SUPPLEMENT NO. 3 TO THE APRIL 4, 1979

FIRE PROTECTION SAFETY EVALUATION REPORT

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

U. S. NUCLEAR REGULATORY COMMISSION

FACILITY OPERATING LICENSE NO. DPR-6

CONSUMERS POWER COMPANY

BIG ROCK POINT PLANT

DOCKET NO. 50-155

Date: November 14, 1980

INTRODUCTION

On April 4, 1979, the Commission issued Amendment No. 25 to Facility Operating License No. DPR-6 for the Big Rock Point Plant. This amendment added a condition to the license which required completion of the modifications identified in Paragraphs 3.1.1 through 3.1.29 of the NRC's Fire Protection Safety Evaluation (FPSE) for the Big Rock Point Plant dated April 4, 1979.

By letter dated August 24, 1979, the licensee requested a delay in the implementation of the Alternate Shutdown Panel, Item 3.1.1 of Table 3.1 of the FPSE until completion of the Systematic Evaluation Program. The original implementation schedule in the FPSE is October 31, 1980. This supplement to the FPSE addresses this proposed implementation schedule change and the impact of the proposed Appendix R to 10 CFR Part 50 on the licensee's request.

In Table 3.2 of the FPSE, certain items were identified as incomplete and requiring further information from the licensee and evaluation by the NRC staff. This supplement to the FPSE also addresses those items that were identified as incomplete.

DISCUSSION AND EVALUATION

The section numbers indicated are those corresponding to the section numbers in the FPSE.

3.1.1 Alternate Safe Shutdown System

By letter dated August 24, 1979, the licensee requested that the implementation date of the alternate safe shutdown system be deferred until the completion of the Systematic Evaluation Program (SEP) review. The reason provided by the licensee for deferring the schedule for this item is that various topics currently being reviewed in the SEP (e.g., Topic VII-1.A, Isolation of Reactor Protection System from Non-Safety Systems; Topic VII-3, Systems Required for Safe Shutdown; Topic VII-4, Effects of Failure in Non-Safety Related Systems on Selected Engineered Safety Features, and Topic XV-24, Loss of All A-C Power) may result in additional requirements or modifications of the alternate shutdown capability. Because the SEP requirements could affect various parameters (e.g., location, size, detailed engineering design), adequate information is not available to design a system to meet all possible requirements.

The SEP is scheduled to be completed by April 1982. However, the Commission's Memorandum and Order dated May 23, 1980 notes that the proposed Appendix R to 10 CFR Part 50 specifies December 1, 1981 as the proposed implementation date for alternate shutdown capability and October 1, 1982 for dedicated shutdown capability for plants, including Big Rock Point, that are under review in the Systematic Evaluation Program. Accordingly, we have concluded that a delay until

the completion of the Systematic Evaluation Program as requested by the licensee is not appropriate; rather, we believe that any consideration for a delay in the scheduled implementation of alternate shutdown capability should be in the context of the provisions of the proposed Section 50.48 of 10 CFR 50 and its Appendix R.

Because of the fire modifications that have been implemented and the remainder that will be completed in the near future (see Table 3.1), the increase in fire brigade size to five trained members, the administrative controls in effect, and the possible changes in the requirements for the alternate shutdown capability that may be identified over the next year, we conclude that the completion date of the alternate safe shutdown system shall be governed by the requirements of Section 50.48 of 10 CFR 50 when it becomes effective.

3.2.1 Fuel Pool Cooling

In Section 4.16 of the FPSE, we stated that because of the lack of separation criteria for electrical cabling of redundant systems, postulated fires in various areas may result in loss of redundant cooling systems for the spent fuel pool. We stated that the resultant boiling that may occur would cause a gradual decrease in water level of the spent fuel pool but that this water could be adequately replenished by a fire hose. However, we indicated that the structural effects on the spent fuel pool due to boiling had not been evaluated by the licensee.

By letter dated December 28, 1979, the licensee provided additional information and by letter dated June 20, 1980, Consumers Power Company submitted an analysis performed by NUS Corporation regarding the effects of pool boiling on the concrete structure, racks, and liner of the spent fuel pool in the event that both pumps in the spent fuel cooling system should fail. The analyses show that the stresses that develop under these conditions are within design limits. We have reviewed the analyses and concur in its conclusions. We find that the fire protection for this area conforms to the guidelines in Section 2.0 of the FPSE and is, therefore, acceptable.

The other two items listed in Table 3.2 of the FPSE have previously been resolved satisfactorily. Item 3.2.2, Fire Brigade, was resolved by issuance of Amendment No. 32 dated March 27, 1980, which increased the minimum fire brigade size from three to five trained members. Item 3.2.3, Cabling in the Recirculation Pump Area, was resolved as discussed in our Safety Evaluation issued March 11, 1980.

CONCLUSION

Because of the fire protection modifications that have been implemented and those that will be implemented in the near future, the increase in fire brigade size to five trained members, the administrative controls in effect, and the possible changes in the requirements for the alternate shutdown capability that may be identified over the next year, we conclude that a deferral of the alternate safe shutdown system until

the date specified in the revised 10 CFR 50.48 is acceptable. We further conclude that this deferral will not result in an unacceptable risk to the health and safety of the public and it does change conclusions made in the FPSE dated April 4, 1979, therefore, Table 3.1 is modified by this Supplement as indicated.

We also conclude that all the incomplete items in the FPSE except the design of the alternative safe shutdown capability have been acceptably resolved subject to the implementation of the remaining proposed modifications shown on Table 3.1 of the enclosure.

Enclosure
Table 3.1

TABLE 3.1

Implementation Dates for Proposed Modifications

Modification		Implementation Date
3.1.1	Alternate Safe Shutdown System	**
3.1.2	Interim Measures	Completed
3.1.3	Fire Detection Systems	*
3.1.4	Fire Pump Header	*
3.1.5	Fire Apparatus Drafting Site	Completed
3.1.6	Diesel Fire Pump Protection	Completed
3.1.7	Fire Hose Stations	*
3.1.8	Protection Against Water Spray	Completed
3.1.9	Fire Extinguishers	Completed
3.1.10	Transformer Water Spray	*
3.1.11	Breathing Apparatus	Completed
3.1.12	Battery-Powered Emergency Lights	Completed
3.1.13	Fire Barrier Penetrations	*
3.1.14	Cable Spreading Area Ladder	Completed
3.1.15	Valves for Containment Hose Stations	*
3.1.16	Steel Drums for Radwaste	Completed
3.1.17	Fire Hose Fittings	Completed
3.1.18	Protective Clothing	Completed
3.1.19	Fire Equipment Storage	Completed
3.1.20	Hose Station Modifications	Completed
3.1.21	Fire Hydrant Inspection	Completed
3.1.22	Fuel Tank Access	Completed
3.1.23	Recirculation Pump Area Sprinkler	*
3.1.24	Portable Smoke Exhauster	Completed
3.1.25	Shutdown Cooling Valves	Completed
3.1.26	Protection of RDS Cables	Completed
3.1.27	Fire Door Closure Devices	Completed
3.1.28	Fire Fighting Procedures	Completed
3.1.29	Quality Assurance	Completed

*Refueling outage required to complete. Work to be completed prior to startup from 1980 refueling outage. Outage currently scheduled to begin on October 31, 1980.

**To be in conformance with the provisions of the revised 10 CFR 50.48.

SUMMARY OF NRC STAFF POSITION
BIG ROCK POINT
50-155

3.1.1 Alternate Safe Shutdown System

In the Fire Protection Safety Evaluation Report it was our concern that in several areas redundant systems could be damaged by a single fire thus the possibility of affecting safe shutdown.

The licensee has not demonstrated that adequate protection features have been provided for cables and equipment of redundant systems important to achieving safe shutdown conditions to ensure that at least one means of achieving such conditions survives postulated fires.

To meet our fire protection guidelines, alternate shutdown capability should be provided when safe shutdown cannot be ensured by barriers and detection and suppression systems because of the exposure of redundant safe shutdown equipment, cabling, or components in a single fire area, to an exposure fire, or fire suppression activities, or rupture or inadequate operation of fire suppression systems.

To meet Section III, Paragraph G of proposed Appendix R to 10 CFR Part 50, the licensee should provide alternate shutdown capability for the following areas of the plant:

1. Control Room
2. Electrical Equipment Room
3. Exterior Cable Penetration Room
4. Containment
5. Auxiliary Boiler Room
6. Turbine Generator Room

The alternate shutdown system should meet the requirements of Section III, Paragraph L of proposed Appendix R to 10 CFR Part 50.