

July 27, 2000

Mr. H. L. Sumner, Jr.
Vice President - Nuclear
Hatch Project
Southern Nuclear Operating
Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

**SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 RE: ISSUANCE OF
AMENDMENTS (TAC NOS. MA6773 AND MA6774)**

Dear Mr. Sumner:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 221 to Facility Operating License DPR-57 and Amendment No. 162 to Facility Operating License NPF-5 for the Edwin I. Hatch Nuclear Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications and associated Bases in response to your application dated October 1, 1999.

The amendments revise the minimum fuel oil level for the diesel generator day tanks in Surveillance Requirement 3.8.1.3 and revise the acceptable fuel oil level storage band in Required Action Statement B of Limiting Condition for Operation 3.8.3.

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

Sincerely,

/RA/

Leonard N. Olshan, Senior Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosures:

1. Amendment No. 221 to DPR-57
2. Amendment No. 162 to NPF-5
3. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

July 27, 2000

Mr. H. L. Sumner, Jr.
Vice President - Nuclear
Hatch Project
Southern Nuclear Operating
Company, Inc.
Post Office Box 1295
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The amendments revise the minimum fuel oil level for the diesel generator day tanks in Surveillance Requirement 3.8.1.3 and revise the acceptable fuel oil level storage band in Required Action Statement B of Limiting Condition for Operation 3.8.3.

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

Sincerely,

Leonard N. Olshan, Senior Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosures:

1. Amendment No. 221 to DPR-57
2. Amendment No. 162 to NPF-5
3. Safety Evaluation

cc w/encls: See next page

Edwin I. Hatch Nuclear Plant

cc:

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Baxley, Georgia 31515**



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-321

EDWIN I. HATCH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 221
License No. DPR-57

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit 1 (the facility) Facility Operating License No. DPR-57 filed by Southern Nuclear Operating Company, Inc. (Southern Nuclear), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees), dated October 1, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;
 - 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 hereby amended by page 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-57 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 221, are hereby incorporated in the license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



L. Raghavan, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: July 27, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 221

FACILITY OPERATING LICENSE NO. DPR-57

DOCKET NO. 50-321

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

<u>Remove</u>	<u>Insert</u>
3.8-8	3.8-8
3.8-24	3.8-24
3.8-27	3.8-27
B3.8-23	B3.8-23
B3.8-49	B3.8-49
B3.8-50	B3.8-50
B3.8-51	B3.8-51
B3.8-52	B3.8-52
B3.8-53	B3.8-53
B3.8-54	B3.8-54

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.2 (continued) -----NOTES-----</p> <p>6. Starting transients above the upper voltage limit do not invalidate this test.</p> <p>7. Momentary transients outside the load range do not invalidate this test.</p> <p>8. This Surveillance shall be conducted on only one DG at a time.</p> <p>-----</p> <p>Verify each DG:</p> <p>a. Starts from standby conditions and achieves steady state voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and</p> <p>b. Operates for ≥ 60 minutes at a load ≥ 1710 kW and ≤ 2000 kW.</p>	31 days
<p>SR 3.8.1.3 Verify each day tank contains ≥ 500 gallons of fuel oil.</p>	31 days
<p>SR 3.8.1.4 Check for and remove accumulated water from each day tank.</p>	184 days

(continued)

Diesel Fuel Oil and Transfer, Lube Oil, and Starting Air
3.8.3

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil and Transfer, Lube Oil, and Starting Air

LCO 3.8.3 The Unit 1 and swing diesel generators (DGs) stored diesel fuel oil shall be within limits;

AND

The Unit 1 and swing DGs fuel oil transfer subsystem shall be OPERABLE;

AND

The lube oil and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DGs with one fuel oil transfer pump inoperable.	A.1 Restore fuel oil transfer pump to OPERABLE status.	30 days
B. One or more required diesel fuel oil tanks with fuel oil level < 33,320 gallons and > 29,520 gallons.	B.1 Restore fuel oil level to within limits.	48 hours

(continued)

Diesel Fuel Oil and Transfer, Lube Oil, and Starting Air
3.8.3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each Unit 1 and swing DG fuel oil storage tank contains $\geq 33,320$ gallons of fuel.	31 days
SR 3.8.3.2	Verify each required DG lube oil inventory is ≥ 400 gallons.	31 days
SR 3.8.3.3	Verify fuel oil total particulate concentration of Unit 1 and swing DG stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is ≥ 225 psig.	31 days
SR 3.8.3.5	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	31 days
SR 3.8.3.6	Check for and remove accumulated water from each Unit 1 and swing DG fuel oil storage tank.	184 days
SR 3.8.3.7	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.	18 months

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.8.1.2 (continued)

Note 7 modifies this Surveillance by stating that momentary load transients because of changing bus loads do not invalidate this test.

Note 8 indicates that this Surveillance is required to be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations.

The normal 31 day Frequency for SR 3.8.1.2 is consistent with Regulatory Guide 1.108 (Ref. 10). This Frequency provides adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.

SR 3.8.1.3

This volume is selected to ensure adequate fuel oil for a minimum of 1 hour of DG operation at full load plus 10%. The actual amount required to meet the SR (500 gallons) will provide approximately 1.85 hours of DG operation at full load plus 10%. Additionally, the volume of fuel in the day tanks is used in the calculation of the 7-day continuous DG run time. (See B 3.8.3.)

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and operators would be aware of any large uses of fuel oil during this period.

SR 3.8.1.4

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day tanks once every 184 days eliminates the necessary environment for bacterial survival.

This is a means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water in the day tank may come from condensation, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Checking for and removal of accumulated water minimizes fouling and

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil and Transfer, Lube Oil, and Starting Air

BASES

BACKGROUND

Each diesel generator (DG) is provided with a storage tank. The 33,320 gallons required to be maintained in each of the Unit 1 and swing DG's fuel oil tanks represent a total volume of oil, together with the volume of oil in the day tanks, sufficient to operate any two DGs at 3250 kW for a period of 7 days (Ref.1). In addition, it provides excess fuel to also operate the other Unit's required DGs at a load sufficient to maintain power to the components, required to be OPERABLE by the Unit 1 Technical Specifications, for approximately 7 days. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from storage tank to day tank by either of two transfer pumps associated with each storage tank. Valving is also available so that fuel oil can be transferred between fuel oil storage tanks and the day tanks. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve, or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the stored fuel oil. The fuel oil property monitored is the total particulate concentration. Periodic testing of the stored fuel oil total particulate concentration is a method to monitor the potential degradation related to long term storage and the potential impact to fuel filter plugging as a result of high particulate levels.

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. The onsite storage in addition to the engine oil sump is sufficient to ensure 7 days' continuous operation. This supply is sufficient to allow the operator to replenish lube oil from outside sources.

(continued)

BASES

**BACKGROUND
(continued)**

Each DG has an air start system with adequate capacity for five successive start attempts on the DG without recharging the air start receivers.

**APPLICABLE
SAFETY ANALYSES**

The initial conditions of Design Basis Accident (DBA) and transient analyses in FSAR, Chapters 5 and 6 (Ref. 2), and Chapter 14 (Ref. 3), assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.5, Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) System; and Section 3.6, Containment Systems.

Since diesel fuel oil and transfer, lube oil, and starting air subsystem support the operation of the standby AC power sources, they satisfy Criterion 3 of the NRC Policy Statement (Ref. 4).

LCO

Stored diesel fuel oil is required to have sufficient supply for 7 days of full load operation. Three fuel oil storage tanks (the Unit 1 and swing DGs), each $\geq 33,320$ gallons, and 3 day tanks, each with 500 gallons, will provide the necessary volume. Included in this requirement is the transfer capability automatically from the Unit 1 and swing DGs storage tanks to the associated day tank and manually from each Unit 1 and swing DG storage tank to the day tanks of each required DG. It is also required to meet specific standards for quality. Additionally, sufficient lube oil supply must be available to ensure the capability to operate at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of DGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. DG day tank fuel oil requirements are addressed in LCO 3.8.1, "AC Sources—Operating," and LCO 3.8.2, "AC Sources—Shutdown."

(continued)

BASES

LCO
(continued)

The starting air system is required to have a minimum capacity for five successive DG start attempts without recharging the air start receivers. Only one air start receiver per DG is required, since each air start receiver has the required capacity.

APPLICABILITY

The AC sources (LCO 3.8.1 and LCO 3.8.2) are required to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Because stored diesel fuel oil and transfer, lube oil, and starting air subsystem support LCO 3.8.1 and LCO 3.8.2, stored diesel fuel oil and transfer, lube oil, and starting air are required to be within limits when the associated DG is required to be OPERABLE.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each DG. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DG subsystem. Complying with the Required Actions for one inoperable DG subsystem may allow for continued operation, and subsequent inoperable DG subsystem(s) are governed by separate Condition entry and application of associated Required Actions.

A.1

With one or more required DGs with one fuel oil transfer pump inoperable, the inoperable pump must be restored to OPERABLE status within 30 days. With the unit in this condition, the remaining OPERABLE fuel transfer pump is adequate to perform the fuel transfer function. However, the overall reliability is reduced because a single failure in the OPERABLE pump could result in loss of the associated DG and loss of the fuel oil in the respective tank. The 30 day Completion Time is based on the remaining fuel oil transfer capability, and the low probability of the need for the DG concurrent with a worst case single failure.

(continued)

BASES

ACTIONS
(continued)

B.1

In this condition, the 7 day fuel oil supply for a required DG is not available. However, the Condition is restricted to fuel oil level reductions that maintain at least a 6 day supply. These circumstances may be caused by events such as:

- a. Full load operation required for an inadvertent start while at minimum required level; or
- b. Feed and bleed operations that may be necessitated by increasing particulate levels or any number of other oil quality degradations.

This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of the fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

C.1

With a required DG lube oil inventory < 400 gal, sufficient lube oil to support 7 days of continuous DG operation at full load conditions may not be available. However, the Condition is restricted to lube oil volume reductions that maintain at least a 6 day supply. This restriction allows sufficient time for obtaining the requisite replacement volume. A period of 48 hours is considered sufficient to complete restoration of the required volume prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the low rate of usage, the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

(continued)

BASES

ACTIONS
(continued)

D.1

This Condition is entered as a result of a failure to meet the acceptance criterion for particulates. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, since particulate concentration is unlikely to change significantly between Surveillance Frequency intervals, and since proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated DG inoperable. The 7 day Completion Time allows for further evaluation, resampling, and re-analysis of the DG fuel oil.

E.1

With required starting air receiver pressure < 225 psig, sufficient capacity for five successive DG start attempts does not exist. However, as long as the receiver pressure is ≥ 170 psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

(continued)

BASES

ACTIONS
(continued)

E.1

With a Required Action and associated Completion Time of Condition A, B, C, D, or E not met, one or more required DG fuel oil transfer subsystems inoperable for reasons other than Condition A, one or more required DG fuel oil storage tanks with fuel oil level not within limits for reasons other than Condition B, or the stored diesel lube oil or the required starting air subsystem not within limits for reasons other than addressed by Condition C or E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

SURVEILLANCE
REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the Unit 1 and swing DG storage tanks to support the required DGs' operation for 7 days at the assumed load. (See B 3.8.3.)

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

SR 3.8.3.2

This Surveillance ensures that sufficient lubricating oil inventory (combined inventory in the DG lubricating oil sump and stored in the warehouse) is available to support at least 7 days of full load operation for each required DG. The 400 gal requirement is based on the DG manufacturer's consumption values for the run time of the DG. Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the DG, since the DG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer's recommended minimum level.

A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run time are closely monitored by the plant staff.

(continued)



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-366

EDWIN I. HATCH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 162
License No. NPF-5

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

- A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit 2 (the facility) Facility Operating License No. NPF-5 filed by Southern Nuclear Operating Company, Inc. (Southern Nuclear), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees), October 1, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;
- 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.

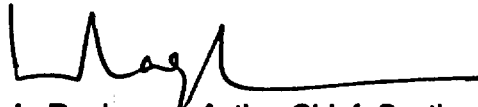
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-5 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 162 are hereby incorporated in the license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



L. Raghavan, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: July 27, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 162

FACILITY OPERATING LICENSE NO. NPF-5

DOCKET NO. 50-366

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

Remove

3.8-8
3.8-24
3.8-27
B 3.8-23
B 3.8-48
B 3.8-49
B 3.8-50
B 3.8-51
B 3.8-52
B 3.8-53

Insert

3.8-8
3.8-24
3.8-27
B 3.8-23
B 3.8-48
B 3.8-49
B 3.8-50
B 3.8-51
B 3.8-52
B 3.8-53

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.2 (continued) -----NOTES-----</p> <p>6. Starting transients above the upper voltage limit do not invalidate this test.</p> <p>7. Momentary transients outside the load range do not invalidate this test.</p> <p>8. This Surveillance shall be conducted on only one DG at a time.</p> <p>-----</p> <p>Verify each DG:</p> <p>a. Starts from standby conditions and achieves steady state voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and</p> <p>b. Operates for ≥ 60 minutes at a load ≥ 1710 kW and ≤ 2000 kW.</p>	<p>31 days</p>
<p>SR 3.8.1.3 Verify each day tank contains ≥ 500 gallons of fuel oil.</p>	<p>31 days</p>
<p>SR 3.8.1.4 Check for and remove accumulated water from each day tank.</p>	<p>184 days</p>

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil and Transfer, Lube Oil, and Starting Air

LCO 3.8.3 The Unit 2 and swing diesel generators (DGs) stored diesel fuel oil shall be within limits;

AND

The Unit 2 and swing DGs fuel oil transfer subsystem shall be OPERABLE;

AND

The lube oil and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DGs with one fuel oil transfer pump inoperable.	A.1 Restore fuel oil transfer pump to OPERABLE status.	30 days
B. One or more required diesel fuel oil tanks with fuel oil level < 33,320 gallons and > 29,520 gallons.	B.1 Restore fuel oil level to within limits.	48 hours

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each Unit 2 and swing DG fuel oil storage tank contains $\geq 33,320$ gallons of fuel.	31 days
SR 3.8.3.2	Verify each required DG lube oil inventory is ≥ 400 gallons.	31 days
SR 3.8.3.3	Verify fuel oil total particulate concentration of Unit 2 and swing DG stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is ≥ 225 psig.	31 days
SR 3.8.3.5	Verify each Unit 2 and swing DG fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	31 days
SR 3.8.3.6	Check for and remove accumulated water from each Unit 2 and swing DG fuel oil storage tank.	184 days
SR 3.8.3.7	Verify each Unit 2 and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.	18 months

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.8.1.2 (continued)

Note 7 modifies this Surveillance by stating that momentary load transients because of changing bus loads do not invalidate this test.

Note 8 indicates that this Surveillance is required to be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations.

The normal 31 day Frequency for SR 3.8.1.2 is consistent with Regulatory Guide 1.108 (Ref. 9). This Frequency provides adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.

SR 3.8.1.3

This volume is selected to ensure adequate fuel oil for a minimum of 1 hour of DG operation at full load plus 10%. The actual amount required to meet the SR (500 gallons) will provide approximately 1.85 hours of DG operation at full load plus 10%. Additionally, the volume of fuel in the day tanks is used in the calculation of the 7-day continuous DG run time. (See B 3.8.3.)

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and operators would be aware of any large uses of fuel oil during this period.

SR 3.8.1.4

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day tanks once every 184 days eliminates the necessary environment for bacterial survival.

This is a means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water in the day tank

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil and Transfer, Lube Oil, and Starting Air

BASES

BACKGROUND

Each diesel generator (DG) is provided with a storage tank. The 33,320 gallons required to be maintained in each of the Unit 2 and swing DG's fuel oil tanks represent a total volume of oil, together with the volume of oil in the day tanks, sufficient to operate any two DGs at 3250 kW for a period of 7 days (Ref.1). In addition, it provides excess fuel to also operate the other Unit's required DGs at a load sufficient to maintain power to the components, required to be OPERABLE by the Unit 2 Technical Specifications, for approximately 7 days. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from storage tank to day tank by either of two transfer pumps associated with each storage tank. Valving is also available so that fuel oil can be transferred between fuel oil storage tanks and the day tanks. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve, or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the stored fuel oil. The fuel oil property monitored is the total particulate concentration. Periodic testing of the stored fuel oil total particulate concentration is a method to monitor the potential degradation related to long term storage and the potential impact to fuel filter plugging as a result of high particulate levels.

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. The onsite storage in addition to the engine oil sump is sufficient to ensure 7 days' continuous operation. This supply is sufficient to allow the operator to replenish lube oil from outside sources.

(continued)

BASES

BACKGROUND
(continued)

Each DG has an air start system with adequate capacity for five successive start attempts on the DG without recharging the air start receivers.

APPLICABLE
SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in FSAR, Chapter 6 (Ref. 2), and Chapter 15 (Ref. 3), assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.5, Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) System; and Section 3.6, Containment Systems.

Since diesel fuel oil and transfer, lube oil, and starting air subsystem support the operation of the standby AC power sources, they satisfy Criterion 3 of the NRC Policy Statement (Ref. 4).

LCO

Stored diesel fuel oil is required to have sufficient supply for 7 days of full load operation. Three fuel oil storage tanks (the Unit 2 and swing DGs), each $\geq 33,320$ gallons, and 3 day tanks, each with 500 gallons, will provide the necessary volume. Included in this requirement is the transfer capability automatically from the Unit 2 and swing DGs storage tanks to the associated day tank and manually from each Unit 2 and swing DG storage tank to the day tanks of each required DG. It is also required to meet specific standards for quality. Additionally, sufficient lube oil supply must be available to ensure the capability to operate at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of DGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. DG day tank fuel oil requirements are addressed in LCO 3.8.1, "AC Sources—Operating," and LCO 3.8.2, "AC Sources—Shutdown."

(continued)

BASES

LCO
(continued)

The starting air system is required to have a minimum capacity for five successive DG start attempts without recharging the air start receivers. Only one air start receiver per DG is required, since each air start receiver has the required capacity.

APPLICABILITY

The AC sources (LCO 3.8.1 and LCO 3.8.2) are required to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Because stored diesel fuel oil and transfer, lube oil, and starting air subsystem support LCO 3.8.1 and LCO 3.8.2, stored diesel fuel oil and transfer, lube oil, and starting air are required to be within limits when the associated DG is required to be OPERABLE.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each DG. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DG subsystem. Complying with the Required Actions for one inoperable DG subsystem may allow for continued operation, and subsequent inoperable DG subsystem(s) are governed by separate Condition entry and application of associated Required Actions.

A.1

With one or more required DGs with one fuel oil transfer pump inoperable, the inoperable pump must be restored to OPERABLE status within 30 days. With the unit in this condition, the remaining OPERABLE fuel transfer pump is adequate to perform the fuel transfer function. However, the overall reliability is reduced because a single failure in the OPERABLE pump could result in loss of the associated DG and loss of the fuel oil in the respective tank. The 30 day Completion Time is based on the remaining fuel oil transfer capability, and the low probability of the need for the DG concurrent with a worst case single failure.

(continued)

BASES

ACTIONS
(continued)

B.1

In this condition, the 7 day fuel oil supply for a required DG is not available. However, the Condition is restricted to fuel oil level reductions that maintain at least a 6 day supply. These circumstances may be caused by events such as:

- a. Full load operation required for an inadvertent start while at minimum required level; or
- b. Feed and bleed operations that may be necessitated by increasing particulate levels or any number of other oil quality degradations.

This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of the fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

C.1

With a required DG lube oil inventory < 400 gal, sufficient lube oil to support 7 days of continuous DG operation at full load conditions may not be available. However, the Condition is restricted to lube oil volume reductions that maintain at least a 6 day supply. This restriction allows sufficient time for obtaining the requisite replacement volume. A period of 48 hours is considered sufficient to complete restoration of the required volume prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the low rate of usage, the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

(continued)

BASES

ACTIONS
(continued)

D.1

This Condition is entered as a result of a failure to meet the acceptance criterion for particulates. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, since particulate concentration is unlikely to change significantly between Surveillance Frequency intervals, and since proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated DG inoperable. The 7 day Completion Time allows for further evaluation, resampling, and re-analysis of the DG fuel oil.

E.1

With required starting air receiver pressure < 225 psig, sufficient capacity for five successive DG start attempts does not exist. However, as long as the receiver pressure is \geq 170 psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

(continued)

BASES

ACTIONS
(continued)

E.1

With a Required Action and associated Completion Time of Condition A, B, C, D, or E not met, one or more required DG fuel oil transfer subsystems inoperable for reasons other than Condition A, one or more required DG fuel oil storage tanks with fuel oil level not within limits for reasons other than Condition B, or the stored diesel lube oil or the required starting air subsystem not within limits for reasons other than addressed by Condition C or E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

SURVEILLANCE
REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the Unit 2 and swing DG storage tanks to support the required DGs' operation for 7 days at the assumed load. (See B 3.8.3.)

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

SR 3.8.3.2

This Surveillance ensures that sufficient lubricating oil inventory (combined inventory in the DG lubricating oil sump and stored in the warehouse) is available to support at least 7 days of full load operation for each required DG. The 400 gal requirement is based on the DG manufacturer's consumption values for the run time of the DG. Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the DG, since the DG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer's recommended minimum level.

A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run time are closely monitored by the plant staff.

(continued)



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 221 TO FACILITY OPERATING LICENSE DPR-57
AND AMENDMENT NO. 162 TO FACILITY OPERATING LICENSE NPF-5
SOUTHERN NUCLEAR OPERATING COMPANY, INC., ET AL.
EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By letter dated October 1, 1999, Southern Nuclear Operating Company, Inc., the licensee, requested a revision to the Technical Specifications (TS) and associated Bases for the Edwin I. Hatch Nuclear Plant, Units 1 and 2. The proposed amendment revises Surveillance Requirement SR 3.8.1.3; SR 3.8.3.1; and Limiting Condition of Operation LCO 3.8.3. These TS specify the minimum volume of diesel fuel required to be stored in the Emergency Diesel Generators (EDGs) day tanks and underground storage tanks and their surveillance requirements.

Currently, SR 3.8.1.3 requires verification that each day tank contains a minimum of 900 gallons of fuel oil. This verification is required to be performed once every 31 days. However, because the capacity of an individual day tank is 1,000 gallons, which is only 100 gallons greater than the 900 gallon requirement, the licensee finds it necessary to locate the low level setpoint below the point at which 900 gallons remains in the day tank. The licensee's reason for doing so is that if the setpoint were located above the acceptance criterion for TS SR 3.8.1.3, the instrument tolerances for the high and low level alarms would overlap. As a result, once the low level alarm is received, the fuel oil in the tank is already below the TS SR 3.8.1.3 requirement of 900 gallons. Therefore, the licensee proposes to change SR 3.8.1.3's minimum fuel oil level for the EDG day tank from ≥ 900 gallons to ≥ 500 gallons. To compensate for the decrease in the minimum level required in the day tank, the licensee is proposing to increase the minimum required volume in the EDG storage tanks from " $\geq 33,000$ " to " $\geq 33,320$."

Having the fuel oil day tank low level alarm below the TS requirement also causes a problem with the fuel oil transfer pump surveillance. This surveillance is performed by taking the pump off line (by placing it in the off position) and running the EDG until the oil level in the day tank falls below the low level annunciator setpoint. The pump is subsequently brought back online by placing it in the auto position to determine if the automatic transfer from the fuel oil supply tank, initiated by the level switches, occurs as anticipated. Performing this test requires the tank level to fall below TS SR 3.8.1.3's acceptance criterion of ≥ 900 gallons.

2.0 BACKGROUND

Hatch has five EDGs used to supply emergency AC power. Fuel oil for the EDGs is contained in five underground supply storage tanks, each with a capacity of 40,000 gallons. The licensee is required to maintain a level of 33,000 gallons of fuel oil in each tank. The five EDGs also have five day tanks, each with a capacity of 1,000 gallons. Each day tank is capable of providing its associated DG with enough fuel for approximately 4 hours of 100% load operations. Fuel oil is transferred from the storage tanks to the day tanks via one of two pumps located on each storage tank. Fuel oil level switches, located in the day tank, automatically start these pumps at designated setpoints. Pumps driven by the EDGs transfer fuel oil from the day tank to the diesel engine fuel manifold.

3.0 EVALUATION

TS Surveillance Requirement changes:

TS SR 3.8.1.3:

There are two primary design criteria for onsite diesel fuel oil storage:

1. There must be sufficient fuel oil stored onsite to permit four of the five diesel generators to run continuously at 3250kw for a period of seven days (per ANSI N195-1976, Section 5.2 and Reg. Guide 1.137, Section C.1.c), and
2. There must be enough fuel oil in each day tank to operate the appropriate diesel generator for one hour at 100% load plus a 10% margin (per ANSI N195-1976, Section 6.1).

Primary Design Criteria Number 1:

Stored EDG fuel oil is required to have sufficient supply for seven days of full load operation. Three fuel oil storage tanks (each unit's EDGs and the swing EDG), each with $\geq 33,320$ gallons, and 3 day tanks, each with 500 gallons, will provide the necessary volume, (as described in Section TS SR 3.8.3.1 below).

Primary Design Criteria Number 2:

The current TS SR 3.8.1.3 requires that the fuel oil level be ≥ 900 gallons, which equals 3.5 hours runtime at the required load. The proposed ≥ 500 gallon day tank fuel oil level allows for an adequate margin above the minimum diesel generator requirement of 60 minutes at 110% load. 240 gallons of fuel oil are required to run the diesel generator for 60 minutes at 100% load. The proposed change to a day tank fuel oil level of ≥ 500 gallons is sufficient to run the EDG for 1.89 hours or 113 minutes, which is well in excess of the necessary fuel for one hour at a 110% load.

TS SR 3.8.3.1

The current SR 3.8.3.1 requires that the fuel oil level be $\geq 33,000$ gallons in each of the five storage tanks. The proposed level of $\geq 33,320$ gallons, in conjunction with the reduction for TS

SR 3.8.1.3 level requirement for the day tank to ≥ 500 gallons discussed above, does not affect the ability of four of the five diesel generators to run continuously for seven days supplying accident loads. The licensee stated that with 500 gallons in each of the four operating day tanks and 33,320 gallons in each of the five storage tanks, four of five diesels will be able to run continuously for seven days at a load of 3250 kw. The seven days continuous operation criterion was established to ensure that the diesel could run continuously for a longer period of time than that required to replenish the onsite storage from outside sources. The Bases section of TS 3.8.3 was augmented to reflect the volumetric changes discussed above.

TS LCO 3.8.3

The current LCO reads as follows:

Stored diesel fuel oil is required to have sufficient supply for 7 days of full load operation. Three fuel oil storage tanks (each unit's EDGs and the swing EDG), each $\geq 33,000$ gallons will provide the necessary volume.

The proposed LCO changes the volume from $\geq 33,000$ gallons to $\geq 33,320$ gallons and adds the phrase ", and 3 day tanks, each with 500 gallons, will provide the necessary volume."

We find this change acceptable since it clarifies and reflects the changes discussed in the above sections.

The licensee's calculation concluded that the total onsite storage of ≥ 500 gallons in each day tank volume requirement and the increase of the storage tanks requirement to $\geq 33,320$ gallons each will allow for 7 days of continuous operation for four of the five diesel generators at 3250kw. The staff finds that the recommendations of ANSI N195-1976 and Regulatory Guide 1.137 for stored diesel fuel sufficient for 7 days of continuous EDGs operation is met, and therefore, we conclude that the proposed amendment is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Georgia 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 the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and change 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 (64 FR 62715). 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 amendments.

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.

Principal Contributor: A. M. Gill

Date: July 27, 2000