 64, and north of Interstate Highway 40. This location is approximately 150 miles east of Oklahoma City, Oklahoma and 40 miles west of Fort Smith, Arkansas.

1.3 License Number

The Sequoyah Facility is currently operating under Nuclear Regulatory Commission Source Material License Number SUB-1010. The initial License was granted on February 20, 1970 and was last renewed on September 20, 1985.

1.4 Possession Limits

The maximum amount of Natural or Depleted Uranium that the Licensee is allowed to possess at any one time shall be 20 million MTU.

1.5 Location Where Material Will be Used

Licensed material shall be used at the Sequoyah Fuels Corporation Sequoyah Facility.

1.6 Definitions

Combination Stream - the liquid effluent from the facility which is made up of several liquid discharges.

Depleted uranium (DU) - uranium having a percentage of Uranium-235 less than the approximate 0.7% found in natural uranium.

Hazardous Materials - process chemicals present in such quantity and/or concentration as to represent a serious threat to personnel safety in the event of unprotected exposure.

Raffinate - the aqueous acidic waste stream from the Solvent Extraction operation.

Raffinate Sludge - the precipitated metals and clay that resulted from neutralization of raffinate with anhydrous ammonia.

Calcium Fluoride Sludge - the precipitated calcium fluoride that resulted from the neutralization of HF scrubber water with quick lime.

Sequoyah Facility - as used in this license means the area, as shown in Figure 3-1, which encompasses the processing areas, the treated raffinate storage ponds, and all buildings, equipment, structures and other features.

Other units and definitions are as defined in Title 10 of the Code of Federal Regulations.

1.7 Authorized Activities

The following activities shall be authorized:

1. Storage, handling, packaging, and shipping of natural and depleted uranium compounds.
2. Handling, removal, treatment, storage and disposal of process materials, equipment, and contaminated waste materials, consistent with the provisions of 10 CFR 40.42.
3. Discharge of process effluents, cooling water, and stormwater as allowed by this license and applicable federal and state permits and regulations.
4. Remedial actions as may be specified by the U.S. EPA or the Oklahoma Department of Environmental Quality, subject to NRC concurrence.

1.8 Exemptions and Special Authorizations

Posting Exception

An exception to the posting requirements of 10 CFR 20.1902(e) shall be made for areas and rooms within the plant. All entrances to restricted areas shall be conspicuously posted with a sign having the words "Caution - Any area or room within this plant may contain radioactive material."

Fertilizer Distribution

In accordance with applications dated May 16, and August 15, 1980, August 17, 1982, June 2, 1983, and pursuant to Title 10, Code of Federal Regulations, Part 40, the following activities shall be authorized: (1) the use of ammonium nitrate solution processed from barium-treated neutralized solvent extraction raffinate for fertilizer, and (2) the release of crops grown on land fertilized with the fertilizer authorized in item (1) above, subject to the following conditions:

1. Treated ammonium nitrate shall be used as a fertilizer only for crops which are not used directly as human food, such as animal forage or seed production.
2. Raffinate shall be neutralized, and Ra-226 and other trace metals precipitated from the raffinate in accordance with approved procedures.
3. The treated ammonium nitrate shall be analyzed prior to use and shall be released for use as a fertilizer only if:

- a. The Ra-226 content does not exceed 2 pCi/l of solution or 0.1 pCi/gN for N concentrations in excess of 20 g/l.
 - b. The average uranium concentration does not exceed 0.1 mg/l.
4. The total quantity of nitrogen applied to any land in any one year by using treated ammonium nitrate as fertilizer will not exceed 700 lb. N/Acre.
5. Quantitative analyses for metals and specified isotopes shall be performed as outlined in the enclosed Appendix I, Revision 1.
6. The designated ammonium nitrate fertilizer application control area shall be the Sequoyah Acreage XVII (Agland) plot.
7. If Sequoyah Fuels Corporation decides to discontinue the use of any designated control site as part of the ammonium nitrate fertilizer application area, the Office of Federal and State Materials and Environmental Management Programs (FSME), Decommissioning and Uranium Recovery Licensing Directorate, U.S. Nuclear Regulatory Commission must be informed promptly so alternate areas for long-term testing can be identified. Should more than 30% of a control site be eliminated from application for any reason, an alternate control site will be proposed.
8. Other crops grown on land fertilized with the ammonium nitrate fertilizer solution may be used or sold without restriction if the use or sale is approved by a qualified independent agronomist.
9. Sequoyah Fuels Corporation shall continue to obtain input and recommendations for the overall ammonium nitrate fertilizer use program from Oklahoma State Extension Agronomists.
10. A completion report for the previous calendar year's fertilizer program shall be submitted to NRC by May 1 of each year. The report shall contain a description of the program, the analytical results obtained, an analysis of the results, a discussion of any unusual or unexpected results and a summary of the projected future program.
11. Sequoyah Fuels Corporation is responsible for all tests, controls, arrangements and reports required under Conditions 1-10 above regardless of the ownership of the fertilized land or crops.

APPENDIX I - Revision 1

Required Quantitative Analyses

<u>Element</u>	<u>Soil</u>	<u>Vegetation</u>	<u>Raffinate</u>
As	X	X	X
Ba			X
B	X	X	X
Cd			X
Co	X	X	X
Cr			X
Cu	X	X	X
Fe	X	X	X
Hg			X
Mg			X
Mn	X	X	X
Mo	X	X	X
Ni	X	X	X
Pb	X	X	X
Se			X
V	X	X	X
Zn	X	X	X
U	X	X	X
Th-230	X	X	X
Ra-226	X	X	X

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- (1) Soil samples representative of the major soil types in each fertilized area shall be collected during each year in which SFC-N is applied. Samples shall be collected prior to the beginning of the growing season, approximately the mid-point of the application season, and about one month after the end of the growing season. Samples shall be individually analyzed for nitrate contents. Analyses will be performed for samples in six-inch intervals from 0" to 48". If a problem of excessive accumulation is determined by the consulting agronomist, then further analysis shall be conducted for those elements indicated whose concentrations in the ammonium nitrate fertilizer exceeds the "Recommended Maximum Concentrations of Trace Elements," short term use standards as stated in Water Quality Criteria, 1972.
 - (2) Vegetation samples from the control sites shall be collected and analyzed for all elements listed in Appendix I, Revision 1, either just prior to or immediately after harvest. A statistically sound sampling program shall be used to ensure that the results obtained are representative of the vegetation harvested. Elemental analysis of the ammonium nitrate

fertilized vegetation from the control sites shall serve as an indicator of elemental concentrations in vegetation grown on all other ammonium nitrate fertilized sites subject to the following restrictions:

The loading rate for any site does not exceed that of the control sites. For sites where this restriction is not met, vegetation shall be analyzed. Collection and analysis shall take place prior to or immediately after harvest.

- (3) A representative composite sample of ammonium nitrate fertilizer solution shall be collected during the application season and analyzed for the elements indicated once per year.

CHAPTER 2. GENERAL ORGANIZATIONAL AND ADMINISTRATIVE REQUIREMENTS

2.1 Licensee's Policy

The Corporate Manager, Health Physics shall be responsible for establishing corporate radiation health and safety standards and procedures, and coordinating them with managers and executives directly affected. Corporate radiation health and safety standards and procedures shall require the approval of the Corporate Director, Licensing, Safety, and Nuclear Compliance.

The Corporate Manager, Health Physics shall publish and maintain the Corporate Radiation Health and Safety Manual. This manual shall contain corporate radiation health and safety standards and procedures, and radiation exposure limits for all employees and other persons (e.g., visitors, contractors, etc.) potentially subject to such exposure from company operations.

The Corporate Director, Licensing, Safety, and Nuclear Compliance (LS & NC) is functionally responsible for obtaining and maintaining federal and state licenses and permits required for possessing and processing radioactive materials for all operational units of General Atomics with the exception of Sequoyah Fuels Corporation. The Corporate Director, LS & NC may provide counsel to SFC in matters relating to licensing and permits.

The Director, Regulatory Affairs shall be the primary contact with the Nuclear Regulatory Commission and other federal and state agencies.

All significant actions with regulatory agencies shall be subject to the approval of the Director, Regulatory Affairs, or the President, SFC.

The Manager, Health and Safety shall be responsible for the facility's radiation health and safety activities which include:

- Initiating and directing programs to ensure compliance with all applicable provisions of corporate radiation health and safety standards and procedures, federal and state regulations and license conditions,
- Establishing and maintaining systems for recording facility radiation survey and exposure data,
- Coordinating on-site contacts with representatives of federal and state agencies responsible for regulating radioactive materials and advising the Director, Regulatory Affairs and the Corporate Director, Licensing, Safety, and Nuclear Compliance, of the results of the on-site contacts.

- Identifying and proposing new and revised radiation health and safety standards and procedures as needed, and
- Notifying the Corporate Manager, Health Physics of radiation related incidents or emergency situations involving radioactive materials.

The Corporate Manager, Health Physics shall be responsible for ensuring the qualifications of the Manager, Health and Safety to perform these duties and shall assist and advise him on matters involving radiation exposure and related subjects.

The Corporate Director, Licensing, Safety, and Nuclear Compliance shall review the radiation health and safety practices of Sequoyah Fuels Corporation. This review is to ensure compliance with the current company radiation health and safety standards and procedures, applicable federal and state regulations, and license conditions. The Corporate Director, Licensing, Safety, and Nuclear Compliance, shall document and submit the results of each review and any recommendations for new or revised standards and procedures to the President, SFC, and the Director, Regulatory Affairs, with copies to the Corporate Manager, Health Physics and the Corporate Vice President, General Counsel and Secretary. Information copies shall be furnished to other corporate executives as appropriate.

In the event of a radiation-related incident or emergency situation, the Manager, Health and Safety shall conduct or have conducted a thorough investigation, including preparation of an incident report which will be distributed to the appropriate individuals.

2.2 Organizational Responsibilities and Authority

The organization for Sequoyah Fuels Corporation and its corporate oversight is described below and depicted in Figure 2-1.

The President, Sequoyah Fuels Corporation shall have overall responsibility for the safe operation of the Sequoyah Facility. Additional responsibility has been assigned to the Director, Regulatory Affairs, and the Director, Decommissioning Projects for various functions as described in this license.

The President is responsible for financial and administrative oversight of all SFC functions.

Operating procedures, which specify operating steps within the requirements of the approved health and safety standards and process and equipment criteria, shall be prepared and maintained under his direction.

The Corporate Director, Licensing, Safety, and Nuclear Compliance who reports to the Corporate Vice President, General Counsel and Secretary, shall be responsible for directing quarterly audits at the Sequoyah Facility to evaluate and verify compliance with the applicable federal and state regulations, NRC license conditions, permits, corporate policies, adherence to facility procedures, and operational matters. The results of each review and any recommendations for new or revised standards and procedures shall be submitted to the Director, Regulatory Affairs, with copies to the President, SFC, the Corporate Manager, Health Physics and the Corporate Vice President, General Counsel and Secretary.

The Corporate Manager, Health Physics who reports to the Corporate Director, Licensing, Safety, and Nuclear Compliance, shall be responsible for the preparation of detailed corporate standards dealing with the control of radiation, spread of radioactive contamination and the monitoring of personnel and nuclear facilities. He is responsible for auditing procedures and plant operations in the health physics area. He reports his findings and recommendations for program improvements to the Corporate Director, Licensing, Safety, and Nuclear Compliance and the ALARA Committee.

The Director, Regulatory Affairs, who reports to the President, SFC for technical and safety-related activities, specifically oversees the health and safety programs, the environmental compliance programs, the laboratory, the quality assurance program, and the licensing program. He is responsible for the development and implementation of a Facility Quality Assurance Plan to assure that all operations and safety related activities are performed in accordance with facility procedures. He is also responsible for maintaining the company's NRC licenses, overseeing compliance with NRC regulations and license conditions, providing technical support for various regulatory activities, and preparing correspondence and reports submitted to NRC. He advises management on nuclear regulatory issues and provides regulatory compliance oversight in environmental compliance and other regulatory areas.

The Manager, Health and Safety, who reports to the Director, Regulatory Affairs, shall be responsible for developing and implementing programs, procedures and guidance in the functional area of health physics. He shall be responsible for the effluent monitoring program, training program, the respiratory protection program, the bioassay program, the health physics and safety programs, and the program for surveillance of all plant activities related to these areas. He shall be responsible for maintaining all radiation exposure and other health and safety records required by General Atomics, Sequoyah Fuels Corporation and by regulatory agencies. He shall assist the Corporate Manager, Health Physics in establishing radiation health and safety standards and procedures and in coordinating them with the managers and executives directly affected. This individual and the cognizant Department Manager, or their designated representatives, shall document that each employee's on-the-job training and qualification has been adequate and that the employee is competent and qualified to perform his or her responsibilities.

The Manager, Environmental, who reports to the Director, Regulatory Affairs, shall be responsible for developing and implementing programs and procedures to comply with all environmental monitoring requirements required by federal and state agencies, including environmental investigations to support D&D activities. This includes the maintenance of environmental records required by Sequoyah Fuels Corporation and by regulatory agencies.

The Director, Decommissioning Projects reports to the President, SFC for technical and safety-related activities. He shall be responsible for the operation of facility equipment and systems, implementation and oversight of decommissioning projects, including development of decommissioning plans, and related activities including waste management and fertilizer distribution programs. In addition, he shall be responsible for providing engineering support for the facility.

2.3 Safety Review

The independent overview functions carried out under the Corporate Director, Licensing, Safety, and Nuclear Compliance through his staff shall be as follows:

1. To establish the corporate criteria and standards for contamination control and radiation protection for manufacturing processes and equipment.
2. To establish the corporate standards for procedures to be followed by operations management in assuring that processes and equipment are operating in a way to prevent spread of contamination and radiation exposure.
3. To make periodic routine and non-routine inspections against the criteria, standards and procedures of the program.
4. To maintain technical liaison with regulatory agencies, of local, state, and federal government.
5. To offer expert professional advice and counsel to Corporate and Sequoyah Facility Management in health and safety matters.

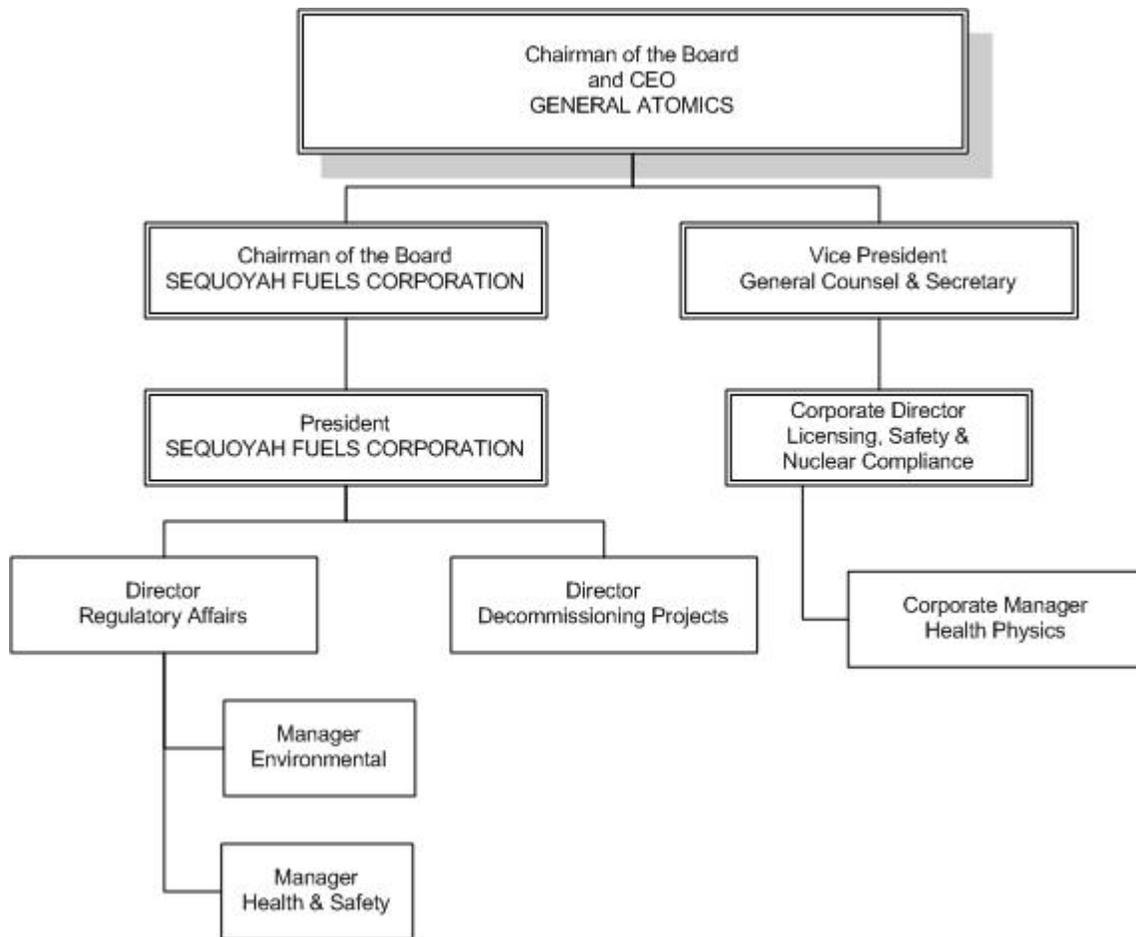


Figure 2-1

6. To procure, as required, special audit services, inspections or calculation capability for problems from qualified consultants or other divisions of General Atomics when it appears that an adequate solution definition exceeds the capability of the staff.

The Sequoyah Facility Plant Review Committee is composed of senior facility managers having key roles in ensuring that facility operations are conducted safely and in compliance with regulatory requirements. The Committee is responsible for reviewing and approving new and revised operating procedures; determining training requirements prior to implementing new or revised procedures; and reviewing revisions to the Decommissioning personnel qualification system.

2.4 Approval Authority for Personnel Selection

The President, SFC, shall approve personnel selection for safety related Sequoyah Facility staff positions described in Section 2.5 of this license.

2.5 Personnel Education and Experience Requirements

The education, training, and experience requirements for all safety-related management and staff positions shall be as follows:

The President, SFC shall hold a degree in science or engineering and shall have a minimum of 15 years experience, at least 5 years of which shall be at a chemical processing or nuclear facility.

The Corporate Vice President, General Counsel and Secretary of General Atomics shall have a minimum of five years of nuclear industry management experience of high level general management nature.

The Corporate Director, Licensing, Safety, and Nuclear Compliance of General Atomics shall hold a degree in science or engineering and shall have at least 5 years experience in matters related to radiation protection. The individual shall be thoroughly familiar with NRC license requirements, NRC, and EPA regulations and regulations of other agencies having oversight responsibilities for activities conducted at the Sequoyah Facility. He shall be capable of providing authoritative advice and counsel in matters related to NRC licensing, regulations and procedures.

The Corporate Manager, Health Physics of General Atomics shall hold a degree in the physical sciences, biological sciences, or other related fields with a minimum of two years experience in appropriate phases of nuclear health physics and the evaluation of potential radiological hazards. He will have demonstrated his proficiency in managing a radiological health and safety program.

The Director, Regulatory Affairs shall hold a degree in science or engineering with 5 years experience in a chemical processing or nuclear facility, including at least 2 years of experience in decontamination and decommissioning (D&D), and 3 years of management experience in programs having quality assurance responsibilities. The individual shall have demonstrated through progressively more responsible management positions the ability to manage technical and administrative programs similar to those found in a chemical processing plant or other type nuclear fuel cycle facility.

The Manager, Health and Safety shall hold a degree in science or engineering and have at least 5 years experience in areas such as radiation protection, radiation monitoring, health physics, emergency preparedness and personnel exposure evaluation. He shall have demonstrated a proficiency to conduct specified radiation safety programs, recognize potential radiation safety problem areas in operations and advise operation supervision on radiation protection matters. He shall be capable of directing the surveillance activities of the Health and Safety Technicians.

The Manager, Environmental shall hold a degree in science or engineering with 2 years of technical experience. The individual shall have demonstrated proficiency to formulate and conduct specified non-radiological environmental monitoring programs and to recognize potential environmental problem areas.

The Director, Decommissioning Projects shall hold a degree in science or engineering and have at least 5 years of experience in a chemical processing or nuclear facility, including at least two years decontamination and decommissioning experience and at least five years supervisory or management experience. The individual shall have demonstrated through progressively more responsible positions the ability to manage complex technical and administrative programs similar to those found in a chemical processing plant or nuclear facility.

2.6 Training

SFC is committed to a comprehensive training program to ensure that all employees receive the instruction necessary to be able to perform their jobs safely and efficiently. Components of the training program include:

2.6.1 General Employee Training

General Employee Training consists of classroom lectures and demonstrations for all new hires. Topics covered include radiation protection, emergency requirements, and procedures, as appropriate to the individual's position.

Each employee signs a statement committing to following corporate policy and procedures.

2.6.2 Decommissioning Training

Decommissioning Training consists of classroom lectures and on-the-job training modules for specific functions. Before being permitted to perform the requirements without direct supervision, personnel are qualified based upon successful completion of required classroom and on-the-job training. The qualification system is promulgated in an operating procedure which is reviewed and approved by the Plant Review Committee.

2.6.3 Retraining

Refresher training is conducted each calendar year for all employees whose normal duties expose them to licensed or hazardous materials, and includes such subjects as health physics, safety, hazard communications, and specified procedures.

2.6.4 Development and Approval of Training Materials

Development and approval of training materials is conducted by the department under whose cognizance the subject matter falls. New training materials and revisions to existing training materials are approved by the cognizant Department Manager.

2.7 Conduct of Operations

2.7.1 Operating Procedures

It shall be the responsibility of the President, SFC, to see that written operating procedures are established, maintained and adhered to for all operations and safety-related activities involving source or hazardous materials. All operating procedures shall be reviewed by the Manager, Health and Safety, and approved by the President, SFC, and appropriate training conducted and documented prior to the implementation of the procedure. Temporary changes shall not be made to operating procedures without review by the procedure's proponent or his designee and written approval of the President, SFC, or his designee. All operating procedures shall be reviewed and revised whenever necessary to reflect changes in facility operations, but in no event, less than once every 24 months.

The Sequoyah Operating Procedure System shall establish requirements for the development of new operating procedures, revisions to existing operating procedures, the review and approval process, the level of training required, if any, and the degree of documentation necessary to demonstrate that the appropriate facility operating personnel are knowledgeable of new or revised operating procedures.

2.7.2 Document Control

A document control system shall be established and maintained to assure that the procedures in use are the latest revision. A sanction statement regarding the serious nature of failure to follow the procedures shall be included in the Sequoyah Operating Procedures System and emphasized in the employee training program.

2.7.3 Activities Involving Uranium

All activities involving uranium shall be conducted in accordance with approved radiation health and safety standards. The radiation health and safety standards shall be prepared by the Corporate Manager, Health Physics, and shall be reviewed by the Director, Regulatory Affairs. The standards shall be reviewed for operability by the Manager, Health and Safety, and the President, SFC, and approved by the Corporate Director, Licensing, Safety, and Nuclear Compliance. Changes to the health and safety standards shall follow the same administrative review and approval system as original standards.

2.7.4 Design Control

Process and equipment design, which delineate the process and prescribe critical design parameters, shall be reviewed by the Director, Decommissioning Projects, and the Manager, Health and Safety, and shall be approved by the President, SFC. Major changes to process operations and to equipment design shall be reviewed for operability and approved by the President, SFC.

Modifications or changes to process operations or equipment that normally occur during operations shall be authorized via an Engineering Change Notice (ECN). The ECN shall be reviewed by the Manager, Health and Safety, and the Director, Decommissioning Projects; and approved by the President, SFC. All experimental and developmental work to be performed at the Sequoyah Facility shall be approved by the President, SFC, prior to its initiation.

2.7.5 Maintenance Work

All maintenance work shall be performed in accordance with the Maintenance Work Order Procedure. Project supervisors shall determine if any planned maintenance work involves a potential release of radioactive material or potential exposure to radioactive material. If a determination is made that the work could involve uncontained uranium, the project supervisor shall prepare a Hazardous Work Permit in accordance with established procedure.

The lead worker shall inspect the repaired work and shall sign the work order indicating that the work has been completed and is acceptable. For work that could involve uncontained uranium, the project supervisor shall inspect the repair work prior to removal of protective devices and closing out the Hazardous Work Permit by signature.

At the completion of major modification work, the Plant Review Committee shall review the completed work in accordance with the established ECN Procedure. The Plant Review Committee shall document that the work has been completed in an acceptable manner. For work orders involving modifications authorized by an ECN, a copy of the completed work order will be forwarded to the Director, Decommissioning Projects for updating plant drawings.

A maintenance surveillance program shall be established for critical instrumentation, alarms and interlocks. The critical instruments, alarms and interlocks covered in the maintenance surveillance program shall be periodically checked and calibrated commensurate with the safety function but at least once every 12 months plus or minus 2 months.

2.8 Audits and Inspections

The Manager, Health and Safety, or his designee, shall conduct an inspection of all plant activities involving radioactive materials on a monthly basis in accordance with a written procedure. A written report documenting the inspection findings shall be made to the President, SFC, with a copy to the Director, Regulatory Affairs.

The Corporate Director, Licensing, Safety, and Nuclear Compliance, shall ensure that quarterly audits are conducted at the Sequoyah Facility to evaluate and verify compliance with applicable federal and state regulations, NRC license conditions, permits, corporate policies and facility procedures in accordance with a written plan. The audits shall apply to major areas such as operations and safety-related activities involving radioactive materials, radiation protection, health physics, industrial safety, environmental control and emergency response programs. The audits shall be conducted by qualified personnel trained in basic radiation protection and knowledgeable about federal and state regulations, corporate policies and facility procedures. At the conclusion of the audit, the auditor shall conduct an exit interview with the Director, Regulatory Affairs, or his designee, and apprise him of any significant findings and the need for any immediate corrective actions.

A formal report of findings, observations, and recommendations shall be prepared and submitted by the Corporate Director, Licensing, Safety, and Nuclear Compliance to the Director, Regulatory Affairs. Copies of the report shall be furnished to the Corporate Manager, Health Physics and the President, SFC. In responding to the report, the manager of the area affected shall give the status of corrective action that has been taken and provide a schedule for additional action which will be taken. The auditor shall conduct a follow-up review to ensure corrective action is being taken in a timely manner.

The Director, Regulatory Affairs shall ensure that additional audits of operations and safety-related activities, if needed, are conducted in accordance with the QA Plan and Procedures. The audits shall be conducted to verify compliance with corporate policies, procedures, license conditions and federal regulations. A report of any additional areas audited shall be made quarterly to the President, SFC. Audit findings shall be documented with copies of the report forwarded to the President, Sequoyah Fuels Corporation. The President, SFC shall be responsible for assuring that audit findings are addressed in a timely manner. Follow-up action, including re-audit of deficient areas, shall be taken where indicated.

2.9 Investigation and Reporting of Non-Normal Occurrences

The Sequoyah Facility shall establish an "Incident Report" system. An incident report shall be made for each release of material resulting in gross airborne alpha activity in excess of 3 DAC based on natural uranium. This incident report shall be initiated by the Manager, Health and Safety and is directed to the supervisor whose personnel were potentially exposed and then forwarded to the President, SFC. The supervisor shall sign the report including any pertinent observations as to the correction of the condition to avoid further incidents. The report shall then be distributed to the Director, Regulatory Affairs, the Director, Decommissioning Projects, the Corporate Manager, Health Physics, and the Corporate Director, Licensing, Safety, and Nuclear Compliance. These reports form a basis for the quarterly ALARA review and include a dose assessment based upon the occupancy conditions and protective equipment used at the time of the incident.

Releases of radioactive material to the environment exceeding established release reporting criteria given in 10 CFR Part 20 shall be reported promptly to the Manager, Health and Safety, and the Corporate Director, Licensing, Safety, and Nuclear Compliance and reported to the NRC as required by Sequoyah Operating Procedures and Federal regulations. Subsequently, the matter shall be investigated by a designated manager and the Manager, Health and Safety at the Sequoyah Facility and a written report submitted as required.

Chemical releases to the environment exceeding State or EPA limits shall be reported as appropriate in accordance with the above reference procedures and regulations.

2.10 Records

All plant and personnel health physics data and reports shall be recorded and filed in accordance with applicable regulations. Timely trend analyses and reports shall be made at monthly intervals to plant management. The records of surveys and personnel exposure records are retained and reports are made in accordance with applicable regulations.

All required plant training activities shall be documented in the facility training files. Facility audit results by both the Corporate Director, Licensing, Safety, and Nuclear Compliance, or his designee, and the Director, Regulatory Affairs, or his designee, shall be maintained in accordance with the Quality Assurance Plan and Implementing Procedures and Corporate Policies.

All documentation, records and tests required as a part of this License shall be maintained for a minimum of 5 years, or longer if applicable regulations so require.

CHAPTER 3. RADIATION PROTECTION

This topic is addressed in whole by the Reclamation Plan, Sequoyah Facility, Attachment D *Radiation Safety Program during Decommissioning and Reclamation* as incorporated by License Amendment 33.

CHAPTER 4. NUCLEAR CRITICALITY SAFETY

This topic is not applicable to the decommissioning or reclamation at SFC.

CHAPTER 5. ENVIRONMENTAL PROTECTION

5.1 Effluent Control Systems

5.1.1 Liquid Effluent

Discharge of liquid process effluents to the unrestricted area is through the combination stream. The combined effluent stream, consisting of the fluoride treatment effluent, the sanitary waste water treatment system discharge, process area storm water, and the excess plant intake water, shall be sampled continuously at the point where it leaves the immediate plant area south of the port access road. (See Figure 3-1, Sequoyah Facility General Arrangement). For purposes of control, 24-hour composite samples shall be analyzed for uranium at least 3 days per week. Other analyses shall be performed according to the requirements of SFC's NPDES Permit No. OK0000191. Monthly composite samples shall be analyzed for uranium, nitrate and fluoride. The samples shall also be analyzed quarterly for thorium-230 and radium-226. The detection levels and action levels for these parameters are provided in Table 5-1. When these levels are exceeded, inspection of the upstream systems shall be made to determine the cause of the problem. In addition, grab samples from these streams shall be taken individually and analyses shall be performed to pinpoint possible sources of contamination in the event of a high combination sample. A calibrated flume shall be used to determine the volume of the combination stream discharge. The combination stream shall be discharged to the head waters of the Robert S. Kerr Reservoir.

5.1.2 Airborne Effluents

There are no airborne effluents (i.e. point source discharges to air) at the Sequoyah Facility.

5.1.3 Contaminated Equipment and Materials Disposal

Contaminated equipment and materials, such as burnable waste, empty sample bottles, insulating materials, process sludges, metal and plastic piping, are currently being accumulated and stored above ground and are being reprocessed, decontaminated, compacted or permanently disposed in commercially operated low-level radioactive waste sites.

5.1.4 Compliance Responsibility

The positions having responsibility for effluent control and monitoring to ensure compliance with all applicable standards, rules, and license conditions shall be as follows:

1. Manager, Health and Safety, shall be responsible for monitoring and sampling requirements for airborne effluents.
2. Director, Decommissioning Projects, shall be responsible for proper procedural control of effluent streams.
3. Manager, Environmental, shall be responsible for monitoring and sampling requirements for liquid effluents.

5.2 Environmental Monitoring

Sequoyah Facility shall use the quality assurance guidance outlined in Regulatory Guide 4.21, "Monitoring and Reporting Radioactivity In Releases of Radioactive Materials In Liquid and Gaseous Effluents from Nuclear Fuel Processing and Fabrication Plants and Uranium Hexafluoride Production Plants," and those sections of Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment," which apply to a uranium conversion facility.

All analysis shall be subject to the detection limits and action levels specified in Table 5-1. If the action level is exceeded, Sequoyah Facility shall investigate and take proper mitigating measures if necessary.

5.2.1 Liquid Environmental Samples (Surface and Well Water)

Surface water and groundwater monitoring will be in accordance with the Sequoyah Facility *Groundwater Monitoring Plan* and Table 5-2.

5.2.2 Air Sampling

Continuous air samples shall be collected at the Restricted Area fenceline, from each of the cardinal points of the compass. The filter media shall be removed weekly and, after a one week delay to allow short-lived alpha emitters to decay, counted for gross alpha. If the radioactivity of these air samples exceed 1.0 EC (Effluent Concentration) natural uranium as gross alpha activity in a 7 day period, an investigation shall be undertaken to determine the cause and corrective action shall be taken to reduce the release. A report of the investigation shall be prepared and forwarded to the President, SFC with an information copy to the Chairperson, ALARA Committee.

The air samples are composited quarterly and analyzed for uranium, Th230 and Ra226. The results shall be reported in a monthly health physics report. Samples are composited quarterly and analyzed for uranium, Th230 and Ra226. (See Table 5-2 for sampling guide).

5.2.3 Non-Radiological Monitoring

The Combination Stream (Outfall 001) and the Stormwater Discharge (Outfall 008) shall be sampled and analyzed for fluoride and nitrate as specified in SFC's NPDES Permit No. OK0000191. Groundwater monitoring shall be in accordance with the Sequoyah Facility *Groundwater Monitoring Plan*.

5.2.4 Lined Impoundment Leak Detection Systems

The following lined impoundments were constructed with leak detection systems or "underdrains" between the synthetic and clay liners: Clarifier A, Ponds 3E, 3W, 4, 5, and 6. If the ponds contain treated raffinate, sludges or process liquids, the underdrains will be pumped on a monthly basis. Liquid found in the underdrains will be sampled and analyzed in accordance with Table 5-2.

TABLE 5-1
DETECTION LIMITS AND ACTION LEVELS
FOR
ENVIRONMENTAL SAMPLE ANALYSES AT SEQUOYAH FACILITY

Sample Type	Analysis	Detection Limit	Action Level
Air	Gross Alpha	2.5×10^{-15} uCi/ml	4.5×10^{-14} uCi/
	Uranium	1.0×10^{-21} uCi/ml	4.5×10^{-14} uCi/ml
Water	Uranium	20 ug/l	225 ug/l
	Fluoride	0.4 mg/l	1.6 mg/l
	Nitrate	2 mg/l	20 mg/l
	Radium 226	1.5 pCi/l	3 pCi/l
	Thorium 230	100 pCi/l	200 pCi/l
Soil	Uranium	4 ug/g	40 ug/g
Vegetation	Uranium	0.25 ug/g	2.5 ug/g (dry weight)

**TABLE 5-2
SEQUOYAH FACILITY**

ENVIRONMENTAL MONITORING SCHEDULE

Sample No.	Sample Location	Sampling and Analyses Frequency (see notes)
<u>AIR (Continuous Samples)</u>		
E-1	East Fence	GA(W)/U,TH,RA(CW-Q)
E-2	West Fence	GA(W)/U,TH,RA(CW-Q)
E-3	South Fence	A(W)/U,TH,RA(CW-Q)
E-4	North Fence	GA(W)/U,TH,RA(CW-Q)
<u>SURFACE WATER (Grab Samples)</u>		
2207	Facility Effluent	U,(CC-M)/RA,TH(Q)/[1]/[2]
<u>LINED IMPOUNDMENT UNDERDRAINS</u>		
	Each drain with liquid present if impoundment contains treated raffinate, sludges or process liquids	U,N(M)
<u>SEDIMENT (Grab Samples)</u>		
1.	Confluence of the effluent stream and the Illinois River	TH,RA,U(A)
2.	Upstream of the Illinois River and effluent confluence	TH,RA,U(A)
3.	Downstream of the Illinois River and effluent confluence	TH,RA,U(A)

- [1] The facility effluent is a continuous sample composited monthly.
- [2] Special 1-gallon quality assurance sample for February, May, August and November.

Sample Analysis	Frequency
GA - Gross Alpha	D - Daily
F - Fluoride	W - Weekly
U - Uranium	B - Biweekly
	M - Monthly
TH - Thorium -230	Q - Quarterly
RA --Radium-226	S - Semi-annual
N - Nitrate (nitrogen)	A - Annual
MO - Molybdenum	CW-Q - Composite of weekly samples for quarterly analysis
	CC-M - Composite from continuous sampler for monthly analysis

CHAPTER 6. SPECIAL PROCESS COMMITMENTS

This topic is not applicable to the decommissioning or reclamation at SFC.

CHAPTER 7. DECOMMISSIONING PLAN

This topic is addressed in whole by the Reclamation Plan, Sequoyah Facility, as incorporated by License Amendment 33.