



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 44 TO FACILITY OPERATING LICENSE NO. DPR-63  
NIAGARA MOHAWK POWER CORPORATION  
NINE MILE POINT NUCLEAR STATION, UNIT NO. 1  
DOCKET NO. 50-220

1.0 Introduction

By letter dated March 2, 1981, Niagara Mohawk Power Corporation (licensee) proposed changes to the Technical Specifications to modify the Core Spray System. The Nine Mile Point Core Spray/High Point Vent System is shown on the attached figure. The proposed modifications are shown by the dashed lines.

Prior to the modifications, the core spray line had a stop check valve and a locked open motor operated valve (MOV) outside containment and two normally closed MOVs in parallel inside containment. ASME Section XI (Inservice Testing) requires periodic testing of the core spray pump and exercising of the motor operated valves. The licensee's operational experience showed that due to elevation differences, the core spray piping outside the drywell would drain. Whenever the core spray pump was started or the inside MOVs were exercised, a water hammer would develop as water filled the drained pipe.

Due to the drainage and potential water hammer problem, the licensee would have to shutdown before performing the quarterly valve operability test. Primary system pressure would have to be lowered sufficiently so that the inside MOVs could be exercised without causing water hammer in the core spray piping.

The licensee's letter of March 2, 1981 (reference 1) proposed installing a keep-fill system, a high point vent, and associated containment piping, valves and control circuitry. The keep-fill system maintains a water inventory in the core spray piping during normal operation. This system should prevent any water hammer if the core spray system were actuated. The high point vent penetrates the primary containment and leads to the equipment drain tank. The two valves of the high point vent are containment isolation valves and are normally closed. Prior to any ASME Section XI testing, the valves are opened until water comes out the equipment drain. When water comes out the drain, this signifies that any air in the piping has been purged. The valves are then closed and Section XI testing begins.



## 2.0 Evaluation

The keep-fill system uses water from the condensate supply to maintain a water inventory in the core spray piping. The stop check valves and downstream piping were designed to ASME Section III, Safety Class 2. The pressure rating of the check valves is equivalent to system pressure (1200 psig). The keep-fill system will be beneficial in that it will provide a constant head on the core spray pump discharge check valve thus preventing movement of its disk.

The high point vent system will also be designed to ASME Section III, Safety Class 2. Both the inside motor operated valve and the outside air operated valve are normally closed and receive automatic isolation signals upon low-low reactor water level or high drywell pressure. Both valves will be subject to local leak rate testing per Appendix J to 10 CFR Part 50 and periodic exercising per ASME Section XI.

The licensee has agreed to Technical Specifications to periodically (at least monthly) open the high point vent valves and verify that the keep-fill system is maintaining the piping volume full of water. This will provide additional assurance that the operability of the core spray system will not be degraded due to water hammer. The licensee has also implemented Technical Specifications governing Reactor Coolant System Isolation Valves. (Reference 2).

The addition of the keep-fill system and the high point vent should prevent water hammer and permit ASME Section XI testing without shutting the facility down. We have reviewed the design criteria of the systems and find them acceptable. Based upon our review of the licensee's submittal we find both the proposed modifications and the associated revision to the Technical Specifications to be acceptable.

## 3.0 Environmental Considerations

We have determined that this amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that this amendment involves an action which is insignificant from the standpoint of environmental impact, and pursuant to 10 CFR §1.5(d)(4) that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

## 4.0 Conclusion

We have concluded based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: May 19, 1981

Estimated 100000

Reference

- (1) Letter from LeBoeuf, Lamb, Leiby & MacRae (Counsel for Niagara Mohawk Power Corporation) to U. S. NRC (Eugene B. Thomas to Harold R. Denton), dated March 2, 1981.
- (2) Order to Modify License dated April 20, 1981.



# CORE SPRAY HIGH POINT VENT

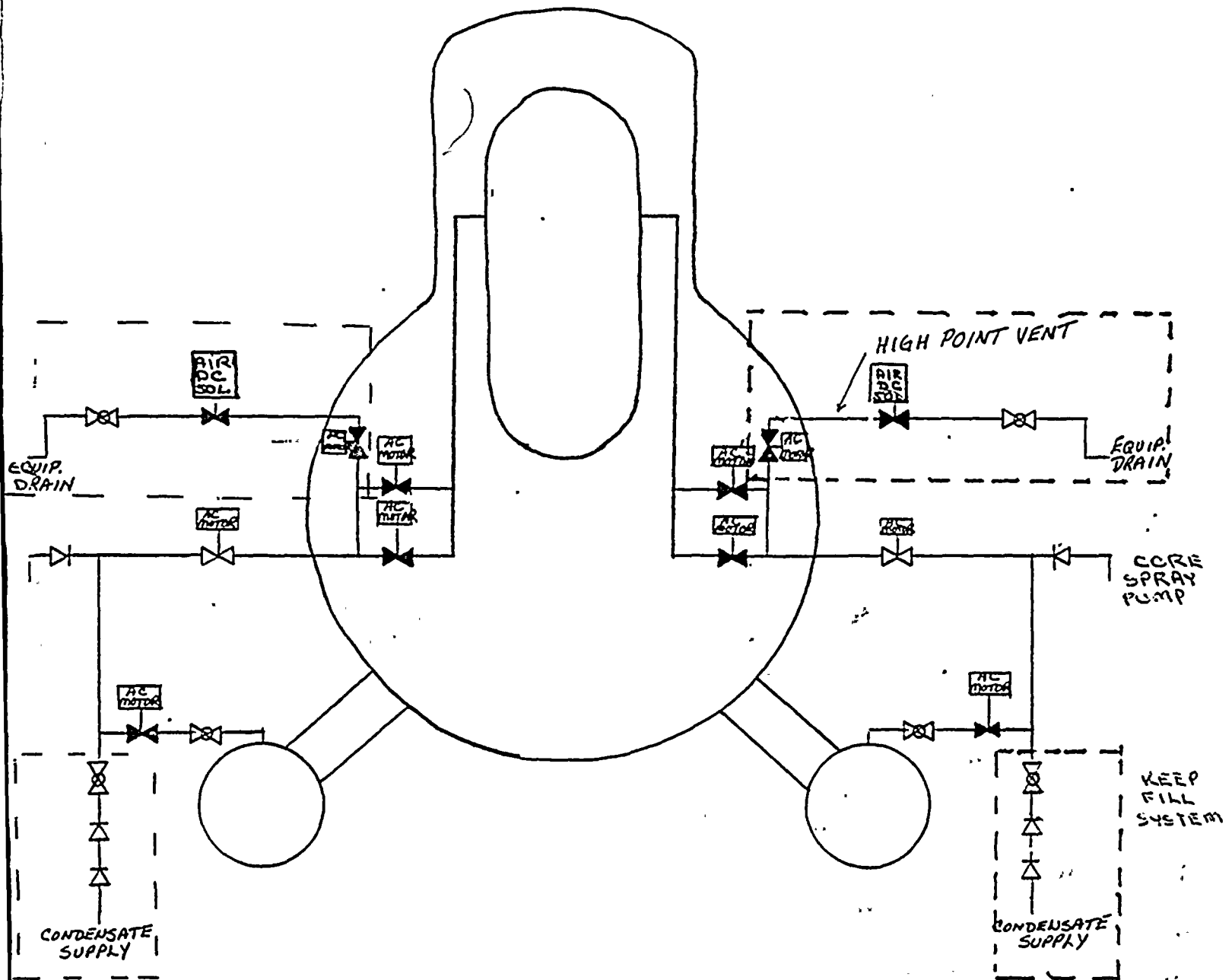


FIGURE 1

