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December 7, 1990

C3212019
5000-90-1996

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Relief Request from System Hydrostatic
Test Requirements

This letter is being written to request relief from performing the System Hydrostatic Tests presently required as part of the 10-year Inservice Inspection Program. The basis for this relief request includes a commitment to perform a System Leakage Test each refueling outage.

The purpose and utility of the existing System Hydrostatic Test requirements are presently the subject of review by Subcommittee XI of the ASME Boiler and Pressure Vessel Code Section XI Committee. The subcommittee has developed a Code Case which provides alternatives to the existing requirements. The relief requests submitted as Attachments I and II to this letter closely follow the proposals of the subcommittee. Sub-tier groups to this Subcommittee have strongly endorsed this Code Case, and a vote is currently scheduled during the Subcommittee meeting in December, 1990.

As the next Oyster Creek Nuclear Generating Station refueling outage, scheduled to commence February 15, 1991, is the last refueling outage in the second 10-year interval, numerous hydrostatic tests will be required to be performed. Accordingly, to reduce unnecessary radiation exposure and diversion of critical manpower resources, action on these relief requests is requested by the beginning of February, 1991.

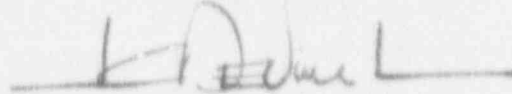
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If any questions or comments should arise, please contact Mr. John Rogers,
Oyster Creek Licensing Engineer at 609-971-4893.

Very truly yours,



J. C. DeVine
Vice President
Technical Functions

JCD/JJR:jc
Attachment

cc: Mr. Thomas Martin, Administrator
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NRC Resident Inspector
Oyster Creek Nuclear Generating Station

Mr. Alexander Dromerick
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ATTACHMENT I
PRESSURE RETAINING COMPONENTS
CLASS 1 - CATEGORY B-P

CODE REQUIREMENT

Section XI of the ASME Code, 1980 Edition through the Winter 1981 Addenda, Table IWB-2500-1 Examination Category B-P requires a System Hydrostatic Pressure Test (IWB-5222) be performed on all Class 1 pressure retaining components (e.g. reactor vessel, piping, pumps and valves) once every 10-year interval. Class 1 System Hydrostatic Pressure Tests are conducted at reduced test pressures (Table IWB-5220-1) to meet the requirements of fracture prevention criteria applicable to ferritic materials of system components. For Oyster Creek Nuclear Generating Station, the test pressure is 1135 psig at a temperature greater than 220° F. The hydrostatic test pressure is held for four hours prior to, and during, the VT-2 visual examination.

Category B-P also requires a System Leakage Test (IWB-5221) to be conducted prior to plant startup following each reactor refueling outage. The pressure retaining boundary during the system leakage test shall correspond to the reactor coolant system boundary including the pressure retaining components within the system boundary which contain pressurized reactor coolant during normal reactor startup. System Leakage Tests are conducted at test pressures not less than the nominal operating pressure associated with 100% rated reactor power. For Oyster Creek Nuclear Generating Station, the nominal test pressure is 1040 psig at a test temperature greater than 215°F. No holding time is required prior to performing the visual examination.

CODE RELIEF REQUESTED

Relief is requested from performing a category B-P System Hydrostatic Pressure Test (IWB-0222), on Class 1 pressure retaining components once every 10-year interval.

BASIS FOR RELIEF

As an alternative to performing a System Hydrostatic Pressure Test once per inspection interval, GPUN is proposing to perform a System Leakage Test every refueling outage at nominal operating pressure with an additional test requirement to hold the test pressure for four hours prior to, and during, the VT-2 visual examination. The basis for this relief is supported by the technical justification being used by ASME Section XI subcommittee, special working group for pressure test, to develop a code case.

Hydrostatic Pressure Tests above nominal operating or design pressure are a standard prerequisite for verifying the integrity of the design, material selection, component fabrication and system installation for preservice acceptance. Many of the in-service related indications develop gradually and are detected by surveillance and inspection programs. The Section XI Hydrostatic Pressure Test offers very little increase in the confidence level for the integrity and reliability of systems already included in a regular surveillance and inspection program.

The requirements for performing the Section XI Hydrostatic Pressure Test significantly burdens Oyster Creek with increased radiation exposure and dedication of manpower resources. Special valve line-ups, relief valve gagging and by pass jumpers are needed in order to perform a higher than nominal operating pressure test. Test pressure will be held for a minimum of four hours prior to performing inspections. This is consistent with the Code requirements for insulated piping. The proposed alternate test requirements to perform a VT-2 visual examination during a four hour System Leakage Test every refueling outage provides greater assurance that the leak tightness of Class 1 pressure retaining components is maintained.

PROPOSED ALTERNATIVE TESTING

It is requested that the following test be performed as an alternative to the Class 1 10-year Hydrostatic Pressure Test (IWB-5222 as specified in Table IWB-2500-1 Category B-P):

1. The System Leakage Test will be performed during each refueling outage, prior to reactor startup without use of nuclear heat.
2. The boundary subject to test pressurization during a System Leakage Test will extend to the pressure retaining components within the system boundary containing pressurized reactor coolant during hot standby in the start-up mode.
3. The system will be held at nominal operating pressure (1040 psig) for a minimum of four hours prior to the start of the leakage test and during performance of the VT-2 visual examination.
4. The VT-2 visual examination will extend to all components within the safety class boundary as identified in (2) above.

ATTACHMENT II
PRESSURE RETAINING COMPONENTS
CLASS 2 - CATEGORY C-H

CODE REQUIREMENT

Section XI of the ASME Code, 1980 Edition through the Winter 1981 Addenda, Table IWC-2500-1 Examination Category C-H requires System Hydrostatic Pressure Test (IWC-5222) be performed on all Class 2 pressure retaining components (e.g. pressure vessels, piping, pumps and valves) once every 10-year interval. The System Hydrostatic Test pressure shall be at least 1.10 times the system pressure (P_{sv}) for systems with design temperatures of 200°F or less, and at least 1.25 times the system pressure (P_{sv}) for systems with design temperatures above 200°F. The system pressure (P_{sv}) shall be the lowest pressure setting among the number of safety or relief valves provided for overpressure protection within the boundary of the systems tested. For systems not provided with safety or relief valves, the system design pressure (P_d) shall be substituted for P_{sv} . A four hour holding time is required after attaining the test pressure and temperature conditions for insulated systems, and ten minutes for non-insulated systems or components.

Category C-H also requires a System Leakage Test once each inspection period conducted during a "System Functional Test" of those systems or portions of systems not required to operate during normal reactor operation. A ten minute holding time is required after attaining the system operating pressure. Category C-H does not require a leakage test on Class 2 systems that are normally in service during reactor power operation.

CODE RELIEF REQUESTED

Relief is requested from performing a Category C-H System Hydrostatic Pressure Test (IWC-5222) on Class 2 pressure retaining components once every ten year interval.

BASIS FOR RELIEF

As an alternative to performing Hydrostatic Pressure Test once every ten year interval, GPUN is proposing to perform a System Leakage Test every operating cycle at nominal operating pressures on all Class 2 systems. Test pressure will be held for a minimum of four hours prior to performing inspections. This is consistent with the Code requirements for insulated piping. The system will be maintained at nominal operating pressure during performance of the VT-2 visual examination. The basis for this alternative is supported by the technical justification being used by ASME Section XI subcommittee, special working group for pressure test, to develop a code case.

Hydrostatic Pressure Tests above nominal operating or design pressure are a standard prerequisite for verifying the integrity of the design, material selection, component fabricating, and system installation for preservice acceptance.

Many of the inservice related indications develop gradually and are detected by surveillances and inspection programs. The Section XI Hydrostatic Pressure Test offers very little increase in the confidence level for the integrity and reliability of systems already included in a regular surveillance and inspection program.

Performance of the Hydrostatic Pressure Test for Class 2 Pressure Retaining components has a significant impact of increased radiation exposure and manpower resources. The estimated craft expenditures, not including corrective maintenance, would be an additional 3 REM exposure and approximately 5,000 craftman hours. Each system boundary is defined by the components which have the same minimum required classification and are designed to the same primary pressure rating as governed by the system function and internal fluid operating conditions. Because ASME Code requires these System Hydrostatic Tests to be scheduled together at or near the end of the inspection interval, the impact is heavily concentrated. Pump and valve packing require more corrective maintenance as the components are challenged by the test pressure exceeding the normal operating parameters. Building and removing staging platforms for valve work activities increases. Radwaste expenditures are increased when draining systems for valve work activities.

A more effective and efficient pressure test program would be the performance of a System Leakage Test pressurized to nominal operating pressure on all Class 2 systems every operating cycle, rather than the present combination of 10-year Hydrostatic and ten minute "Functional" Pressure Tests every inspection period.

PROPOSED ALTERNATIVE TESTING

It is requested that the following test be performed as an alternative to the Class 2 ten year Hydrostatic Pressure Test (IWC-5222 as specified in Table IWC-2500-1 Category C-H):

1. The System Leakage Test will be performed during every operating cycle on all Class 2 systems.
2. The boundary subject to test pressurization will extend to those pressure retaining components under nominal operating pressure during normal system service.
3. The system will be at nominal operating pressure for a minimum of four hours for insulated systems, and for at least ten minutes for noninsulated systems prior to the start of the leakage test.
4. The VT-2 visual examination will extend to all components within the safety class boundary.