



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

SAFETY EVALUATION BY THE
OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 22 TO
FACILITY OPERATING LICENSE NO. R-77
STATE UNIVERSITY OF NEW YORK AT BUFFALO
DOCKET NO. 50-57

1.0 INTRODUCTION

By letter dated May 10, 1994, the State University of New York (SUNY) at Buffalo (the licensee), requested that their Technical Specifications (TS) be revised to accommodate removal of the primary loop heat exchanger. Since the heat exchanger is included in TS Section 5.4 as part of the primary cooling system, justification had to be developed for removing the heat exchanger from the TS.

The research reactor at SUNY could operate in the forced convection mode at 2 megawatts (MW) and in the natural convection mode at 250 kilowatts (KW). In order to operate in the forced convection mode the primary coolant loop had a heat exchanger to adequately cool the primary water. The heat exchanger had a secondary loop that cycled through cooling towers to ultimately cool the primary system. Recently the heat exchanger developed leaks and the licensee decided to remove the heat exchanger from the primary loop.

At the time the May 10, 1994 TS requested change was developed, the licensee had not decided on whether the heat exchanger would be replaced or whether reactor operations would cease. Therefore, the proposed change to the TS was developed so that operation without a heat exchanger would be permissible and, if reactor operation was to continue with a new heat exchanger, the change to the TS would still be applicable. However, the licensee recently decided to discontinue operation of the reactor but still has some outstanding commitments to fulfill at reduced power levels. Therefore, the licensee requested that the NRC proceed with the amendment and has agreed to a modification from the May 10, 1994 request, since it is planning to apply for a possession-only license. This modification was agreed to in a telecon between M. Adams and T. Michaels on May 12, 1994. The license is being modified to restrict operation at 250 KW (present natural convection mode limit) and to delete the heat exchanger from TS Section 5.4.

Also, the licensee requested that a change be made to TS Section 3.5(2) to correct the units from ohms per centimeter to ohm-cm to show the correct unit of resistivity.

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2.0 EVALUATION

The licensee is planning to replace the heat exchanger with an aluminum pipe. The reason for this is to allow water to circulate when the reactor is not running so that proper mixing of the primary coolant can be maintained, to improve water quality through use of the demineralizer, and to prevent stagnation in the N-16 decay tank. When the reactor is in the natural convection mode, this loop will not be in operation as is the case presently with the heat exchanger in the loop. In the natural convection mode, the primary outlet valve (P-2) is left closed (see enclosed diagram) and the heat exchanger is essentially valved off. Therefore, operation of the reactor in the natural convection mode without a heat exchanger would not be different than the natural convection mode operation with a heat exchanger. The staff finds that substitution of an aluminum pipe in place of the heat exchanger and a reduction in the licensed power level from 2 MW to 250 KW acceptable.

The staff also finds that the change to TS Section 3.5(2) to show the correct units of resistivity as ohm-cm acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in the installation or use of 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 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.

4.0 CONCLUSION

The staff has 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 evaluated, or create the possibility of a new or different kind of accident from any accident previously evaluated, and does not involve a significant reduction in a margin of safety, 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 the proposed activities, 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 the health and safety of the public.

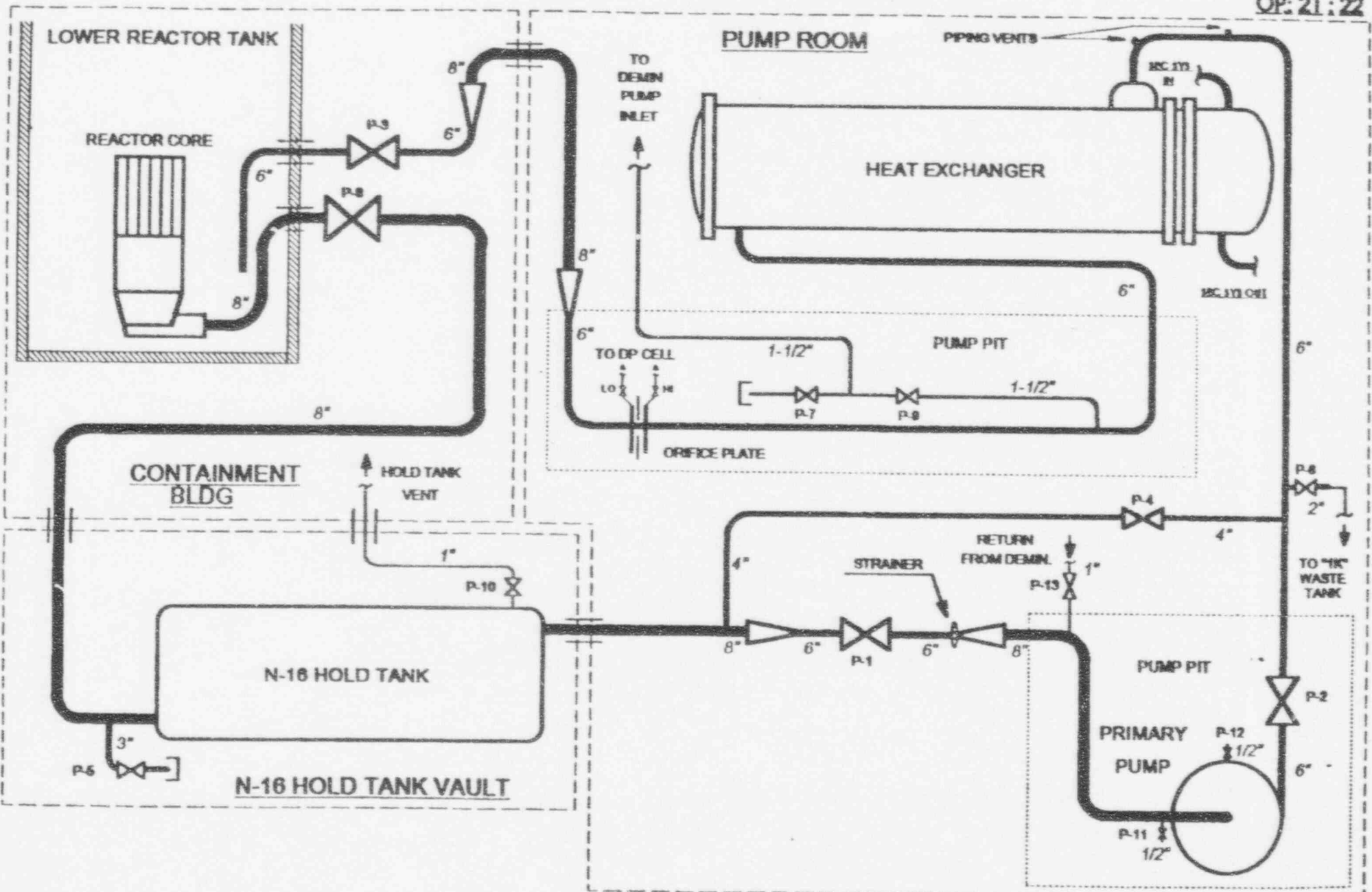
Enclosure: Diagram (Primary Coolant System)

Principal Contributor: Theodore S. Michaels

Date: May 26, 1994

PRIMARY COOLANT SYSTEM

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