

June 7, 1989

Docket Nos. 50-275  
and 50-323

Mr. J. D. Shiffer, Vice President  
Nuclear Power Generation  
c/o Nuclear Power Generation, Licensing  
Pacific Gas and Electric Company  
77 Beale Street, Room 1451  
San Francisco, California 94106

Dear Mr. Shiffer:

SUBJECT: ISSUANCE OF AMENDMENTS (TAC NOS. 72823 AND 72824)

The Commission has issued the enclosed Amendment No. 39 to Facility Operating License No. DPR-80 and Amendment No. 38 to Facility Operating License No. DPR-82 for the Diablo Canyon Power Plant (DCPP), Units 1 and 2, respectively. The amendments change the combined Technical Specifications (TS) in response to your application dated March 29, 1989 (Reference LAR 89-04).

The amendments revise the combined Technical Specifications (TS) for DCPP to require that at least 23 feet of water to be maintained above the top of irradiated fuel assemblies within the vessel during movement of rod cluster control assemblies. The previous TS required that at least 23 feet of water must be maintained above the top of the reactor vessel flange. Specifically, the amendments revise TS 3/4.9.10, "Water Level-Reactor Vessel," and the associated Bases.

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

Sincerely,

original signed by

Harry Rood, Senior Project Manager  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

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Enclosures:

1. Amendment No. 39 to DPR-80
2. Amendment No. 38 to DPR-82
3. Safety Evaluation

cc w/enclosures:

See next page

DRSP/PD5  
JLee\*  
05/01/89

DRSP/PD  
HRood\*  
04/28/89

SRXB  
MWHodges\*  
05/02/89

OGC  
MYoung\*  
05/05/89

DRSP/PD5  
GKnighton  
06/7/89

\*See previous concurrence

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GKnighton  
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cc

Docket Nos. 50-275  
and 50-323

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77 Beale Street, Room 1451  
San Francisco, California 94106

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Harry Rood, Senior Project Manager  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects

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3. Safety Evaluation

cc w/enclosures: See next page

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MWHodges  
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OGC <sup>mu</sup>  
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5/5/89

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GKnighton  
1/89



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

June 7, 1989

Docket Nos. 50-275  
and 50-323

Mr. J. D. Shiffer, Vice President  
Nuclear Power Generation  
c/o Nuclear Power Generation, Licensing  
Pacific Gas and Electric Company  
77 Beale Street, Room 1451  
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The amendments revise the combined Technical Specifications (TS) for DCPP to require that at least 23 feet of water to be maintained above the top of irradiated fuel assemblies within the vessel during movement of rod cluster control assemblies. The previous TS required that at least 23 feet of water must be maintained above the top of the reactor vessel flange. Specifically, the amendments revise TS 3/4.9.10, "Water Level-Reactor Vessel," and the associated Bases.

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

Sincerely,

A handwritten signature in cursive script that reads "Harry Rood".

Harry Rood, Senior Project Manager  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 39 to DPR-80
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cc w/enclosures:  
See next page

Mr. J. D. Shiffer  
Pacific Gas and Electric Company

Diablo Canyon

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

PACIFIC GAS AND ELECTRIC COMPANY  
DIABLO CANYON NUCLEAR POWER PLANT, UNIT 1  
DOCKET NO. 50-275  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 39  
License No. DPR-80

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Pacific Gas & Electric Company (the licensee), dated March 29, 1989 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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.

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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-80 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. 39, are hereby incorporated in the license. Pacific Gas & Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment becomes effective at the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
George W. Knighton, Director  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: June 7, 1989



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

PACIFIC GAS AND ELECTRIC COMPANY  
DIABLO CANYON NUCLEAR POWER PLANT, UNIT 2  
DOCKET NO. 50-323  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 38  
License No. DPR-82

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Pacific Gas & Electric Company (the licensee), dated March 29, 1989 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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-82 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. 38, are hereby incorporated in the license. Pacific Gas & Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment becomes effective at the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



George W. Knighton, Director  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: June 7, 1989



ATTACHMENT TO LICENSE AMENDMENT NOS. 39 AND 38  
FACILITY OPERATING LICENSE NOS. DPR-80 and DPR-82  
DOCKET NOS. 50-275 AND 50-323

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change. Overleaf pages are also included, as appropriate.

Remove Page

xii  
3/4 9-11  
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B 3/4 9-2  
B 3/4 9-3

Insert Page

xii  
3/4 9-11  
3/4 9-11a  
B 3/4 9-2  
B 3/4 9-3

## INDEX

### LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

---

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.7 PLANT SYSTEMS (continued)</u>	
3/4.7.10 FIRE BARRIER PENETRATIONS.....	3/4 7-36
3/4.7.11 AREA TEMPERATURE MONITORING.....	3/4 7-37
TABLE 3.7-5 AREA TEMPERATURE MONITORING.....	3/4 7-38
3/4.7.12 ULTIMATE HEAT SINK.....	3/4 7-39
3/4.7.13 FLOOD PROTECTION.....	3/4 7-40
<u>3/4.8 ELECTRICAL POWER SYSTEMS</u>	
3/4.8.1 A.C. SOURCES	
Operating.....	3/4 8-1
TABLE 4.8-1 DIESEL GENERATOR TEST SCHEDULE.....	3/4 8-8
TABLE 4.8-2a LOAD SEQUENCING TIMERS - ESF TIMERS.....	3/4 8-9
TABLE 4.8-2b LOAD SEQUENCING TIMERS - AUTO TRANSFER TIMERS.....	3/4 8-10
Shutdown.....	3/4 8-11
3/4.8.2 ONSITE POWER DISTRIBUTION	
Operating.....	3/4 8-12
Shutdown.....	3/4 8-14
3/4.8.3 D.C. SOURCES	
Operating.....	3/4 8-15
TABLE 4.8-3 BATTERY SURVEILLANCE REQUIREMENTS.....	3/4 8-17
Shutdown.....	3/4 8-18
3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES	
Motor-Operated Valves Thermal Overload Protection and Bypass Devices.....	3/4 8-19
TABLE 3.8-1 MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION AND BYPASS DEVICES.....	3/4 8-20
Containment Penetration Conductor Overcurrent Protective Devices.....	3/4 8-23

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

---

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.9 REFUELING OPERATIONS</u>	
3/4.9.1 BORON CONCENTRATION.....	3/4 9-1
3/4.9.2 INSTRUMENTATION.....	3/4 9-2
3/4.9.3 DECAY TIME.....	3/4 9-3
3/4.9.4 CONTAINMENT PENETRATIONS.....	3/4 9-4
3/4.9.5 COMMUNICATIONS.....	3/4 9-5
3/4.9.6 MANIPULATOR CRANE.....	3/4 9-6
3/4.9.7 CRANE TRAVEL - FUEL HANDLING BUILDING.....	3/4 9-7
3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION	
High Water Level.....	3/4 9-8
Low Water Level.....	3/4 9-9
3/4.9.9 CONTAINMENT VENTILATION ISOLATION SYSTEM.....	3/4 9-10
3/4.9.10 WATER LEVEL - REACTOR VESSEL.....	3/4 9-11
Fuel Assemblies.....	3/4 9-11
Control Rods.....	3/4 9-11a
3/4.9.11 WATER LEVEL - SPENT FUEL POOL.....	3/4 9-12
3/4.9.12 FUEL HANDLING BUILDING VENTILATION SYSTEM.....	3/4 9-13
3/4.9.13 SPENT FUEL SHIPPING CASK MOVEMENT.....	3/4 9-15
<u>3/4.10 SPECIAL TEST EXCEPTIONS</u>	
3/4.10.1 SHUTDOWN MARGIN.....	3/4 10-1
3/4.10.2 GROUP HEIGHT, INSERTION AND POWER DISTRIBUTION LIMITS...	3/4 10-2
3/4.10.3 PHYSICS TESTS.....	3/4 10-3
3/4.10.4 POSITION INDICATION SYSTEM - SHUTDOWN.....	3/4 10-4

## REFUELING OPERATIONS

### 3/4.9.10 WATER LEVEL - REACTOR VESSEL

#### FUEL ASSEMBLIES

#### LIMITING CONDITION FOR OPERATION

---

3.9.10.1 At least 23 feet of water shall be maintained over the top of the reactor pressure vessel flange.

APPLICABILITY: During movement of fuel assemblies within containment when the reactor pressure vessel pressure contains irradiated fuel assemblies.

#### ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies within the reactor pressure vessel. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.9.10.1 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and at least once per 24 hours thereafter during movement of irradiated fuel assemblies within containment.

## REFUELING OPERATIONS

### WATER LEVEL - REACTOR VESSEL

#### CONTROL RODS

#### LIMITING CONDITION FOR OPERATION

---

3.9.10.2 At least 23 feet of water shall be maintained over the top of the irradiated fuel assemblies within the reactor pressure vessel.

APPLICABILITY; During movement of control rods within the reactor pressure vessel while in MODE 6.

#### ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of control rods within the pressure vessel. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.9.10.2 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and at least once per 24 hours thereafter during movement of control rods within the reactor pressure vessel.

## REFUELING OPERATIONS

### 3/4.9.11 WATER LEVEL - SPENT FUEL POOL

#### LIMITING CONDITION FOR OPERATION

---

3.9.11 At least 23 feet of water shall be maintained over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: Whenever irradiated fuel assemblies are in the spent fuel pool.

#### ACTION:

- a. With the requirements of the above specification not satisfied, suspend all movement of fuel assemblies and crane operations with loads in the fuel storage areas and restore the water level to within its limit within 4 hours.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.9.11 The water level in the spent fuel pool shall be determined to be at least its minimum required depth at least once per 7 days when irradiated fuel assemblies are in the spent fuel pool.

## 3/4.9 REFUELING OPERATIONS

### BASES

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#### 3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the safety analysis.

#### 3/4.9.2 INSTRUMENTATION

The OPERABILITY of the Source Range Neutron Flux Monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

#### 3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the safety analyses.

#### 3/4.9.4 CONTAINMENT PENETRATIONS

The requirements on containment penetration closure and OPERABILITY ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE.

#### 3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity conditions during CORE ALTERATIONS.

#### 3/4.9.6 MANIPULATOR CRANE

The OPERABILITY requirements for the manipulator cranes ensure that: (1) manipulator cranes will be used for movement of control rods and fuel assemblies, (2) each crane has sufficient load capacity to lift a control rod or fuel assembly, and (3) the core internals and reactor vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

## REFUELING OPERATIONS

### BASES

#### 3/4.9.7 CRANE TRAVEL - FUEL HANDLING BUILDING

The restriction on movement of loads in excess of the nominal weight of a fuel and control assembly and associated handling tool, except the movable fuel handling building walls, over other fuel assemblies in the spent fuel pool ensures that in the event this load is dropped: (1) the activity release will be limited to that contained in a single fuel assembly, and (2) any possible distortion of the fuel in the storage racks will not result in a critical array. This assumption is consistent with the activity release assumed in the safety analyses. The movable fuel handling building walls travel on rollers over the spent fuel pool and have been designed to remain in place during postulated seismic events.

#### 3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

The requirement that at least one residual heat removal (RHR) train be in operation ensures that: (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor vessel below 140°F as required during the REFUELING MODE and (2) sufficient coolant circulation is maintained through the reactor core to minimize the effects of a boron dilution incident and prevent boron stratification. The requirement to maintain a 3000 gpm flowrate with the reactor subcritical less than 57 hours ensures that there is adequate decay heat removal capability. After the reactor is subcritical for 57 hours, the flowrate can be reduced to 1300 gpm and meet the decay heat removal requirements. The reduced flowrate provides additional margin to vortexing at the RHR pump suction while in partial drain operation.

The requirement to have two RHR trains OPERABLE when there is less than 23 feet of water above the reactor vessel flange ensures that a single failure of the operating RHR train will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 23 feet of water above the reactor vessel flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR train, adequate time is provided to initiate emergency procedures to cool the core.

#### 3/4.9.9 CONTAINMENT VENTILATION ISOLATION SYSTEM

The OPERABILITY of this system ensures that the containment ventilation penetrations will be automatically isolated upon detection of high radiation levels within the containment. The OPERABILITY of this system is required to restrict the release of radioactive material from the containment atmosphere to the environment.

#### 3/4.9.10 and 3/4.9.11 WATER LEVEL - REACTOR VESSEL and SPENT FUEL POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the safety analysis.

The minimum water level for movement of fuel assemblies (23 feet above the vessel flange) assures that sufficient water depth is maintained above fuel elements being moved to or from the vessel. With the upper internals in place, fuel assemblies and control rods cannot be removed from the vessel. Operations involving the unlatching of control rods with the vessel upper



## REFUELING OPERATIONS

### BASES

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#### WATER LEVEL - REACTOR VESSEL and SPENT FUEL POOL (Continued)

internals in place may proceed with less than 23 feet of water above the vessel flange provided that 23 feet of water (12 feet above the flange) is maintained above all irradiated fuel assemblies within the reactor vessel.

#### 3/4.9.12 FUEL HANDLING BUILDING VENTILATION SYSTEM

The limitations on the Fuel Handling Building Ventilation System ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the safety analyses. Transfer of system operation into the iodine removal mode (exhaust through HEPA filters and charcoal adsorbers) is initiated automatically by either the new fuel storage or spent fuel pool area radiation monitors required by Specification 3.3.3. ANSI N510-1980 will be used as a procedural guide for surveillance testing.

#### 3/4.9.13 SPENT FUEL SHIPPING CASK MOVEMENT

The restriction on spent fuel shipping cask movement ensures that no fuel assemblies will be ruptured in the event of a spent fuel shipping cask accident. The dose consequences of this accident are within the dose guideline values of 10 CFR Part 100.

#### 3/4.9.14 SPENT FUEL ASSEMBLY STORAGE

The restrictions placed on spent fuel assemblies stored in Region 2 of the spent fuel pool and the requirement for 2000 ppm boron concentration ensure that keff will not be greater than 0.95. The spent fuel storage has been designed and analyzed for a maximum enrichment of 4.5 weight percent U-235.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 39 TO FACILITY OPERATING LICENSE NO. DPR-80  
AND AMENDMENT NO. 38 TO FACILITY OPERATING LICENSE NO. DPR-82  
PACIFIC GAS AND ELECTRIC COMPANY  
DIABLO CANYON NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2  
DOCKET NO. 50-275 AND 50-323

1.0 INTRODUCTION

By letter dated March 29, 1989 (Reference LAR 89-04), Pacific Gas and Electric Company (PG&E or the licensee) requested amendments to the combined Technical Specifications (TS) appended to Facility Operating License Nos. DPR-80 and DPR-82 for the Diablo Canyon Power Plant (DCPP), Unit Nos. 1 and 2, respectively. The amendments change the TS to require that at least 23 feet of water be maintained above the top of irradiated fuel assemblies within the vessel during movement of rod cluster control assemblies.

2.0 EVALUATION

The previous TS required that at least 23 feet of water must be maintained above the top of the reactor vessel flange. These amendments change that requirement only during movement of rod cluster control assemblies, and not during movement of fuel assemblies. The amendments revise TS 3/4.9.10, "Water Level-Reactor Vessel," and the associated Bases.

Specifically, TS 3.9.10 is subdivided into TS 3.9.10.1 and TS 3.9.10.2 to address different operational situations. TS 3.9.10.1 requires at least 23 feet of water above the reactor pressure vessel flange for movement of fuel assemblies within containment. TS 3.9.10.2 allows rod cluster control assembly (RCCA) movement within the reactor pressure vessel with at least 23 feet of water over the top of the irradiated fuel assemblies. Also, a statement is added to the TS 3.9.10.1 action statement to specify that the provisions of TS 3.0.3 are not applicable. TS 4.9.10 is also subdivided into TS 4.9.10.1 and TS 4.9.10.2 to require surveillance of the refueling water level for movement of fuel assemblies and for movement of control rods, respectively. Also, the TS Bases are changed to reflect the above changes in the TS.

The NRC staff has reviewed the licensee's proposed TS change and finds it acceptable, based on the following:

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Regulatory Position C.1.c of NRC Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors," recommends that 23 feet of water be maintained above the location of any damage to irradiated fuel that could occur in a postulated fuel handling accident. The primary purpose of this recommendation is to ensure that sufficient water depth is available to remove 99 percent of the 10 percent iodine gap activity that is assumed to be released in a fuel handling accident. The highest elevation at which such a release could occur would be at the level of the reactor vessel flange, where a release could result from an irradiated fuel assembly striking the reactor vessel flange while the assembly is being loaded into or unloaded from the reactor vessel. Based on this, TS 3/4.9.10 currently requires that 23 feet of water be maintained above the reactor vessel flange during all refueling operations.

However, during uncoupling of the control rod drive shafts, the upper reactor vessel internals are still in place and the fuel assemblies will remain seated in the reactor pressure vessel, and fuel damage cannot occur above the top of the fuel. With the fuel assemblies seated in the pressure vessel, 23 feet of water above the top of the fuel will ensure that sufficient water depth is available to remove 99 percent of the assumed 10 percent iodine gap activity released in the event of fuel damage. Based on this, the revised TS requires that 23 feet of water be maintained above the reactor vessel flange when fuel is being moved, and that 23 feet of water be maintained above the fuel in the vessel when only the control rods are being moved. Therefore, the revised TS will continue to provide assurance that the plant meets the recommendations of Regulatory Guide 1.25 in the event of a fuel handling accident.

Based on the above, the staff finds acceptable the proposed amendments authorizing revision of the TS to require that at least 23 feet of water be maintained above the top of irradiated fuel assemblies within the vessel during movement of rod cluster control assemblies.

### 3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve changes in the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20, and changes in surveillance requirements. We have 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. Accordingly, these 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 these amendments.

#### 4.0 CONCLUSION

We have concluded, based on the considerations discussed above, that:  
(1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and  
(2) such activities will be conducted in compliance with the Commission's regulations and (3) the issuance of these amendments will not be inimical to the common defense and security or the health and safety of the public.

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Dated: June 7, 1989