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

April 27, 1990

Docket Nos. 50-327
and 50-328

Mr. Oliver D. Kingsley, Jr.
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. Kingsley:

SUBJECT: EXIGENT CHANGES FOR CLEANING DIESEL GENERATOR FUEL-OIL STORAGE TANKS (TAC 76429/76430) (TS 90-08) - SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

The Commission has issued the enclosed Amendment No. 137 to Facility Operating License No. DPR-77 and Amendment No. 123 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your application dated April 5, 1990.

The amendments modify Section 3/4.8, Electric Power Systems, of the Sequoyah Nuclear Plant, Units 1 and 2, Technical Specifications (TSs). The changes allow the cleaning of the emergency diesel generator (DG) fuel-oil storage tanks. The changes add a footnote to the 72-hour operability requirements in Action Statements "a" of Limiting Condition for Operation 3.8.1.1. The footnote states that the 72-hour requirement to return the alternating circuit power sources to operable status before an operating unit must begin shutting down may be extended to 144 hours for performing Surveillance Requirement (SR) 4.8.1.1.2.f.1. This SR is the TS requirement for cleaning the DG fuel-oil storage tanks.

These amendments are being issued without the 30-day public comment period specified in 10 CFR 50.91(a). As requested by you, we concluded that exigent circumstances existed because of the importance of the DGs to plant safety and the potential deterioration of the fuel oil from the tanks. A Notice of Consideration of issuance of amendments to the TSs was published in the Federal Register on April 12, 1990 (55 FR 13868). This and the final determination that the amendments involve no significant hazards considerations are discussed in the enclosed Safety Evaluation on the amendments.

Because your requested change to Action Statement "a" included a contingency allowance of 44 hours, you are requested to review the results of cleaning the DG storage tanks to determine the minimum acceptable time needed for the work required. This should include the possibility of doing the work differently than originally planned to reduce the time needed to clean the tanks. This review should begin after the first set of tanks are cleaned. We request that you provide us with (1) the results of the review within 180 days after the last set of tanks are cleaned and (2) an application for a reduced period of time to clean each set of tanks if this is warranted.

DF01
1/1

AMENDMENT NO. 137 FOR SEQUOYAH UNIT NO. 1 - DOCKET NO. 50-327 and
AMENDMENT NO. 123 FOR SEQUOYAH UNIT NO. 2 - DOCKET NO. 50-328
DATED: April 27, 1990

DISTRIBUTION:
Docket File
NRC PDR
Local PDR
SQN Reading
ADSP Reading
DCrutchfield
BDLiaw
SBlack
Licensing Assistant
JDonohew (2)
RPierson
BWilson, Region II
LWatson, Region II

BGrimes	(9-A-2)
EJordan	(MNBB-3701)
DHagan	(MNBB-3206)
TMeek (8)	(P1-37)
WJones	(P-522)
JCalvo	(11-F-23)
ACRS (10)	(P-315)
GPA/PA	(2-G-5)
GPA/CA	(17-A-3)
ARM/LFMB	(MNBB-4503)
OGC	(15-B-18)

E. Marinos

A Notice of Issuance of these amendments will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 137 to License No. DPR-77
2. Amendment No. 123 to License No. DPR-79
Safety Evaluation

cc w/enclosures:
See next page

OFC	:NRR:TVA/PM	:NRR:TVA:ROB/BC	:TVA:AD/TP	:OGC	:TVA:ADAP	:	:	:	:
NAME	:JMonohew:as	:EMarinos	:RPierson	:	:SBlack	:	:	:	:
DATE	:4/25/90	:4/25/90	:4/26/90	:4/26/90	:4/27/90	:	:	:	:

OFFICIAL RECORD COPY
Document Name: TS 90-08

cc:
Mr. Marvin Runyon, Chairman
Tennessee Valley Authority
ET 12A 7A
400 West Summit Hill Drive
Knoxville, Tennessee 37902

Mr. C. H. Dean, Jr., Director
Tennessee Valley Authority
ET 12A 11A
400 West Summit Hill Drive
Knoxville, Tennessee 37902

Mr. John B. Waters, Director
Tennessee Valley Authority
ET 12A 9A
400 West Summit Hill Drive
Knoxville, Tennessee 37902

Mr. W. F. Willis
Chief Operating Officer
ET 12B 16B
400 West Summit Hill Drive
Knoxville, Tennessee 37902

General Counsel
Tennessee Valley Authority
400 West Summit Hill Drive
ET 11B 33H
Knoxville, Tennessee 37902

Mr. Dwight Nunn
Vice President, Nuclear Engineering
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dr. Mark O. Medford
Vice President and Nuclear
Technical Director
Tennessee Valley Authority
6N 38A Lookout Place
Chattanooga, Tennessee 37402-2801

Mr. Edward G. Wallace
Manager, Nuclear Licensing
and Regulatory Affairs
Tennessee Valley Authority
5N 157B Lookout Place
Chattanooga, Tennessee 37402-2801

Mr. Joseph Bynum, Acting Site Director
Sequoyah Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Soddy Daisy, Tennessee 37379

Mr. Mark J. Burzynski
Site Licensing Manager
Sequoyah Nuclear Plant
P. O. Box 2000
Soddy Daisy, Tennessee 37379

County Judge
Hamilton County Courthouse
Chattanooga, Tennessee 37402

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street, N.W.
Atlanta, Georgia 30323

Mr. Kenneth M. Jenison
Senior Resident Inspector
Sequoyah Nuclear Plant
U.S. Nuclear Regulatory Commission
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379

Mr. Michael H. Mobley, Director
Division of Radiological Health
T.E.R.R.A. Building, 6th Floor
150 9th Avenue North
Nashville, Tennessee 37219-5404

Dr. Henry Myers, Science Advisor
Committee on Interior
and Insular Affairs
U.S. House of Representatives
Washington, D.C. 20515

Tennessee Valley Authority
Rockville Office
11921 Rockville Pike
Suite 402
Rockville, Maryland 20852

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 137
License No. DPR-77

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated April 5, 1990, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-77 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No.137 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jack R. Strosnider for

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 27, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 137

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE	INSERT
3/4 8-1	3/4 8-1
3/4 8-2	3/4 8-2
3/4 8-3	3/4 8-3
3/4 8-4	3/4 8-4
3/4 8-5	3/4 8-5
3/4 8-6	3/4 8-6
B 3/4 8-1	B 3/4 8-1
B 3/4 8-2	B 3/4 8-2
---	B 3/4 8-3

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and

b. Four separate and independent diesel generator sets each with:

1. Two diesels driving a common generator

2. Two engine-mounted fuel tanks containing a minimum volume of 250 gallons of fuel, per tank

3. A separate fuel storage system containing a minimum volume of 62,000 gallons of fuel,

4. A separate fuel transfer pump, and

5. A separate 125-volt D.C. distribution panel, 125-volt D.C. battery bank and associated charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With either an offsite circuit or diesel generator set(s) 1A-A and/or 2A-A or 1B-B and/or 2B-B of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours; restore at least two offsite circuits and four diesel generator sets to OPERABLE status within 72 hours* or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

*The 72-hour action statement may be extended for an additional 72 hours for one train of diesel generators (either 1A-A and 2A-A, or 1B-B and 2B-B) during the performance of Surveillance Requirement 4.8.1.1.2.f.1. A temporary fuel supply must be connected to the diesel generator set that is having the associated fuel tanks cleaned.

ACTION (Continued)

b. With one offsite circuit and one diesel generator set of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours; restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two offsite circuits and four diesel generator sets to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of 4 diesel generator sets by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, unless the diesel generator sets are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With either diesel generator sets 1A-A and/or 2A-A inoperable simultaneous with 1B-B and/or 2B-B, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least 1) 1A-A and 2A-A or 2) 1B-B and 2B-B to OPEPABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least four diesel generator sets to OPERABLE status within 72 hours from time of initial loss or be in least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REOUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and

b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit.

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 Each diesel generator set shall be demonstrated OPERABLE:

a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the engine-mounted day tanks.

2. Verifying the fuel level in the 7 day tank.

3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the engine mounted fuel tanks.

4. *Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The diesel generator shall be started for this test by using one of the following signals with startup on each signal verified at least once per 124 days:

a) Manual.

b) Simulated loss of offsite power by itself.

c) An ESF actuation test signal by itself.

5. *Verifying the generator is synchronized, loaded to greater than or equal to 4400 kw in less than or equal to 60 seconds, and operates for greater than or equal to 60 minutes, and

6. Verifying the diesel generator is aligned to provide standby power to the associated shutdown boards.

b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the engine-mounted fuel tanks.

c. At least once per 92 days and from new fuel oil prior to addition to the 7-day tanks by verifying that a sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to .05 volume percent and a kinematic viscosity @ 100°F of greater than or equal to 1.8 but less than or equal to 5.8 centistokes when tested in accordance with ASTM-D975-77, and an impurity level of less than 2 mg. of insolubles per 100 ml. when tested in accordance with ASTM-D2274-70.

*The diesel generator start (10 sec) and load (60 sec) from standby conditions shall be performed at least once per 184 days in these surveillance tests. All other diesel generator engine starts and loading for the purpose of this surveillance testing may be preceded by an engine idle start, followed by gradual acceleration to synchronous speed (900 rpm), synchronization, and gradual loading.

SURVEILLANCE REQUIREMENTS (Continued)

d. At least once per 18 months during shutdown by:

1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service,

2. Verifying the generator capability to reject a load of greater than or equal to 600 kw while maintaining voltage within ± 10 percent of the initial pretest voltage and frequency at 60 ± 1.2 Hz. At no time shall the transient voltage exceed 8276V.

3. Verifying the generator capability to reject a load of 4400 kw without tripping. The generator voltage shall not exceed 114 percent of the initial pretest voltage or 8276V, whichever is less during and following the load rejection.

4. Simulating a loss of offsite power by itself, and:

a) Verifying de-energization of the shutdown boards and load shedding from the shutdown boards.

b) Verifying the diesel starts on the auto-start signal, energizes the shutdown boards with permanently connected loads within 10 seconds, energizes the auto-connected shutdown loads through the load sequencers and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequency of the shutdown boards shall be maintained at 6900 ± 690 volts and 60 ± 1.2 Hz during this test.

5. Verifying that on a ESF actuation test signal (without loss of offsite power) the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test.

6. Simulating a loss of offsite power in conjunction with an ESF actuation test signal, and

a) Verifying de-energization of the shutdown boards and load shedding from the shutdown boards.

b) Verifying the diesel starts on the auto-start signal, energizes the shutdown boards with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through the load sequencers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 6900 ± 690 volts and 60 ± 1.2 Hz during this test.

SURVEILLANCE REQUIREMENTS (Continued)

c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the shutdown board and/or safety injection actuation signal.

7. Verifying the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to greater than or equal to 4840 kw and during the remaining 22 hours of this test, the diesel generator shall be loaded to greater than or equal to 4400 kw.

   The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds after the start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test. Within 5 minutes after completing this 24 hour test, perform Specification 4.8.1.1.2.d.4.b.

8. Verifying that the auto-connected loads to each diesel generator do not exceed the continuous rating of 4400 kW.

9. Verifying the diesel generator's capability to:

   a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power.

   b) Transfer its loads to the offsite power source, and

   c) Be restored to its shutdown status.

10. Verifying that the automatic load sequence timers are OPERABLE with the setpoint for each sequence timer within ± 5 percent of its design setpoint.

11. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

    a) Engine overspeed

    b) 86 GA lockout relay

e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously, during shutdown, and verifying that the diesel generators accelerate to at least 900 rpm in less than or equal to 10 seconds.

SURVEILLANCE REQUIREMENTS (Continued)

f. At least once per 10 years* by:

1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypoclorite solution, and

2. Performing a pressure test of those portions of the diesel fuel oil system design to Section III, subsection ND of the ASME Code at a test pressure equal to 110 percent of the system design pressure.

4.8.1.1.3 The 125-volt D.C. distribution panel, 125-volt D.C. battery bank and associated charger for each diesel generator shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying:

1. That the parameters in Table 4.8-1a meet the Category A limits.

2. That the total battery terminal voltage is greater than or equal to 124-volts on float charge.

b. At least once per 92 days by:

1. Verifying that the parameters in Table 4.8-1a meet the Category B limits,

2. Verifying there is no visible corrosion at either terminals or connectors, or the cell to terminal connection resistance of these items is less than 150×10^{-6} ohms, and

3. Verifying that the average electrolyte temperature of 6 connected cells is above 60 F.

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration.

2. The battery to battery and terminal connections are clean, tight and coated with anti-corrosion material.

3. The resistance of each cell to terminal connection is less than or equal to 150×10^{-6} ohms.

4.8.1.1.4 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission pursuant to Specification 6.9.2.2.

*These requirements are waived for the initial surveillance.

3/4.8.1 and 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

Additional ACTION requirements are specified for performance of the chemical cleaning required by Surveillance Requirement 4.8.1.1.2.f.1. The motor-driven fuel pumps for the diesel generator set with the tanks being cleaned will be temporarily connected to the underground storage tanks for the other diesel generator set with the same train designation. An additional fuel-oil inventory of approximately 68,000 gallons will be available in one of the yard storage tanks prior to the start of the chemical cleaning of any underground storage tank. Within practical limits, the chemical cleaning of an underground storage tank will be performed during a refueling or other scheduled outage for the associated unit.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137 "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage onfloat charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and .015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacture's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either de-energizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturers brand of circuit breakers and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or fuses, it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker of fuses for surveillance purposes.

ELECTRICAL EQUIPMENT PROTECTIVE DEVICES (Continued)

The OPERABILITY of the motor operated valves thermal overload protection ensures that the thermal overload protection devices will not prevent safety related valves from performing their function. The Surveillance Requirements for demonstrating the OPERABILITY of these devices are in accordance with Regulatory Guide 1.106 "Thermal Overload Protection for Electric Motors on Motor Operated Valves", Revision 1, March 1977.

Circuit breakers actuated by fault currents are used as isolation devices in this plant. The OPERABILITY of these circuit breakers ensures that the 1E busses will be protected in the event of faults in nonqualified loads powered by the busses.

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 123
License No. DPR-79

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated April 5, 1990, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-79 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 123, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jack N. Donohew for
Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 27, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 123

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages* are provided to maintain document completeness.

REMOVE	INSERT
3/4 8-1	3/4 8-1
3/4 8-2	3/4 8-2
3/4 8-3	3/4 8-3
3/4 8-4	3/4 8-4
3/4 8-5	3/4 8-5
3/4 8-6	3/4 8-6*
B 3/4 8-1	B 3/4 8-1
B 3/4 8-2	B 3/4 8-2

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and

b. Four separate and independent diesel generator sets each with:

1. Two diesels driving a common generator
2. Two engine-mounted fuel tanks containing a minimum volume of 250 gallons of fuel, per tank
3. A separate fuel storage system containing a minimum volume of 62,000 gallons of fuel,
4. A separate fuel transfer pump, and
5. A separate 125-volt D.C. distribution panel, 125-volt D.C. battery bank and associated charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With either an offsite circuit or diesel generator set(s) 1A-A and/or 2A-A or 1B-B and/or 2B-B of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours; restore at least two offsite circuits and four diesel generator sets to OPERABLE status within 72 hours* or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

*The 72-hour action statement may be extended for an additional 72 hours for one train of diesel generators (either 1A-A and 2A-A, or 1B-B and 2B-B) during the performance of Surveillance Requirement 4.8.1.1.2.f.1. A temporary fuel supply must be connected to the diesel generator set that is having the associated fuel tanks cleaned.

ACTION (Continued)

b. With one offsite circuit and one diesel generator set of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours; restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two offsite circuits and four diesel generator sets to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of 4 diesel generator sets by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, unless the diesel generator sets are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With either diesel generator sets 1A-A and/or 2 A-A inoperable simultaneous with 1B-B and/or 2B-B, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least 1) 1A-A and 2A-A or 2) 1B-B and 2B-B to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least four diesel generator sets to OPERABLE status within 72 hours from time of initial loss or be in least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and

b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator set shall be demonstrated OPERABLE:

a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the engine-mounted day tanks.
2. Verifying the fuel level in the 7 day tank.
3. Verifying the fuel transfer pump starts and transfers fuel from the storage system to the engine mounted fuel tanks.
4. *Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The diesel generator shall be started for this test by using one of the following signals with startup on each signal verified at least once per 124 days:
   a) Manual.
   b) Simulated loss of offsite power by itself.
   c) An ESF actuation test signal by itself.
5. *Verifying the generator is synchronized, loaded to greater than or equal to 4400 kw in less than or equal to 60 seconds, and operates for greater than or equal to 60 minutes, and
6. Verifying the diesel generator is aligned to provide standby power to the associated shutdown boards.

b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the engine-mounted fuel tanks.

c. At least once per 92 days and from new fuel oil prior to addition to the 7-day tanks by verifying that a sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to .05 volume percent and a kinematic viscosity @ 100°F of greater than or equal to 1.8 but less than or equal to 5.8 centistokes when tested in accordance with ASTM-D975-77, and an impurity level of less than 2 mg. of insolubles per 100 ml. when tested in accordance with ASTM-D2274-70.

*The diesel generator start (10 sec) and load (60 sec) from standby conditions shall be performed at least once per 184 days in these surveillance tests. All other diesel generator engine starts and loading for the purpose of this surveillance testing may be preceded by an engine idle start, followed by gradual acceleration to synchronous speed (900 rpm), synchronization, and gradual loading.

SURVEILLANCE REQUIREMENTS (Continued)

d. At least once per 18 months during shutdown by:

1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service,

2. Verifying the generator capability to reject a load of greater than or equal to 600 kw while maintaining voltage at within ± 10 percent of the initial pretest voltage and frequency at 60 + 1.2 Hz. At no time shall the transient voltage exceed 8276V.

3. Verifying the generator capability to reject a load of 4400 kw without tripping. The generator voltage shall not exceed 114 percent of the initial pretest voltage or 8276V, whichever is less during and following the load rejection.

4. Simulating a loss of offsite power by itself, and:

a) Verifying de-energization of the shutdown boards and load shedding from the shutdown boards.

b) Verifying the diesel starts on the auto-start signal, energizes the shutdown boards with permanently connected loads within 10 seconds, energizes the auto-connected shutdown loads through the load sequencers and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequency of the shutdown boards shall be maintained at 6900 ± 690 volts and 60 ± 1.2 Hz during this test.

5. Verifying that on a ESF actuation test signal, without loss of offsite power, the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test.

6. Simulating a loss of offsite power in conjunction with an ESF actuation test signal, and

a) Verifying de-energization of the shutdown boards and load shedding from the shutdown boards.

b) Verifying the diesel starts on the auto-start signal, energizes the shutdown boards with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through the load sequencers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 6900 ± 690 volts and 60 ± 1.2 Hz during this test.

c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the shutdown board and/or safety injection actuation signal.

7. Verifying the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to greater than or equal to 4840 kw and during the remaining 22 hours of this test, the diesel generator shall be loaded to greater than or equal to 4400 kw. The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds after the start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test. Within 5 minutes after completing this 24 hour test, perform Specification 4.8.1.1.2.d.4.b

8. Verifying that the auto-connected loads to each diesel generator do not exceed the continuous rating of 4400 kw.

9. Verifying the diesel generator's capability to:

   a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power.

   b) Transfer its loads to the offsite power source, and

   c) Be restored to its shutdown status.

10. Verifying that the automatic load sequence timers are OPERABLE with the setpoint for each sequence timer within ± 5 percent of its design setpoint.

11. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

    a) Engine overspeed

    b) 86 GA lockout relay

e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously, during shutdown, and verifying that the diesel generators accelerate to at least 900 rpm in less than or equal to 10 seconds.

f. At least once per 10 years* by:

1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypoclorite solution, and

2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code at a test pressure equal to 110 percent of the system design pressure.

4.8.1.1.3 The 125-volt D.C. distribution panel, 125-volt D.C. battery bank and associated charger for each diesel generator shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying:

1. That the parameters in Table 4.8-1a meet the Category A limits.

2. That the total battery terminal voltage is greater than or equal to 124 volts on float charge.

b. At least once per 92 days by:

1. Verifying that the parameters in Table 4.8-1a meet the Category B limits,

2. Verifying there is no visible corrosion at either terminals or connectors, or the cell to terminal connection resistance of these items is less than 150×10^{-6} ohms, and

3. Verifying that the average electrolyte temperature of 6 connected cells is above 60 F.

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration.

2. The battery to battery and terminal connections are clean, tight and coated with anti-corrosion material.

3. The resistance of each cell to terminal connection is less than or equal to 150×10^{-6} ohms.

*These requirements are waived for the initial surveillance.

BASES

3/4.8.1 AND 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

Additional ACTION requirements are specified for performance of the chemical cleaning required by Surveillance Requirement 4.8.1.1.2.f.1. The motor-driven fuel pumps for the diesel generator set with the tanks being cleaned will be temporarily connected to the underground storage tanks for the other diesel generator set with the same train designation. An additional fuel-oil inventory of approximately 68,000 gallons will be available in one of the yard storage tanks prior to the start of the chemical cleaning of any underground storage tank. Within practical limits, the chemical cleaning of an underground storage tank will be performed during a refueling or other scheduled outage for the associated unit.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies", March 10, 1971, 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137 "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are are based on the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage onfloat charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and .015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more tha .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturers brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or fuses, it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuses for surveillance purposes.

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

ENCLOSURE 3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 137 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 123 TO FACILITY OPERATING LICENSE NO. DPR-79

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

1.0 INTRODUCTION

By letter dated April 5, 1990, the Tennessee Valley Authority (TVA) proposed to revise Action Statement "a" of Limiting Condition for Operation (LCO) 3.8.1.1, minimum alternating current electrical power sources for the site, of the Sequoyah Nuclear Plant, Units 1 and 2, Technical Specifications (TSs). These changes would add a footnote to the action statement for when one train of emergency diesel generators (DGs) is inoperable to extend the allowable outage time for one train of DGs when the chemical cleaning of the DG fuel-oil storage tanks for a DG set is being performed. The allowable outage time would be extended from 72 hours to 144 hours. This is TVA TS Change Request 90-08.

The proposed revision to the action statement is to allow sufficient time for the cleaning of these tanks which is required by Surveillance Requirement (SR) 4.8.1.1.2.f.1. The proposed revision would apply only to this SR and would extend the allowed outage time for a train of DGs to 144 hours to clean the four tanks for one of the two DGs sets that constitute a train of DGs.

2.0 DISCUSSION

A train of DGs at Sequoyah is two DG sets each set having four underground storage tanks. A DG set is two diesel engines and one generator. The four DG sets that comprise the two DG trains for the two Sequoyah units have a total of 16 storage tanks. The 16 tanks are embedded inside the diesel generator building substructure below the DG sets. The building houses the four DG sets.

Four of the 16 embedded DG tanks for one DG set will be cleaned at a time. This will require the DG set for those four tanks to be considered inoperable because the DG set would not be able to receive fuel oil from its own tanks. The affected DG set would be able to receive fuel oil from the tanks for the other DG set of the same train, from the tanks for the DG sets of the other train, from either of the two yard diesel fuel-oil storage tanks, or from tanker trucks brought onsite; but, by the TSs, this would not allow the affected DG set to be considered operable. However, only one train of DGs would be affected at a time by the cleaning of the DG tanks.

TVA evaluated the tasks required to clean the DG tanks for one DG set and provided the following information on the time expected to perform the work and return the DG set and train to operable status. TVA stated that the tasks to clean a set of four DG tanks include the following:

- Connect temporary lines and verify operation.
- Pump down embedded tanks and pull manways.
- Pump out sludge and fuel residual and evacuate tank atmosphere.
- Flush tanks with water and pump down.
- Clean tanks of residue and rust.
- Dry tanks.
- Wipe tanks with sodium hypochlorite solution.
- Quality control inspection of tanks
- Refill tanks with fuel-oil and replace manways.
- Remove temporary connections and make up permanent connections.
- Perform surveillance tests of tanks to verify operability.

TVA has estimated that the planned duration, without allowance for contingencies, is approximately 100 hours for each set of four embedded tanks. TVA has added an additional 44 hours as a contingency allowance to resolve equipment problems, work in more severe environmental conditions than expected, and correct problems that may be found in a tank. Therefore, TVA has proposed 144 hours that a DG set may be inoperable to clean its associated tanks.

The total duration of 144 hours exceeds the present 72-hour allowable outage time for one DG set or one train of DG sets. This process would have to be repeated for each DG set. As a result, the present TSs require a two-unit shutdown for both units to perform the chemical cleaning required by SR 4.8.1.1.2.f.1. TVA states that such a outage represents an unrealistic economic burden that was not considered when the TSs were first issued. Although Unit 1 is currently shutdown for refueling at this time, Unit 2 is at 100% power.

3.0 EVALUATION

The DG fuel-oil tanks for the DG sets need to be cleaned. The SR 4.8.1.1.2.f.1 requires these tanks to be cleaned once every 10 years, which is due now. Cleaning these tanks will make the DG set associated with the tanks inoperable. The Action Statement "a" for LCO 3.8.1.1 on the DG sets allows a DG set or a train of DG sets to be inoperable for 72 hours; however, TVA estimates that cleaning the tanks for one DG set may take up to 144 hours.

The cleaning of these DG tanks was discussed with TVA by the NRC project manager for Sequoyah during a visit to the site in the week of April 10 to April 13, 1990. The project manager toured the DG sets in the DG building.

The staff does not have a disagreement with the program to clean the tanks or the estimate of 144 hours to clean a set of four tanks for a DG set. The four tanks are piped together such that a tank or tanks can not be cleaned separately from the other tanks, while the other tanks provide fuel-oil to the affected DG set. The prudent plan is that once the program begins, it should continue until all four tanks for a DG set are cleaned.

To provide fuel-oil to the affected DG set, TVA will provide a temporary connection from the fuel tanks for the unaffected DG set of the same train as the affected DG. This will provide 3.5 days of fuel-oil for both DG sets of the affected train. The two DG sets of the other train will have their own DG tanks for a seven-day supply of fuel-oil. The 3.5 days is sufficient to get more fuel-oil for the affected DG train from the yard tanks or tanker trucks brought onsite.

The temporary connection is several industrial hoses joined together, each of which is circular woven fabric warp cords with heavy guage steel wire reinforcement around a diesel fuel-oil resistant rubber tube. The hoses will have threaded couplings for connections and will be capable of providing the required fuel flow to the affected DG set. The hoses connect from one tank open to the atmosphere to a pump on the DG set which transfers oils to the day tanks or operating tanks for the DGs of the DG set. The hoses will be at the suction pressure of the pump and are rated for five inches Mercury vacuum. The suction pressure of the pumps are at negligible inches Mercury vacuum.

The affected DG set will be able to get fuel-oil from the tanks for the other DG set of the same train, from the tanks for the DG sets of the other train, from either of the two yard diesel fuel-oil storage tanks, or from tanker trucks brought onsite. The only connection which is not hard piped is the temporary hoses being used to provide fuel-oil to the affected DG set. One of the two DG yard storage tanks will have a seven-day supply of fuel-oil available for a DG set and more can be brought onsite by tanker trucks. The other DG yard tank will be used to store the fuel-oil pumped from the storage tanks until tanker trucks can remove it offsite.

Because the temporary hoses will breach the fire doors for both the DG sets of the affected DG train, TVA will have a continuous fire watch in the area while the firedoors are breached. This fire watch will detect any fire, fuel-oil leaks, and damage to the hoses. A fire watch as this one is a standard compensatory fire protection measure which is used when fire barriers are breached.

One DG set and one DG train will be affected at a time. If the non-affected DG train becomes inoperable for any reason and remains inoperable, the TSs require the operating units to shutdown in eight hours. If the other DG set of the affected train becomes inoperable and remains inoperable, the operating units must shutdown in 72 hours, as required by the TSs. The proposed change to the maximum time allowed for a train of DG sets to be inoperable before the operating units must shutdown applys only to cleaning the embedded fuel-oil tanks per SR 4.8.1.1.2.f.1 for one DG set at a time.

Based on the above, the staff concludes that it is safe to have a single DG set temporarily connected to the embedded DG fuel-oil storage tanks of the other DG set of the same DG train by the proposed rugged, industrial hoses. This is for when the Sequoyah units may be operating and for the 144 hours estimated to be needed to clean the four embedded fuel-oil storage tanks for a DG set. The temporary hoses to be used to provide fuel-oil to the affected DG set will be kept within the DG building, are of sufficient construction to be acceptable for the time to clean the tanks, and will be observed during their use by the continuous fire watch.

4.0 EXIGENT CIRCUMSTANCES

TVA requested that this change be processed as an exigent change to support an expedited schedule to clean the embedded diesel generator fuel-oil storage tanks and replace the diesel fuel oil. TVA stated that it had previously planned to pursue this TS change as a regularly scheduled action item after the Unit 1 Cycle 4 refueling outage.

The request by TVA for an exigent review by the staff of the proposed changes is based on the potential need to clean these tanks as soon as practical. TVA has a fuel-oil sampling and analysis program intended to detect fuel deterioration. Recently the results of diesel fuel-oil testing, while not out of compliance with TS acceptance criteria, identified an adverse trend with particulate levels in the fuel oil. TVA stated that the present particulate levels do not represent an operability concern but are indicative of fuel-oil deterioration. As a result, it has expedited the chemical cleaning of the tanks which have not previously been cleaned since the plant was licensed and the replacement of the fuel-oil in the tanks. This activity is planned for all four DG sets and would begin as soon as practical after receipt of the approval of this proposed TS change.

The staff is aware of this potential fuel-oil problem and agrees with TVA that the DG tanks should be cleaned as soon as practical because of the importance of the DGs during a loss of offsite power. Therefore, the staff has concluded pursuant to 10 CFR 50.91(6) that exigent circumstances exist at Sequoyah in that (1) the licensee and the Commission need to act quickly and (2) time does not permit the Commission to publish this notice and allow 30 days for prior public comments.

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATIONS

The staff has evaluated the proposed changes to the TSs and has determined that it does not represent a significant hazards consideration based on criteria established in 10 CFR 50.92(c). The staff has concluded, based on Section 3.0 above, that operation of Sequoyah units 1 and 2 in accordance with the proposed amendments will:

(1) Not involve a significant increase in the probability or consequences of an accident previously evaluated.

The cleaning of the embedded DG fuel-oil storage tanks per SR 4.8.1.1.2.f.1 only affects the DGs. The DGS are used to provide emergency electrical power to the site when offsite power is not available and are not an initiator of an accident. The proposed change to increase the maximum allowed time that a DG train may be inoperable applys only to cleaning the embedded fuel-oil storage tanks per SR 4.8.1.1.2.f.a and only for one DG set at a time. The DG set affected will be connected to a supply of fuel-oil which is sufficient to operate the DG set as assumed in the analysis of accidents in the Sequoyah Final Safety Analysis Report. The other DG set in the affected DG train will be operable but, as required by the TSs, if this DG set becomes unoperable and remains inoperable, the operating units will be shutdown in 72 hours. If the non-affected DG train becomes inoperable and remains inoperable, the operating units will be shutdown in eight hours, as required by the TSs. A continuous fire watch will be posted where the fire doors are breached to detect fires, fuel-oil leaks, and damage to the temporary hose. Therefore, the proposed action does not significantly increase the probability or consequences of an accident previously evaluated.

(2) Not create the possibility of a new or different kind of accident from any previously analyzed.

The DG day tanks of the affected DG set will be connected to the storage tanks of the other DG set of the same train with temporary, but rugged, industrial hoses with threaded fittings. The temporary hoses will be inside the DG building. During this period, the fire doors to the affected DG rooms will be breached and a continuous fire watch will be posted while the doors are breached to detect potential fires, hose leaks, and damage to the hoses. Therefore, the proposed action does not create the possibility of a new or different kind of accident from any previously analyzed.

(3) Not involve a significant reduction in a margin of safety.

Only DGs and only one DG set at a time will be affected by the cleaning of the embedded fuel-oil storage tanks. The temporary connection to provide fuel-oil to the affected DG set is several rugged, industrial hoses connected together and are entirely within the DG building. The hoses are rated above their intended use and will be used only for the time to clean the tanks. The affected DG set will be able to get fuel-oil from the other unaffected DG fuel-oil storage tanks, a yard DG fuel-oil storage

tank, and tanker trucks brought onsite if needed. The continuous fire watch while the temporary hoses are being used and the fire doors are open are a standard compensatory fire protection measure when fire barriers are breached. The fire watch can detect any fuel-oil leaks or damage to the hoses. Therefore, the proposed action does not involve a significant reduction in a margin of safety.

Based on this, the staff concluded that no significant hazards considerations exist for the proposed amendments.

6.0 CONSULTATION WITH THE STATE AND THE PUBLIC

The staff consulted with the State of Tennessee on April 20, 1990. The staff discussed the basis for its conclusion that the proposed amendments involved with the cleaning of the DG fuel-oil storage tanks were acceptable. The State of Tennessee had no comments on the proposed action.

A notice in the Federal Register (55 FR 13868) for this proposed action was published on April 12, 1990. The notice requested public comments within 15 days by April 27, 1990, because exigent circumstances existed. These circumstances are discussed in Section 4.0 above. There were no comments from the public.

7.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of these amendments.

7.0 CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (55 FR 13868) on April 12, 1990, and consulted with the State of Tennessee. No public comments were received and the State of Tennessee did not have any comments.

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: J. Donohew

Dated: April 27, 1990