



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NO. NPF-69
NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT NUCLEAR POWER STATION, UNIT NO. 2
DOCKET NO. 50-410

INTRODUCTION

By letter dated July 22, 1987, Niagara Mohawk Power Corporation (the licensee) requested that Appendix A of Facility Operating License No. NPF-69 be amended on an emergency basis. The request was to change the limit on the service water supply header discharge temperature from 76°F to 77°F during the startup test program at power levels below 50% of rated thermal power. Oral authorization was given to the licensee on July 22, 1987, with a letter verifying this authorization on the same date.

The licensee plans to perform analyses to demonstrate the adequacy of higher temperatures which, if requested, would be the subject of a future license amendment.

The State of New York has been notified of this action and had no comments.

BACKGROUND

The staff's review of Niagara Mohawk Power Corporation's request for an operating license for the Nine Mile Point 2 facility resulted in the preparation of NUREG-1047, Safety Evaluation Report (SER) relating to the operation of Nine Mile Point Nuclear Station, Unit No. 2. Section 2.4.11.2 of the staff's SER discussed the facility's emergency cooling water supply. This section included the results of the licensee's analysis regarding the maximum lake water temperature for acceptable removal of the design basis heat loads. This temperature was determined to be 77°F. The staff required that the plant Technical Specifications declare the ultimate heat sink, Lake Ontario, to be inoperable when the lake temperature in the intake is above 76°F because of the 77°F analysis temperature. The resulting plant Technical Specifications identified that the plant service water supply header discharge water temperature was to be less than or equal to 76°F in order to assure that there would be adequate time for the operator to take appropriate plant actions for achieving safe shutdown.

The licensee stated in an attachment to its submittal dated July 22, 1987, that a recent heat wave has occurred for an extended period of time with the resulting water temperature in the service water supply header being in the 76°F

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to 78°F range. The first time that the temperature reached 76°F was on July 13, 1987. Thus the licensee requested, by the aforementioned submittal, an emergency modification to plant Technical Specification 3/4.7.1, Plant Service Water System to change the maximum allowable water temperature from 76°F to 77°F for that period of time from issuance of this amendment until the plant reaches the 50% of rated power level for start-up testing purposes. This, then, is the subject of this SE.

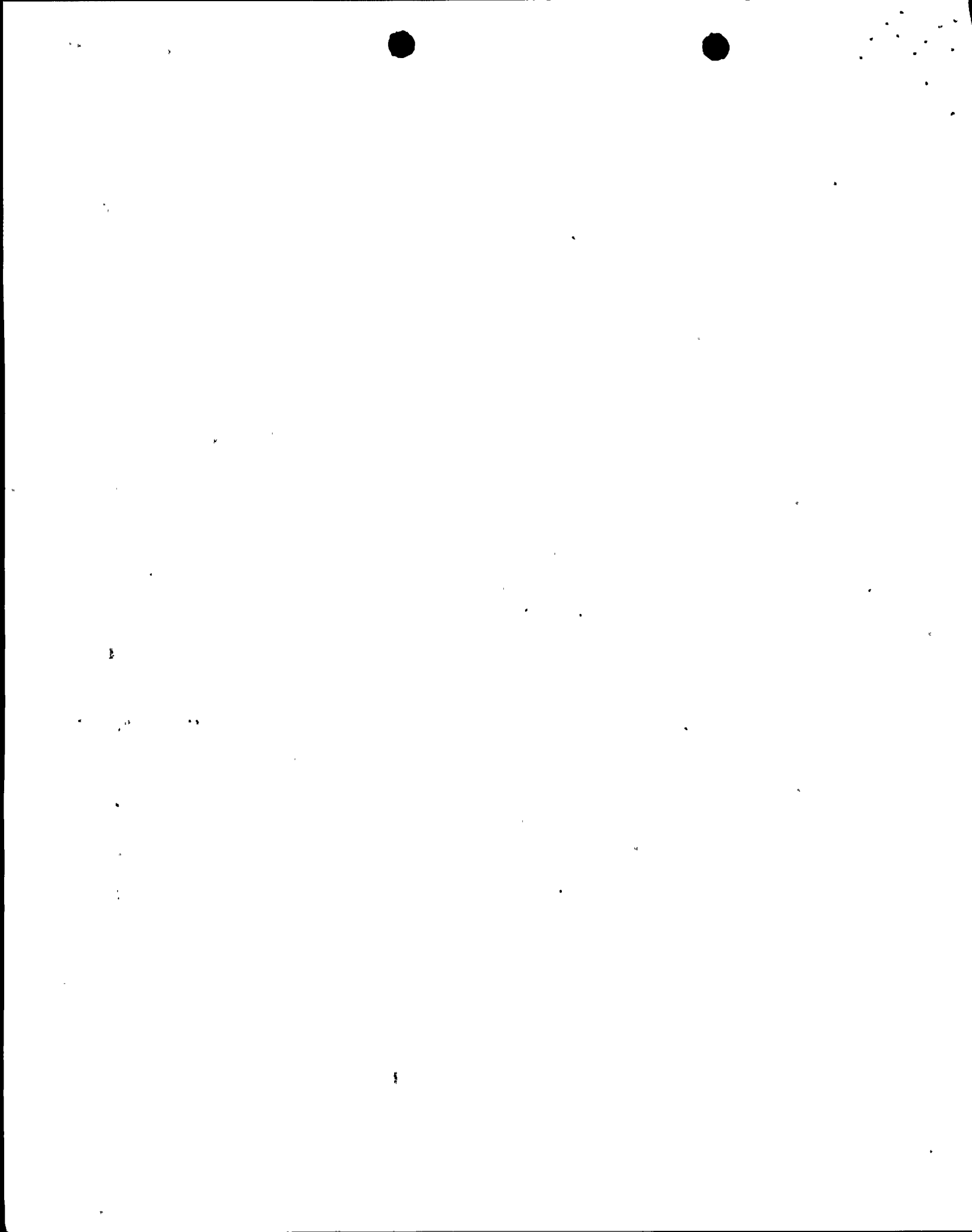
EVALUATION

The licensee has requested a modification to plant Technical Specification 3/4.7.1, Plant Service Water System, to allow temporary operation of the plant up to the 50% of rated power level with a maximum service water supply header temperature of 77°F. The results of the licensee's analysis, which was submitted and reviewed as part of the staff's review for granting an operating license for Nine Mile Point 2, stated that adequate cooling for all safety-related components could be achieved with a maximum service water inlet (lake) temperature of 77°F. This was specifically identified in Section 9.2.1 of the Nine Mile Point 2 Final Safety Analysis Report (FSAR). In order to provide assurance that there would be adequate time for the operator to take appropriate action to shutdown the plant in the event that the lake water temperature reached the maximum design water temperature of 77°F, the staff, as discussed in the original SER, required a Technical Specification which would declare the ultimate heat sink to be inoperable if the lake water temperature at the intake was above 76°F. In recognition of the relatively slow response time to temperature changes, a one degree margin of safety was deemed to be adequate.

- .. The licensee stated in its July 22, 1987 submittal that as the result of the current heat wave, the plant service water supply header temperature has been 76°F and higher. Thus, if the plant had been operating and the temperature had exceeded 76°F for 8 hours, the plant would have been required to be shutdown. The first time, according to the licensee's submittal, that the temperature reached 76°F was on July 13, 1987, and this temperature has been reached on subsequent days. Since the licensee has not completed startup testing of the facility and in order to minimize the impact on commencing commercial operation, the licensee has requested that Technical Specification 3/4.7.1 be revised by adding a footnote in several locations. This footnote would state that: "Prior to achieving power levels greater than 50% of Rated Thermal Power during the startup test program, the service water supply header discharge temperature shall be 77°F or less."

The review of the facility and its ability to safely remove the heat loads associated with potential accidents was performed assuming that the plant was initially operating at full power. With the plant limited to operating at less than 50% of rated thermal power for startup testing purposes, there will be significantly less heat to be removed in the event of a design basis accident and, thus, the service water system would have less heat to remove.

We note, however, that the current plant Technical Specification 3/4.7.1 does not reflect the requirements as specified in the staff's SER dated November 1985. The staff's SER required the licensee to monitor the lake water



temperature at the intake of the service water system and to declare the ultimate heat sink inoperable when this water temperature exceeded 76°F. Contrary to the above, the current plant Technical Specification requires the service water temperature in the discharge header to be monitored and to be 76°F or less. Monitoring the discharge header water temperature will include the heat imparted to the water by the pumps and by the ambient environment. The result is a temperature that does not accurately reflect the lake temperature and therefore does not meet the requirements as stated in the SER.

The licensee should therefore propose a modification to plant Technical Specification 3/4.7.1 which accurately reflects the appropriate location for monitoring the water temperature based on analyses performed for this system and provide appropriate wording in the Technical Specification reflecting this.

Based on the reduced heat load on the service water system due to the licensee's proposed maximum power limitation of 50% of the rated thermal power during startup testing, we conclude that the proposed modification to plant Technical Specification 3/4.7.1 to eliminate the 1°F safety margin, as discussed above, is acceptable on an interim basis. The licensee shall propose appropriate Technical Specification changes to resolve the service water temperature concern in the long term.

FINDING ON EXISTENCE OF EMERGENCY SITUATION

10 CFR 50.91(a)(5) provides the necessary requirements for issuing an amendment when the Commission finds that an emergency situation exists and failure to act in a timely way would result in derating or shutdown of a nuclear plant. The Commission expects its licensees to: apply for license amendments in a timely fashion; not abuse the emergency provisions by failing to make a timely application for the amendment and thus itself creating the emergency; provide an explanation as to why the emergency situation occurred; and why it could not have been avoided.

The licensee provided in part the following explanation which led to the request for the amendment on an emergency basis:

When the Technical Specifications for Nine Mile Point Unit 2 were being developed, Niagara Mohawk proposed a temperature limit of 77°F for the service water supply header discharge water temperature. However, the NRC set this limit at 76°F when the low power Technical Specifications were issued for Nine Mile Point Unit 2. At that time, Niagara Mohawk reviewed this change and concluded that since the lake temperature had exceeded 76°F only occasionally in the past and only twice since 1978, both instances being in August of 1983, the 76°F Technical Specification operating limit would not impose significant operating restraint on the plant.

A recent heat wave has occurred in the area where the plant is located (and the northeastern United States) for an extended period of time, increasing the lake temperature to between 76°-78°F for this time period. The first time this occurred was on July 13, 1987. This has



been an unexpected and unusually long heat wave for this area. As a result, a review of the margin in the service water maximum operating temperature has been conducted. This review, which was just completed, indicates that a supply header discharge temperature of up to 77°F is acceptable.

Since the lake temperature is continuing to peak between 76°F and 77°F and is projected to continue at this or higher levels, Niagara Mohawk requests this change be considered an emergency Technical Specification change, so that Nine Mile Point Unit 2 can continue operation. Every day of delay of plant operation due to the lake temperature exceeding 76°F will add to the delay in the commercial operation of the plant. Since the review of the margins to support the operation of the service water system at 77°F was only completed on July 21, 1987, Niagara Mohawk has applied for the license amendment in a timely manner.

Based on the above, the Commission has determined that the licensee has not abused the emergency provisions of 10 CFR 50.91(a)(5); failure for the Commission to act on the licensee's request would result in a unit shutdown; and therefore, the request should be processed under the emergency provisions of 10 CFR 50.91(a)(5).

FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

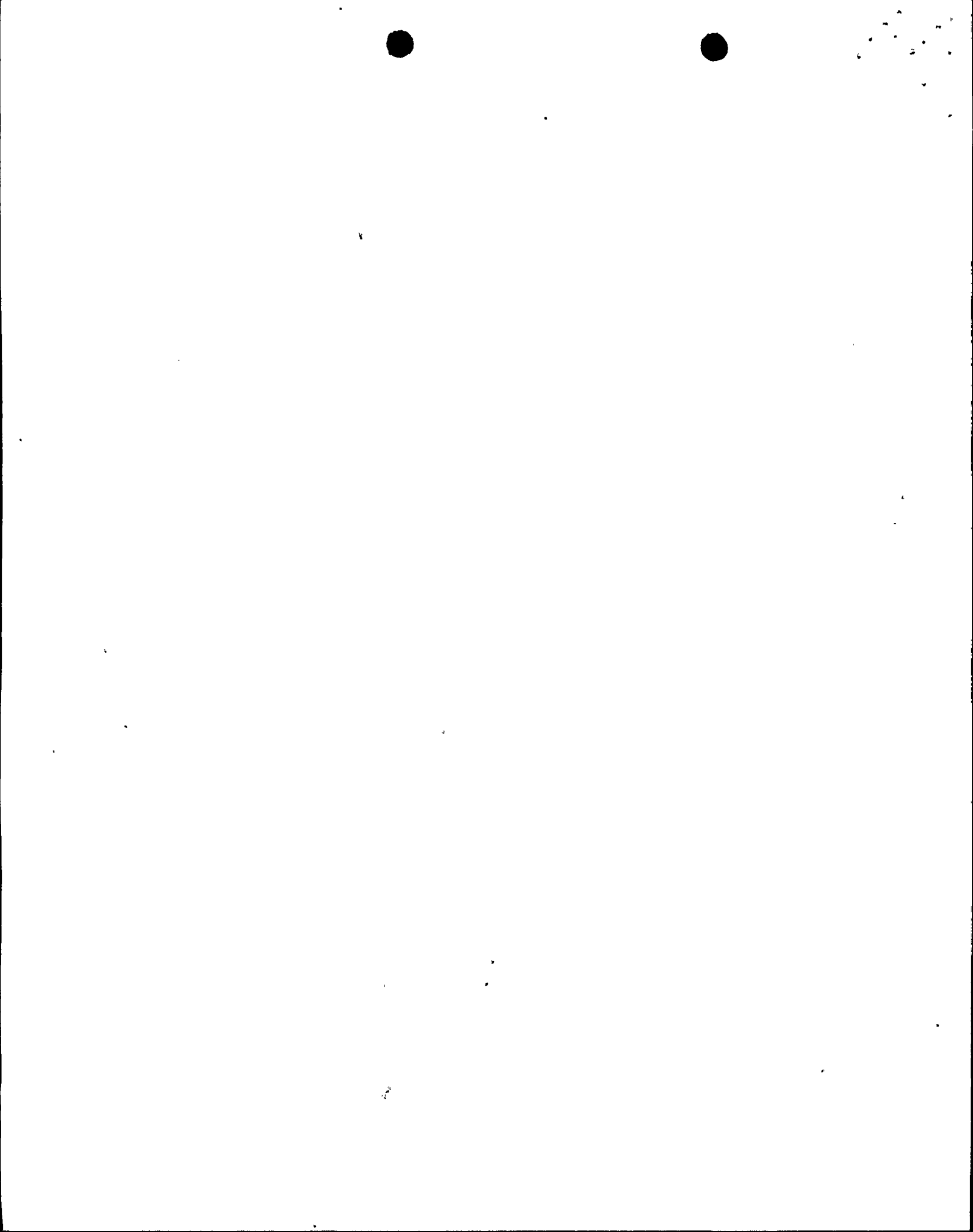
The Commission has provided standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences or an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from an accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The following evaluation, by the licensee and with which we agree, demonstrates that the proposed amendment does not involve a significant hazards consideration.

First Standard - Involve a significant increase in the probability or consequences of an accident previously evaluated.

Increasing the plant service water supply header temperature operating temperature limit to 77°F inlet temperature will not involve a significant increase in the probability or consequences of an accident previously evaluated, as safety-related components cooled by the plant service water systems were designed to perform their intended safety function at temperatures up to 77°F inlet temperature.

Second Standard - Create the possibility of a new or different kind of accident from an accident previously evaluated.



The proposed amendment involves increasing the plant service water system operating temperature limit. As previously indicated, the effects on safety-related components cooled by the plant service water system have been evaluated and the increase has been found to have no effect on their operation. Therefore, the proposed amendment will not create a new or different kind of accident from any accident previously evaluated.

Third Standard - Involve a significant reduction in the margin of safety.

The original plant service water system operating temperature limit had a 1°F margin between the Technical Specification limit of 76°F and the temperature at which the maximum temperature service water system had been evaluated.

Originally the plant service water system had been analyzed/evaluated for a maximum temperature of 77°F. Therefore, there was a 1°F margin between this temperature and the Technical Specification operating temperature limit of 76°F. The design calculations that justify a temperature of 77°F contain considerable margin to allow for aging of heat exchangers with fouling. When the components are new, this margin is sufficient to off-set the allowance for instrument error. In addition, since the plant will not be operated above 50% power during the period of applicability of this Technical Specification change, the core power level and activity, and therefore the heat loads associated with an accident scenario, will be less than assumed in the evaluation of the design basis accidents analyzed in the Final Safety Analysis Report. Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on the foregoing, the Commission has concluded that the standards of 10 CFR 50.92 are satisfied. Therefore, the Commission has made a final determination that the proposed amendment does not involve a significant hazards consideration.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility components located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves 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. Accordingly, this amendment meets 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 this amendment.

CONCLUSION

We have concluded on the consideration discussed above, that: (1) these amendments will not (a) significantly increase the probability or consequences of accidents previously evaluated, (b) create the possibility of a new or different accident from any previously evaluated or (c) significantly reduce a



margin of safety and, therefore, the amendments do not involve significant hazards considerations; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

PRINCIPAL CONTRIBUTORS:

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Dated: July 31, 1987

