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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 203
License No. DPR-33

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated January 10, 1992, 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-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 203, 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 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Frederick J. Hebdon, Director
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 9, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 203

FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

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. Spillover* page is provided to maintain document completeness.

REMOVE	INSERT
iii	iii
iv	iv*
3.9/4.9-15	3.9/4.9-15
3.9/4.9-15a	3.9/4.9-15a
---	3.9/4.9-15b
---	3.9/4.9-15c
3.9/4.9-21	3.9/4.9-21
3.9/4.9-22	3.9/4-9-22

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.C. Operation in Cold Shutdown Whenever the reactor is in COLD SHUTDOWN CONDITION with irradiated fuel in the reactor, the availability of electric power shall be as specified in Section 3.9.A except as specified herein. 1. At least two units 1 and 2 diesel generators and their associated 4-kV shutdown boards shall be OPERABLE. 2. An additional source of power energized and capable of supplying power to the units 1 and 2 shutdown boards consisting of at least one of the following: a. One of the offsite power sources specified in 3.9.A.1.c. b. A third OPERABLE diesel generator. 3. At least one 480-V shutdown board for each unit must be OPERABLE. 4. One 480-V RMOV board mg set is required for each RMOV board (1D or 1E) required to support operation of the RHR system in accordance with 3.5.B.9.	4.9.C. Operation in Cold Shutdown 1. No additional surveillance is required.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems 1. Whenever standby gas treatment is required to be OPERABLE in accordance with Specification 3.7.B and/or control room emergency ventilation is required to be OPERABLE in accordance with Specification 3.7.E, the associated diesel generator aligned to supply emergency power to that equipment shall be OPERABLE. a. Standby gas treatment train A and/or control room emergency ventilation train A - Diesel generator 1/2A or 1/2B. b. Standby gas treatment train B - Diesel generator 1/2D or 1/2B. c. Standby gas treatment train C - Diesel generator 3D. d. Control room emergency ventilation train B - Diesel generator 3C or 3B. 2. When the diesel generator aligned to supply emergency power to the equipment in 3.9.D.1 is inoperable on a unit that is in cold shutdown, refueling, or is defueled, the equipment may be considered OPERABLE for the purpose of satisfying the corresponding technical specification during the succeeding 30 days, provided that the redundant train(s) of equipment and their normal and emergency power supplies are OPERABLE.	4.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems Surveillance requirements are as specified in 4.9.A.1, 4.9.A.2, 4.9.A.3, and 4.9.A.4 with the following provisions: 1. The testing provisions of 4.9.A.1.b do not apply for a defueled unit. 2. The common accident signal testing required by 4.9.A.3 requires the signal to originate only from units that require OPERABILITY of the standby gas treatment system and/or the control room emergency ventilation system. This test will verify the automatic start of the diesel generators aligned to the standby gas treatment system and/or the control room emergency ventilation system.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems 3. If Specification 3.9.D.2 cannot be met, the affected equipment shall be declared inoperable.	4.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems

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3.9 BASES (Cont'd)

Specification 3.9.D provides the OPERABILITY requirements for emergency diesel generator power sources for the plant shared systems of standby gas treatment and control room emergency ventilation. This specification addresses the condition where one or more of the units is in cold shutdown, refueling, or is defueled, by requiring the diesel generators aligned to the shared systems to be OPERABLE when any of the BFN Units require OPERABILITY of the shared systems. The allowed out-of-service time of 30 days for the diesel generator aligned to the shared systems is commensurate with the importance of the affected systems when a unit is in cold shutdown, refueling, or is defueled; considers the low probability of a LOCA/Loss of offsite power in these conditions; and considers the availability of onsite power to redundant trains.

4.9 BASES

The monthly test of the diesel generators is primarily to check for failures and deterioration in the system since last use. The diesels will be loaded to at least 100 percent of its continuous rating (i.e., $\geq$ 2600 KW) while engine and generator temperatures are stabilized (about one hour). A minimum 75-percent load will prevent soot formation in the cylinders and injection nozzles. Operation up to an equilibrium temperature ensures that there is no overheating problem. The tests also provide an engine and generator operating history to be compared with subsequent engine-generator test data to identify and to correct any mechanical or electrical deficiency before it can result in a system failure.

Diesel testing once per 18 months (i.e., at least once per fuel cycle) at a minimum load of 2800 KW for an interval of not less than 24 hours, assures that each diesel generator will be capable of supplying the maximum load during the first 2 hours of a loss of offsite power/loss of coolant accident. This test also demonstrates each diesel generator's long-term load carrying capability.

The test during refueling outages is more comprehensive, including procedures that are most effectively conducted at that time. These include automatic actuation and functional capability tests to verify that the generators can start and be ready to assume load in 10 seconds. The maintenance inspection will detect any signs of wear long before failure.

BFN tests the 7-day diesel generator fuel oil supplies in accordance with Table 1 of ASTM-D975-89. Each fuel oil supply is tested quarterly.

Battery maintenance with regard to the floating charge, equalizing charge, and electrolyte level will be based on the manufacturer's instruction and sound maintenance practices. In addition, written records will be maintained of the battery performance. The plant batteries will deteriorate with time but precipitous failure is unlikely. The type of surveillance called for in this specification is that which has been demonstrated through experience to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

4.9 BASES (Cont'd)

The equalizing charge, as recommended by the manufacturer, is vital to maintaining the ampere-hour capacity of the battery and will be applied as recommended.

The testing of the logic systems will verify the ability of the logic systems to bring the auxiliary electrical system to running standby readiness with the presence of an accident signal from any reactor or an undervoltage signal on the 4-kV shutdown boards.

The periodic simulation of accident signals in conjunction with diesel generator voltage available signals will confirm the ability of the 480-V load shedding logic system to sequentially shed and restart 480-V loads if an accident signal were present, and diesel generator voltage was the only source of electrical power.

Specification 4.9.D provides surveillance requirements for Units 1, 2, and 3 diesel generator emergency power sources for the purpose of satisfying Specification 3.9.D. Testing of these power sources is intended to ensure their OPERABILITY when required to support OPERABILITY of the standby gas treatment system and/or the control room emergency ventilation system.

REFERENCES

1. Normal Auxiliary Power System (BFNP FSAR Subsection 8.4)

2. Standby AC Power Supply and Distribution (BFNP FSAR Subsection 8.5)

3. 250-V DC Power Supply and Distribution (BFNP FSAR Subsection 8.6)

4. Memorandum from Gene M. Wilhoite to H. J. Green dated December 4, 1981 (LOO 811208 664) and memorandum from C. E. Winn to H. J. Green dated January 10, 1983 (G02 830112 002)

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 222
License No. DPR-52

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated January 10, 1992, 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-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 222, 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 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Frederick J. Hebdon

Frederick J. Hebdon, Director
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 9, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 222

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

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
iii	iii
iv	iv*
3.9/4.9-15	3.9/4.9-15*
3.9/4.9-15a	3.9/4.9-15a
---	3.9/4.9-15b
---	3.9/4.9-15c
3.9/4.9-19	3.9/4.9-19*
3.9/4.9-20	3.9/4.9-20
3.9/4.9-21	3.9/4.9-21
3.9/4.9-22	3.9/4.9-22

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.C. Operation in Cold Shutdown Whenever the reactor is in COLD SHUTDOWN CONDITION with irradiated fuel in the reactor, the availability of electric power shall be as specified in Section 3.9.A except as specified herein. 1. At least two Units 1 and 2 diesel generators and their associated 4-kV shutdown boards shall be OPERABLE. 2. An additional source of power energized and capable of supplying power to the Units 1 and 2 shutdown boards consisting of at least one of the following: a. One of the offsite power sources specified in 3.9.A.1.c. b. A third OPERABLE diesel generator. 3. At least one 480-V shutdown board for each unit must be OPERABLE. 4. One 480-V RMOV board mg set is required for each RMOV board (2D or 2E) required to support operation of the RHR system in accordance with 3.5.B.9.	4.9.C Operation in Cold Shutdown 1. No additional surveillance is required.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.D Diesel Generators Required for Units 1, 2, and 3 Shared Systems 1. Whenever standby gas treatment is required to be OPERABLE in accordance with Specification 3.7.B and/or control room emergency ventilation is required to be OPERABLE in accordance with Specification 3.7.E, the associated diesel generator aligned to supply emergency power to that equipment shall be OPERABLE. a. Standby gas treatment train A and/or control room emergency ventilation train A - Diesel generator 1/2A or 1/2B. b. Standby gas treatment train B - Diesel generator 1/2D or 1/2B. c. Standby gas treatment train C - Diesel generator 3D. d. Control room emergency ventilation train B - Diesel generator 3C or 3B. 2. When the diesel generator aligned to supply emergency power to the equipment in 3.9.D.1 is inoperable on a unit that is in cold shutdown, refueling, or is defueled, the equipment may be considered OPERABLE for the purpose of satisfying the corresponding technical specification during the succeeding 30 days, provided that the redundant train(s) of equipment and their normal and emergency power supplies are OPERABLE.	4.9.D Diesel Generators Required for Units 1, 2, and 3 Shared Systems Surveillance requirements are as specified in 4.9.A.1, 4.9.A.2, 4.9.A.3, and 4.9.A.4 with the following provisions: 1. The testing provisions of 4.9.A.1.b do not apply for a defueled unit. 2. The common accident signal testing required by 4.9.A.3 requires the signal to originate only from units that require OPERABILITY of the standby gas treatment system and/or the control room emergency ventilation system. This test will verify the automatic start of the diesel generators aligned to the standby gas treatment system and/or the control room emergency ventilation system.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems	4.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems
3. If Specification 3.9.D.2 cannot be met, the affected equipment shall be declared inoperable.	

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3.9 BASES

The objective of this specification is to assure an adequate source of electrical power to operate facilities to cool the plant during shutdown and to operate the engineered safeguards following an accident. There are three sources of alternating current electrical energy available, namely, the 161-kV transmission system, the 500-kV transmission system, and the diesel generators.

The unit station-service transformer B for unit 1 or the unit station-service transformer B for unit 2 provide noninterruptible sources of offsite power from the 500-kV transmission system to the units 1 and 2 shutdown boards. Auxiliary power can also be supplied from the 161-kV transmission system through the common station-service transformers or through the cooling tower transformers by way of the bus tie board. The 4-kV bus tie board may remain out of service indefinitely provided one of the required offsite power sources is not supplied from the 161-kV system through the bus tie board.

The minimum fuel oil requirement of 35,280 gallons for each diesel generator fuel tank assembly is sufficient for seven days of full load operation of each diesel and is conservatively based on availability of a replenishment supply. Each diesel generator has its own independent 7-day fuel oil storage tank assembly.

The degraded voltage sensing relays provide a start signal to the diesel generators in the event that a deteriorated voltage condition exists on a 4-kV shutdown board. This starting signal is independent of the starting signal generated by the complete loss of voltage relays and will continue to function and start the diesel generators on complete loss of voltage should the loss of voltage relays become inoperable. The 15-day inoperable time limit specified when one of the three phase-to-phase degraded voltage relays is inoperable is justified based on the two-out-of-three permissive logic scheme provided with these relays.

A 4-kV shutdown board is allowed to be out of operation for a brief period to allow for maintenance and testing, provided all remaining 4-kV shutdown boards and associated diesel generators, CS, RHR, (LPCI and containment cooling) systems supplied by the remaining 4-kV shutdown boards, and all emergency 480-V power boards are OPERABLE.

The 480-V diesel auxiliary board may be out of service for short periods for tests and maintenance.

There is a safety related 250-V dc unit battery located in each unit. Each 250-V dc unit battery system consists of a battery, a battery charger, and a distribution panel. There is also a backup charger which can be assigned to any one of the three unit batteries. The 250-V dc unit battery systems provide power for unit control functions, unit DC motor loads and alternate control power to the 4160 and 480-V ac shutdown boards. The primary control power supplies to the 3A, 3C and 3D 4160-V ac shutdown boards and the Unit 3 480-V ac shutdown boards are also provided by unit batteries. There are five safety related 250-V dc shutdown battery systems assigned as primary control power supplies to

4160-V ac shutdown boards A, B, C, D, and 3EB. Each of these shutdown battery systems has as 250-V dc battery, a charger, and a distribution panel. A portable spare charger can be used to supply any one of the five shutdown battery systems.

Each 250-V dc shutdown board control power supply can receive power from its own battery, battery charger, or from a spare charger. The chargers are powered from normal plant auxiliary power or from the standby diesel-driven generator system. Zero resistance short circuits between the control power supply and the shutdown board are cleared by fuses located in the respective control power supply. Each power supply is located in the reactor building near the shutdown board it supplies. Each battery is located in its own independently ventilated battery room.

The 250-V dc system is so arranged, and the batteries sized so that the loss of any one unit battery will not prevent the safe shutdown and cooldown of all three units in the event of the loss of offsite power and a design basis accident in any one unit. Loss of control power to any engineered safeguard control circuits is annunciated in the main control room of the unit affected. The loss of one 250-V shutdown board battery affects normal control power for the 480-V and 4,160-V shutdown boards which it supplies.

There are two 480-V ac RMOV boards that contain mg sets in their feeder lines. These 480-V ac RMOV boards have an automatic transfer from their normal to alternate power source (480-V ac shutdown boards). The mg sets act as electrical isolators to prevent a fault from propagating between electrical divisions due to an automatic transfer. The 480-V ac RMOV boards involved provide motive power to valves associated with the LPCI mode of the RHR system. Having an mg set out of service reduces the assurance that full RHR (LPCI) capacity will be available when required. Since sufficient equipment is available to maintain the minimum complement required for RHR (LPCI) operation, a 7-day servicing period is justified. Having two mg sets out of service can considerably reduce equipment availability; therefore, the affected unit shall be placed in Cold Shutdown within 24 hours.

The offsite power source requirements are based on the capacity of the respective lines. The Trinity line is limited to supplying two operating units because of the load limitations of CSST's A and B. The Athens line is limited to supplying one operating unit because of the load limitations of the Athens line. The limiting conditions are intended to prevent the 161-kV system from supplying more than two units in the event of a single failure in the offsite power system.

Specification 3.9.D provides the OPERABILITY requirements for emergency diesel generator power sources for the plant shared systems of standby gas treatment and control room emergency ventilation. This specification addresses the condition where one or more of the units is in cold shutdown, refueling, or is defueled, by requiring the diesel generators aligned to the shared systems to be OPERABLE when any of the BFN Units

3.9 BASES (Cont'd)

require OPERABILITY of the shared systems. The allowed out-of-service time of 30 days for the diesel generator aligned to the shared systems is commensurate with the importance of the affected systems when a unit is in cold shutdown, refueling, or is defueled; considers the low probability of a LOCA/Loss of offsite power in these conditions; and considers the availability of onsite power to redundant trains.

4.9 BASES

The monthly tests of the diesel generators are primarily to check for failures and deterioration in the system since last use. The diesels will be loaded to at least 100 percent of its continuous rating (i.e., $\geq$ 2600 KW) while engine and generator temperatures are stabilized (about one hour). A minimum 75-percent load will prevent soot formation in the cylinders and injection nozzles. Operation up to an equilibrium temperature ensures that there is no overheating problem. The tests also provide an engine and generator operating history to be compared with subsequent engine-generator test data to identify and to correct any mechanical or electrical deficiency before it can result in a system failure.

Diesel testing once per 18 months (i.e., at least once per fuel cycle) at a minimum load of 2800 KW for an interval of not less than 24 hours assures that each diesel generator will be capable of supplying the maximum load during the first 2 hours of a loss of offsite power/loss of coolant accident. This test also demonstrates each diesel generator's long-term load carrying capability.

The test during refueling outages is more comprehensive, including procedures that are most effectively conducted at that time. These include automatic actuation and functional capability tests to verify that the generators can start and be ready to assume load in 10 seconds. The maintenance inspection will detect any signs of wear long before failure.

BFN tests the 7-day diesel generator fuel oil supplies in accordance with Table 1 of ASTM-D975-89. Each fuel oil supply is tested quarterly.

Battery maintenance with regard to the floating charge, equalizing charge, and electrolyte level will be based on the manufacturer's instruction and sound maintenance practices. In addition, written records will be maintained of the battery performance. The plant batteries will deteriorate with time but precipitous failure is unlikely. The type of surveillance called for in this specification is that which has been demonstrated through experience to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

The equalizing charge, as recommended by the manufacturer, is vital to maintaining the ampere-hour capacity of the battery and will be applied as recommended.

4.9 BASES (Cont'd)

The testing of the logic systems will verify the ability of the logic systems to bring the auxiliary electrical system to running standby readiness with the presence of an accident signal from any reactor or an undervoltage signal on the 4-kV shutdown boards.

The periodic simulation of accident signals in conjunction with diesel generator voltage available signals will confirm the ability of the 480-V load shedding logic system to sequentially shed and restart 480-V loads if an accident signal were present, and diesel generator voltage were the only source of electrical power.

Specification 4.9.D provides surveillance requirements for Units 1, 2, and 3 diesel generator emergency power sources for the purpose of satisfying Specification 3.9.D. Testing of these power sources is intended to ensure their OPERABILITY when required to support OPERABILITY of the standby gas treatment system and/or the control room emergency ventilation system.

REFERENCES

1. Normal Auxiliary Power System (BFNP FSAR Subsection 8.4)

2. Standby AC Power Supply and Distribution (BFNP FSAR Subsection 8.5)

3. 250-V DC Power Supply and Distribution (BFNP FSAR Subsection 8.6)

4. Memorandum from Gene M. Wilhoite to H. J. Green dated December 4, 1981 (L00 811208 664) and memorandum from C. E. Winn to H. J. Green dated January 10, 1983 (G02 830112 002)

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 176
License No. DPR-68

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated January 10, 1992, 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-68 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 176, 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 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Frederick J. Hebdon

Frederick J. Hebdon, Director
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 9, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 176

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

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* page is provided to maintain document completeness.

REMOVE	INSERT
iii	iii
iv	iv*
3.9/4.9-14a	3.9/4.9-14a
3.9/4.9-14b	3.9/4.9-14b
3.9/4/9-18	3.9/4.9-18*
3.9/4.9-19	3.9/4.9-19
3.9/4.9-20	3.9/4.9-20*
3.9/4.9-21	3.9/4.9-21

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems 1. Whenever standby gas treatment is required to be OPERABLE in accordance with Specification 3.7.B and/or control room emergency ventilation is required to be OPERABLE in accordance with Specification 3.7.E, the associated diesel generator aligned to supply emergency power to that equipment shall be OPERABLE. a. Standby gas treatment train A and/or control room emergency ventilation train A - Diesel generator 1/2A or 1/2B. b. Standby gas treatment train B - Diesel generator 1/2D or 1/2B. c. Standby gas treatment train C - Diesel generator 3D. d. Control room emergency ventilation train B - Diesel generator 3C or 3B. 2. When the diesel generator aligned to supply emergency power to the equipment in 3.9.D.1 is inoperable on a unit that is in cold shutdown, refueling, or is defueled, the equipment may be considered OPERABLE for the purpose of satisfying the corresponding technical specification during the succeeding 30 days, provided that the redundant train(s) of equipment and their normal and emergency power supplies are OPERABLE.	4.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems Surveillance requirements are as specified in 4.9.A.1, 4.9.A.2, 4.9.A.3, and 4.9.A.4 with the following provisions: 1. The testing provisions of 4.9.A.1.b do not apply for a defueled unit. 2. The common accident signal testing required by 4.9.A.3 requires the signal to originate only from units that require OPERABILITY of the standby gas treatment system and/or the control room emergency ventilation system. This test will verify the automatic start of the diesel generators aligned to the standby gas treatment system and/or the control room emergency ventilation system.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems 3. If Specification 3.9.D.2 cannot be met, the affected equipment shall be declared inoperable.	4.9.D. Diesel Generators Required for Units 1, 2, and 3 Shared Systems

3.9 BASES

The objective of this specification is to assure an adequate source of electrical power to operate facilities to cool the unit during shutdown and to operate the engineered safeguards following an accident. There are three sources of alternating current electrical energy available, namely, the 161-kV transmission system, the 500-kV transmission system, and the diesel generators.

The unit station-service transformer B for unit 3 provides a noninterruptible source of offsite power from the 500-kV transmission system to the unit 3 shutdown boards. Auxiliary power can also be supplied from the 161-kV transmission system through the common station-service transformers or through the cooling tower transformers by way of the bus tie board. The 4-kV bus tie board may remain out of service indefinitely provided one of the required offsite power sources is not supplied from the 161-kV system through the bus tie board.

The minimum fuel oil requirement of 35,280 gallons for each diesel generator fuel tank assembly is sufficient for seven days of full load operation of each diesel and is conservatively based on availability of a replenishment supply. Each diesel generator has its own independent 7-day fuel oil storage tank assembly.

The degraded voltage sensing relays provide a start signal to the diesel generators in the event that a deteriorated voltage condition exists on a 4-kV shutdown board. This starting signal is independent of the starting signal generated by the complete loss of voltage relays and will continue to function and start the diesel generators on complete loss of voltage should the loss of voltage relays become inoperable. The 15-day inoperable time limit specified when one of the three phase-to-phase degraded voltage relays is inoperable is justified based on the two-out-of-three permissive logic scheme provided with these relays.

A 4-kV shutdown board is allowed to be out of operation for a brief period to allow for maintenance and testing, provided all remaining 4-kV shutdown boards and associated diesel generators, CS, RHR, (LPCI and containment cooling) systems supplied by the remaining 4-kV shutdown boards, and all emergency 480-V power boards are OPERABLE.

The 480-V diesel auxiliary board may be out of service for short periods for tests and maintenance.

There is a safety related 250-V dc unit battery located in each unit. Each 250-V dc unit battery system consists of a battery, a battery charger, and a distribution panel. There is also a backup charger which can be assigned to any one of the three unit batteries. The 250-V dc unit battery systems provide power for unit control functions, unit DC motor loads and alternate control power to the 4160 and 480-V ac shutdown boards. The primary control power supplies to the 3A, 3C and

3D 4160-V ac shutdown boards and the Unit 3 480-V ac shutdown boards are also provided by unit batteries. There are five safety related 250-V dc shutdown battery systems assigned as primary control power supplies to 4160-V ac shutdown boards A, B, C, D, and 3EB. Each of these shutdown battery systems has as 250-V dc battery, a charger, and a distribution panel. A portable spare charger can be used to supply any one of the five shutdown battery systems.

The 250-V dc system is so arranged and the batteries sized so that the loss of any one unit battery will not prevent the safe shutdown and cooldown of all three units in the event of the loss of offsite power and a design basis accident in any one unit. Loss of control power to any engineered safeguard control circuits is annunciated in the main control room of the unit affected.

There are two 480-V ac RMOV boards that contain mg sets in their feeder lines. These 480-V ac RMOV boards have an automatic transfer from their normal to alternate power source (480-V ac shutdown boards). The mg sets act as electrical isolators to prevent a fault from propagating between electrical divisions due to an automatic transfer. The 480-V ac RMOV boards involved provide motive power to valves associated with the LPCI mode of the RHR system. Having an mg set out of service reduces the assurance that full RHR (LPCI) capacity will be available when required. Since sufficient equipment is available to maintain the minimum complement required for RHR (LPCI) operation, a 7-day servicing period is justified. Having two mg sets out of service can considerably reduce equipment availability; therefore, the affected unit shall be placed in Cold Shutdown within 24 hours.

The offsite power source requirements are based on the capacity of the respective lines. The Trinity line is limited to supplying two operating units because of the load limitations of CSST's A and B. The Athens line is limited to supplying one operating unit because of the load limitations of the Athens line. The limiting conditions are intended to prevent the 161-kV system from supplying more than two units in the event of a single failure in the offsite power system.

Specification 3.9.D provides the OPERABILITY requirements for emergency diesel generator power sources for the plant shared systems of standby gas treatment and control room emergency ventilation. This specification addresses the condition where one or more of the units is in cold shutdown, refueling, or is defueled, by requiring the diesel generators aligned to the shared systems to be OPERABLE when any of the BFN Units require OPERABILITY of the shared systems. The allowed out-of-service time of 30 days for the diesel generator aligned to the shared systems is commensurate with the importance of the affected systems when a unit is in cold shutdown, refueling, or is defueled; considers the low probability of a LOCA/Loss of offsite power in these conditions; and considers the availability of onsite power to redundant trains.

4.9 BASES (Cont'd)

The monthly tests of the diesel generators are primarily to check for failures and deterioration in the system since last use. The diesels will be loaded to at least 100 percent of its continuous rating (i.e. $\geq$ 2600 KW) while engine and generator temperatures are stabilized (about one hour). A minimum 75-percent load will prevent soot formation in the cylinders and injection nozzles. Operation up to an equilibrium temperature ensures that there is no overheating problem. The tests also provide an engine and generator operating history to be compared with subsequent engine-generator test data to identify and to correct any mechanical or electrical deficiency before it can result in a system failure.

Diesel testing once per 18 months (i.e., at least once per fuel cycle) at a minimum load of 2800 KW for an interval of not less than 24 hours assures that each diesel generator will be capable of supplying the maximum load during the first 2 hours of a loss of offsite power/loss of coolant accident. This test also demonstrates each diesel generator's long-term load carrying capability.

The test during refueling outages is more comprehensive, including procedures that are most effectively conducted at that time. These include automatic actuation and functional capability tests to verify that the generators can start and be ready to assume load in 10 seconds. The maintenance inspection will detect any signs of wear long before failure.

BFN tests the 7-day diesel generator fuel oil supplies in accordance with Table 1 of ASTM-D975-89. Each fuel oil supply is tested quarterly.

Battery maintenance with regard to the floating charge, equalizing charge, and electrolyte level will be based on the manufacturer's instruction and sound maintenance practices. In addition, written records will be maintained of the battery performance. The plant batteries will deteriorate with time but precipitous failure is unlikely. The type of surveillance called for in this specification is that which has been demonstrated through experience to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

The equalizing charge, as recommended by the manufacturer, is vital to maintaining the ampere-hour capacity of the battery and will be applied as recommended.

The testing of the logic system will verify the ability of the logic systems to bring the auxiliary electrical system to running standby readiness with the presence of an accident signal from any reactor or an undervoltage signal on the start buses or 4-kV shutdown boards.

The periodic simulation of accident signals in conjunction with diesel generator voltage available signals will confirm the ability of the 480-V load shedding logic system to sequentially shed and restart 480-V loads if an accident signal were present and diesel generator voltage were the only source of electrical power.

4.9 BASES (Cont'd)

Specification 4.9.D provides surveillance requirements for Units 1, 2, and 3 diesel generator emergency power sources for the purpose of satisfying Specification 3.9.D. Testing of these power sources is intended to ensure their OPERABILITY when required to support OPERABILITY of the standby gas treatment system and/or the control room emergency ventilation system.

References

1. Normal Auxiliary Power System (BFNP FSAR Subsection 8.4)

2. Standby AC Power Supply and Distribution (BFNP FSAR Subsection 8.5)

3. 250-V DC Power Supply and Distribution (BFNP FSAR Subsection 8.6)

4. Memorandum from G. M. Wilhoite to H. J. Green dated December 4, 1981 (L00 811208 664) and memorandum from C. E. Winn to H. J. Green dated January 10, 1983 (G02 830112 002)