UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 2, 2000

Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING CHANGES TO THE DIESEL GENERATOR FUEL OIL SURVEILLANCE TESTING PROGRAM (TAC NOS. MA9099 AND MA9100) (TSC 99-07)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 261 to Facility Operating License No. DPR-77 and Amendment No. 252 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 May 16, 2000. These amendments revise the Technical Specifications (TSs) by replacing Surveillance Requirement (SR) 4.8.1.1.2.c for evaluating fuel oil for the emergency diesel generators with a Diesel Fuel Oil Program in Section 6. The revision also deletes the portion of the SRs that specifies the use of sodium hypochlorite solution in cleaning of the fuel oil storage tanks, deletes the SR to perform a pressure test on the diesel generator fuel oil system designed to American Society of Mechanical Engineers Section III requirements, and corrects various typographical errors in the TSs and Bases. Two Bases pages are also added to each unit's TSs.

A copy of the Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Ronald W. Hernan

Ronald W. Hernan, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosures: 1. Amendment No. 261 to License No. DPR-77
2. Amendment No. 252 to License No. DPR-79
3. Safety Evaluation

cc w/enclosures: See next page

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Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

October 2, 2000

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING CHANGES TO THE DIESEL GENERATOR FUEL OIL SURVEILLANCE TESTING PROGRAM (TAC NOS. MA9099 AND MA 9100) (TSC 99-07)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 261 to Facility Operating License No. DPR-77 and Amendment No. 252 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 May 16, 2000. These amendments revise the Technical Specifications (TSs) by replacing Surveillance Requirement (SR) 4.8.1.1.2.c for evaluating fuel oil for the emergency diesel generators with a Diesel Fuel Oil Program in Section 6. The revision also deletes the portion of the SRs that specifies the use of sodium hypochlorite solution in cleaning of the fuel oil storage tanks, deletes the SR to perform a pressure test on the diesel generator fuel oil system designed to American Society of Mechanical Engineers Section III requirements, and corrects various typographical errors in the TSs and Bases. Two Bases pages are also added to each unit's TSs.

A copy of the Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/RA/

Ronald W. Hernan, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosures: 1. Amendment No. 261 to License No. DPR-77
2. Amendment No. 252 to License No. DPR-79
3. Safety Evaluation

cc w/enclosures: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 261
License No. DPR-77

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

   A. The application for amendment by the Tennessee Valley Authority (the licensee) dated May 16, 2000, 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. 261 , 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 and shall be implemented within 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 2, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 261

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE	INSERT
3/4 8-3	3/4 8-3
3/4 8-5	3/4 8-5
B 3/4 8-1a	B 3/4 8-1a
B 3/4 8-2	B 3/4 8-2
--	B 3/4 8-2a
--	6-18

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 Each diesel generator set shall be demonstrated OPERABLE:

a. At least once per 31 days 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 achieves in less than or equal to 10 seconds voltage and frequency of ≥ 6800 volts and ≥ 58.8 Hz and achieves a steady state voltage and frequency of ≥ 6800 volts and ≤ 7260 volts and ≥ 58.8 Hz and ≤ 61.2 Hz. 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 between 3960 kw and 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 a frequency in accordance with the Diesel Fuel Oil Testing Program, verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits specified in the Diesel Fuel Oil Testing Program.

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* 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 (approximately 900 rpm), synchronization, and gradual loading. In this latter case, 10 second requirements do not apply.

SURVEILLANCE REQUIREMENTS (Continued)

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. This surveillance is deleted.

e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously and verifying that each diesel generator achieves in less than or equal to 10 seconds, ≥ 6800 volts and ≥ 58.8 Hz.

f. At least once per 10 years by:

   1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank.

g. At least once per 18 months by:

   1. 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.

   2. Verifying the generator capability to reject a load of 4400 kw without tripping. The generator voltage shall not exceed 8880V during and following the load rejection.

#May be performed in Modes 1, 2, 3 & 4 if the associated equipment is out of service for maintenance or testing.

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

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 requirements of Specification 3.8.2.1 provide those actions to be taken for the inoperability of A.C. Distribution Systems. Action a of this specification provides an 8-hour action for the inoperability of one or more A.C. boards. Action b of this specification provides a relaxation of the 8-hour action to 24-hours provided the Vital Instrument Power Board is inoperable solely as a result of one inoperable inverter and the board has been energized within 8 hours. In this condition the requirements of Action a do not have to be applied. Action b is not intended to provide actions for inoperable inverters, which is addressed by the operability requirements for the boards, and is included only for relief from the 8-hour action of Action a when only one inverter is affected. More than one inverter inoperable will result in the inoperability of the associated 120 Volt A.C. Vital Instrument Power Board(s) in accordance with Action a. With more than one inverter inoperable entry into the actions of TS 3.0.3 is not applicable because Action a includes provisions for multiple inoperable inverters as attendant equipment to the boards.

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 Requirements for the diesel generator load-run test and the 24-hour endurance and margin test are in accordance with Regulatory Guide 1.9, Revision 3, July 1993, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power Systems at Nuclear Power Plants." During the diesel generator endurance and margin surveillance test, momentary transients outside the kw and kvar load ranges do not invalidate the test results. Similarly, during the diesel generator load-run test, momentary transients outside the kw load range do not invalidate the test results.

Where the SRs discussed herein specify voltage and frequency tolerances, the following is applicable. 6800 volts is the minimum steady state output voltage and the 10 second transient value. 6800 volts is 98.6% of nominal bus voltage of 6900 volts and is based on the minimum voltage required for the diesel generator supply breaker to close on the 6.9 kV shutdown board. The specified maximum steady state output voltage of 7260 volts is based on the degraded over voltage relay setpoint and is equivalent to 110% of the nameplate rating of the 6600 volt motors. The specified minimum and maximum frequencies of the diesel generator are 58.8 Hz and 61.2 Hz, respectively. These values are equal to ± 2% of the 60 Hz nominal frequency and are derived from the recommendations given in regulatory Guide 1.9.

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.

The tests listed below are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If the results from these tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. These tests are to be conducted prior to adding the new fuel to the storage tank(s), but in no case is the time between receipt of new fuel and conducting the test to exceed 31 days. The test, limits, and applicable ASTM Standards are as follows:

a. Sample the new fuel in accordance with D4057-1988 (ref.);

b. Verify in accordance with the test specified in ASTM D975-1990 (Ref.) that the sample has an absolute specific gravity at 60/60 degrees F of $\geq$ 0.83 and $\leq$ 0.89 or an API gravity at 60 degrees F of $\geq$ 27 degrees and $\leq$ 39 degrees, a kinematic viscosity at 40 degrees C of $\geq$ 1.9 centistokes and $\leq$ 4.1 centistokes, and a flash point of $\geq$ 125 degrees F; and

c. Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-1986 (Ref.).

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet LCO concern since the fuel oil is not added to the storage tanks.

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES (Continued)

Within 31 days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties specified in Table 1 of ASTM D975-1990 (Ref.) are met, except that the analysis for sulfur may be performed in accordance with ASTM D1552-1990 (Ref.) or ASTM D2622-1987 (Ref.). The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate effect on D/G operation. This surveillance ensures availability of high quality fuel oil for the D/Gs.

Fuel oil degradation during long-term storage shows up as an increase in particulate, due mostly to oxidation. The presence of particulate does not mean the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure.

Particulate concentrations should be determined in accordance with ASTM D2276-94, Method A (Ref.). This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing. Each of the four interconnected tanks which comprise a 7-day tank must be considered and tested separately.

The frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between frequency intervals.

References:

ASTM Standards
D4057-1888, "Practice for manual sampling of petroleum and petroleum Products."

D975-1990, "Standard Specifications for Diesel Fuel oils."

D4176-1986, "Free Water and Particulate Contamination in Distillate Fuels."

D1552-1990, "Standard Test Method for Sulfur in Petroleum Products (High Temperature Method)."

D2622-1987, "Standard Test Method for Sulfur in Petroleum Products (X-Ray Spectrographic Method)."

D2276-1994, "Standard Test Method for Particulate Containment in Aviation Turbine Fuels."

D1298-1985, "Standard Test Method for Density, Specific Gravity, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method."

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

This specification is deleted.

6.16 DIESEL FUEL OIL TESTING PROGRAM

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity or an absolute specific gravity within limits,

   2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

   3. A clear and bright appearance with proper color;

b. Other properties for ASTM 2D fuel oil are within limits within 31 days following sampling and addition to storage tanks; and

c. Total particulate concentration of the fuel oil is $\leq$ 10 mg/l when tested every 31 days in accordance with ASTM D-2276, Method A.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 252
License No. DPR-79

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

   A. The application for amendment by the Tennessee Valley Authority (the licensee) dated May 16, 2000, 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. 252, 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 and shall be implemented within 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 2, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 252

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE	INSERT
3/4 8-3	3/4 8-3
3/4 8-5	3/4 8-5
B 3/4 8-2	B 3/4 8-2
--	B 3/4 8-2a
--	6-19

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 Each diesel generator set shall be demonstrated OPERABLE:

a. At least once per 31 days 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 achieves in less than or equal to 10 seconds generator voltage and frequency of ≥ 6800 volts and ≥ 58.8 Hz and achieves a steady state voltage and frequency of ≥ 6800 volts and ≤ 7260 volts and ≥ 58.8 Hz and ≤ 61.2 Hz. 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 between 3960 kw and 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 a frequency in accordance with the Diesel Fuel Oil Testing Program, verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits specified in the Diesel Fuel Oil Testing Program.

* 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 (approximately 900 rpm), synchronization, and gradual loading. In this latter case, 10 second requirements do not apply.

SURVEILLANCE REQUIREMENTS (Continued)

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 $\pm$ 5 percent of its design setpoint.#

11. This surveillance is deleted.

e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously and verifying that each diesel generator achieves in less than or equal to 10 seconds, $\geq$ 6800 volts and $\geq$ 58.8 Hz.

f. At least once per 10 years by:

   1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank.

g. At least once per 18 months by:

   1. 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 $\pm$ 1.2 Hz. At no time shall the transient voltage exceed 8276V.

   2. Verifying the generator capability to reject a load of 4400 kw without tripping. The generator voltage shall not exceed 8880V during and following the load rejection.

May be performed in Modes 1, 2, 3 & 4 if the associated equipment is out of service for maintenance or testing.

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.

The tests listed below are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If the results from these tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. These tests are to be conducted prior to adding the new fuel to the storage tank(s), but in no case is the time between receipt of new fuel and conducting the test to exceed 31 days. The test, limits, and applicable ASTM Standards are as follows:

a. Sample the new fuel in accordance with D4057-1988 (ref.);

b. Verify in accordance with the test specified in ASTM D975-1990 (Ref.) that the sample has an absolute specific gravity at 60/60 degrees F of $\geq$ 0.83 and $\leq$ 0.89 or an API gravity at 60 degrees F of $\geq$ 27 degrees and $\leq$ 39 degrees, a kinematic viscosity at 40 degrees C of $\geq$ 1.9 centistokes and $\leq$ 4.1 centistokes, and a flash point of $\geq$ 125 degrees F; and

c. Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-1986 (Ref.).

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet LCO concern since the fuel oil is not added to the storage tanks.

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES (Continued)

Within 31 days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties specified in Table 1 of ASTM D975-1990 (Ref.) are met, except that the analysis for sulfur may be performed in accordance with ASTM D1552-1990 (Ref.) or ASTM D2622-1987 (Ref.). The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate effect on D/G operation. This surveillance ensures availability of high quality fuel oil for the D/Gs.

Fuel oil degradation during long term storage shows up as an increase in particulate, due mostly to oxidation. The presence of particulate does not mean the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure.

Particulate concentrations should be determined in accordance with ASTM D2276-94, Method A (Ref.). This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing. Each of the four interconnected tanks which comprise a 7-day tank must be considered and tested separately.

The frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between frequency intervals.

References:

ASTM Standards:

D4057-1888, "Practice for manual sampling of petroleum and petroleum Products."

D975-1990, "Standard Specifications for Diesel Fuel oils."

D4176-1986, "Free Water and Particulate Contamination in Distillate Fuels."

D1552-1990, "Standard Test Method for Sulfur in Petroleum Products (High Temperature Method)."

D2622-1987, "Standard Test Method for Sulfur in Petroleum Products (X-Ray Spectrographic Method)."

D2276-1994, "Standard Test Method for Particulate Containment in Aviation Turbine Fuels."

D1298-1985, "Standard Test Method for Density, Specific Gravity, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method."

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

This specification is deleted.

6.16 DIESEL FUEL OIL TESTING PROGRAM

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity or an absolute specific gravity within limits,

   2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

   3. A clear and bright appearance with proper color;

b. Other properties for ASTM 2D fuel oil are within limits within 31 days following sampling and addition to storage tanks; and

c. Total particulate concentration of the fuel oil is $\leq$ 10 mg/l when tested every 31 days in accordance with ASTM D-2276, Method A.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 261 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 252 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 application dated May 16, 2000, the Tennessee Valley Authority (TVA) proposed an amendment to the Technical Specifications (TSs) for the Sequoyah Nuclear Plant (SQN), Units 1 and 2. The requested changes would revise the TSs by replacing Surveillance Requirement (SR) 4.8.1.1.2.c, for evaluating fuel oil for the emergency diesel generators (EDGs), with a Diesel Fuel Oil Program in Section 6. The revision would also delete the portion of the SRs that specifies the use of sodium hypochlorite solution in cleaning of the fuel oil storage tanks, would delete the SR to perform a pressure test on the diesel generator fuel oil system designed to American Society of Mechanical Engineers Section III requirements, and would correct various typographical errors in the TSs and Bases. Two Bases pages would also be added to each unit's TSs.

The SQN station has four EDGs. The fuel oil system for each EDG consists of a day tank for each engine holding approximately 550 gallons of fuel and four larger (7-day) tanks embedded in the diesel building foundation floor.

2.0 PROPOSED CHANGES

TVA proposes to modify the SQN Units 1 and 2 TSs by revising the following SRs:

SR 4.8.1.1.2.c - remove the current methodology for surveillance testing of the EDG fuel oil and replace it with a Diesel Fuel Oil Program as new TS Section 6.16. The American Society for Testing and Materials (ASTM) methodologies for testing the fuel oil will be stated in the Bases section of the TS. Also, ASTM D2274-70 will be replaced with a more recently approved revision (ASTM D2274-94).

SR 4.8.1.1.2.f.1 - eliminate the use of sodium hypochlorite solution for cleaning the fuel oil storage tanks contained within the SR.

SR 4.8.1.1.2.f.2 - delete the SR to perform a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the American Society of Mechanical Engineers (ASME) Code at a test pressure equal to 110 percent of the system design pressure.

SR 4.8.1.1.2.a.4 and Unit 1 Bases Sections 3/4.8.1 and 3/4.8.2 contain typographical errors that are being corrected.

3.0 DISCUSSION AND EVALUATION

The present SR specifies the ASTM methodologies and the parameters being tested. The ASME methodologies specified in the TS for testing of the fuel oil are not consistent with present day methodologies. This change would allow utilization of later revisions to ASTM standards that have been approved for testing. This change would continue to ensure that the appropriate fuel oil is used in the EDG system.

Additionally, the TS specifies ASTM D2274-70 for determining the impurity level of the diesel fuel oil used by the EDGs. Standard ASTM D2274-70 requires the use of chromic acid in determining the accelerated stability. Chromic acid is now considered a hazardous waste. ASTM D2274-94 does not require the use of chromic acid. ASTM D2274-70 specifies the use of two glass filters in performance of the test. ASTM D2274-94 allows the use of a single polycarbonate filter. The polycarbonate filter is as good as two glass filters. Therefore, using a later revision of ASTM D2274 will eliminate use of the hazardous chemical and reduce the amount of waste.

The elimination of the use of a sodium hypochlorite solution in cleaning of the diesel fuel oil storage tanks will remove the potential for creating an explosive mixture in the fuel oil storage tanks. Sodium hypochlorite could react with the fuel oil creating a potentially explosive mixture. This is considered an unsafe work practice.

The deletion of performing a pressure test as required by SR 4.8.1.1.2.f.2 is a clarification. There are no portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code. Therefore, the pressure test is not required.

The current SR for testing the EDG fuel oil requires testing using ASTM D2274-70. Using a later revision of the ASTM standard will ensure that the fuel oil is properly analyzed and will reduce the handling of hazardous waste. Replacing the current SR with a Diesel Fuel Oil Program would allow the use of later approved revisions of the ASTM standards and would continue to ensure the reliability of the fuel oil for the EDGs. This change is consistent with NUREG-1431, "Standard Technical Specifications for Westinghouse Pressurized Water Reactors."

The deletion of the portion of the SR that specifies the use of sodium hypochlorite solution in cleaning of the fuel oil storage tanks does not change the requirement to clean the tanks. The TS does not need to specify the chemical for cleaning the fuel oil storage tanks. This change is consistent with NUREG-1431.

The deletion of the SR to perform a pressure test of those portions of the diesel fuel oil system designed as Section III, subsection ND of the ASME Code has no impact on safety or safety-related equipment. This is a documentation change only since no portions of the diesel fuel oil system are designed to Section III, subsection ND of the ASME Code. The proposed change is consistent with NUREG-1431.

Staff Conclusion

The NRC staff has reviewed the changes proposed by TVA and finds that they are acceptable on the basis that they do not change any basic requirements for maintaining safe operation of the SQN reactors, they update the diesel fuel oil quality assurance testing to current standards, and they eliminate an unnecessary, but potentially hazardous (to plant maintenance personnel) TS requirement. The proposed changes are, therefore, acceptable. The staff also concludes that the proposed changes will make the SQN TS identical to the Diesel Fuel Oil Testing Program in NUREG-1431 and to the Watts Bar Nuclear Plant Standard TS.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Tennessee State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC 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 the amendments involve no significant hazards consideration, and there has been no public comment on such finding (65 FR 48758). 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 or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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