Nuclear Operating Company
South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499
Request for Relief from ASME Code Case N-498, "Alternative Rules for 10-Year Hydrostatic Pressure Testing for Class 1 and 2 Systems, Section XI, Division 1" (RR-ENG-28)

In accordance with the provisions of 10CFR50.55a(a)(3)(ii), the South Texas Project submits this request for relief from the requirements of ASME Section XI Code Case N-498. ASME Code Case N-498 has been approved for use previously and is listed in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability ASME Section XI Division 1," Revision 11. However, compliance with the specified requirements would result in hardship without a compensating increase in the level of quality and safety. This code case requires that the boundary subject to test pressurization during the system pressure test extend to all Class 1 pressure-retaining components within the system boundary. Approval of this relief request will exempt Class 1 components from being tested at full Reactor Coolant System pressure if they are normally isolated from full Reactor Coolant System pressure.

The South Texas Project requests permission to implement the system leakage test modified as described above for the tests to be performed in the first 10-year inservice inspection interval for Unit 1 and Unit 2. Approval is requested by December 31, 1998, to support this schedule.

If there are any questions, please contact either Mr. P. L. Walker at (512) 972-8392 or me at (512) 972-7902.

Thomas J. Jordan
Manager,
System Engineering

PLW

Attachment:
Request for Relief from ASME Code Case N-498, "Alternative Rules for 10-Year Hydrostatic Pressure Testing for Class 1 and 2 Systems, Section XI, Division 1" (RR-ENG-28)

c:
Ellis W. Merschoff
Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Thomas W. Alexion
Project Manager, Mail Code 13H3
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Cornelius F. O'Keefe
Sr. Resident Inspector
c/o U. S. Nuclear Regulatory Commission
P. O. Box 910
Bay City, TX 77404-0910

J. R. Newman, Esquire
Morgan, Lewis & Bockius
1800 M. Street, N.W.
Washington, DC 20036-5869

M. T. Hardt/W. C. Gunst
City Public Service
P. O. Box 1771
San Antonio, TX 78296

A. Ramirez/C. M. Canady
City of Austin
Electric Utility Department
721 Barton Springs Road
Austin, TX 78704

Jon C. Wood
Matthews & Branscomb
One Alamo Center
106 S. St. Mary's Street, Suite 700
San Antonio, TX 78205-3692

Institute of Nuclear Power
Operations - Records Center
700 Galleria Parkway
Atlanta, GA 30339-5957

Richard A. Ratliff
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3189

D. G. Tees/R. L. Balcom
Houston Lighting & Power Co.
P. O. Box 1700
Houston, TX 77251

Central Power and Light Company
ATTN: G. E. Vaughn/C. A. Johnson
P. O. Box 289, Mail Code: N5012
Wadsworth, TX 77483

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

SOUTH TEXAS PROJECT
UNITS 1 AND 2
Request for Relief from ASME Code Case N-498,
"Alternative Rules for 10-Year Hydrostatic Pressure Testing for
Class 1 and 2 Systems, Section XI, Division 1" (RR-ENG-28)

Reference Code: Code Case N-498, "Alternative Rules for 10-Year Hydrostatic Pressure Testing for Class 1 and 2 Systems, Section XI, Division 1"

Components for Which Relief is Requested:

ASME Class 1 components (ASME Section XI Table IWB-2500-1 Examination Category B-P) (The specific South Texas Project components are listed in the Scope of this relief request.)

Code Requirement from Which Relief is Requested:

ASME Code Case N-498, "Alternative Rules for 10-year Hydrostatic Pressure Testing for Class 1 and 2 Systems, Section XI, Division 1," allows use of a system leakage test (IWB-5221) in lieu of a hydrostatic test. Code Case N-498 requires that the boundary subject to test pressurization during the system pressure test extend to all Class 1 pressure-retaining components within the system boundary. The South Texas Project requests relief from testing Class 1 components at full Reactor Coolant System pressure for those components that are normally isolated from Reactor Coolant System pressure.

Basis for Relief from Code Requirements

Inservice leak testing of ASME Code Class 1 components is required in order to satisfy the referenced Code. However, the South Texas Project has concluded that compliance with Code requirements to apply Reactor Coolant System operating pressure to test components beyond the first isolation valve imposes significant hardships without a compensating increase in the level of quality and safety.

Hardships associated with testing performed in accordance with the referenced Code are as follows:

- Special valve lineups for these tests add unnecessary challenges to maintaining system configuration.
- Tests performed inside the radiologically restricted area increase the total exposure to plant personnel while modifying and restoring system lineups including the removal of contaminated test equipment.
- Components are exposed to test conditions above their normal operating pressure and temperature.
- Use of single valve isolation from systems with lower design pressures could result in over-pressurization of these systems and damage to permanent plant equipment.
- Use of single valve isolation is a significant personnel safety hazard.

- Because there are no test connections for testing the piping between check valves in the Residual Heat Removal System, there is increase safety risk (radiation exposure) when connecting test equipment.

Use of a higher testing pressure through components that would not normally be subject to that pressure during 100% reactor power is an unnecessary restriction. Normal Operating Pressure/Temperature (NOP/NOT) for piping between two check valves beyond the first Reactor Coolant System isolation valve is normally much lower than the Reactor Coolant System pressure and temperature during 100% Reactor Power. Piping with two isolation valves is designed to operate with the first isolation valve closed and the second isolation valve utilized only for draining or venting. Piping between two isolation valves during NOP/NOT is normally pressurized, but at a lower pressure with little or no fluctuation. Other surveillance procedures ensure these sections of piping are monitored for leakage.

Justification for Granting Relief:

Pressurization of components above their Normal Operating Temperature and Normal Operating Pressure in order to detect leakage during the VT-2 visual examination is not necessary. The temperatures and pressures existing in Class 1 components during 100% Reactor Power provide sufficient pressurization of all Class 1 components to qualify as a System Pressure Test Alternative to the 10-year Hydrostatic Test to satisfy Code Case N-498. Normal Operating Pressure and Normal Operating Temperature for Class 1 components will be used to detect leaks for the Alternative Rules for 10-year Hydrostatic Pressure Testing.

The South Texas Project performs other surveillance procedures (i.e. Local Leakage Rate Tests, Contaminated Leakage Rate Tests, Isolation Check Valve Leak Tests, Operational Leak Tests and Inservice Leak Rate Tests) that monitor these components for leakage. The system pressure test as an alternate to the hydrostatic test of the components identified by this request is in addition to the surveillances cited above. Leakage in these components will be identified if it exists by using NOP/NOT conditions. In addition to pressure testing, boric acid inspections are performed during refueling outages which will also identify leakage from these components.

Implementation Schedule:

The South Texas Project requests permission to implement the system leakage test modified as described above for the tests to be performed in the first 10-year inservice inspection interval for Unit 1 and Unit 2.

Scope

* 4"CV1(2)118BB1 between XCV0001 and XCV0002 (RCS Charging Normal)
* 4"CV1(2)120BB1 between XCV0004 and XCV0005 (RCS Charging Alternate)
* 2"CV1(2)121BB1 between CV0009 and LV3119 (RCS Auxiliary Spray)
* 2"CV1(2)141BB1 between CV0083 and CV0082 (RCS Excess Letdown)
* 6"/8"SI1(2)108BB1 between XSI0009A and XSI0010A (High Head Safety Injection)
* 8"RH1(2)112BB1 between XRH0020A and 8"SI1(2)108BB1 (Residual Heat Removal)
* 6"SI1(2)111BB1 between XSI0007A and 10"RH1(2)108BB1 (High Head Safety Injection.)
* 8"/10"RH1(2)108BB1 between XRH0032A, and 12"SI1(2)315BB1 (Residual Heat Removal System Train A)
* 6"/8"SI1(2)208BB1 between XSI0009B and XSI00010B (High Head Safety Injection)
* 6"SI1(2)211BB1 between XSI0007B and XRH0032B (High Head Safety Injection)
* 8"/10"RH1(2)208BB1 between XRH0032B and 12"SI1(2)218BB1 (Residual Heat Removal System Train B)
* 12" SI1(2)218BB1 between XSI0038B and XSI0046B (RCS Cold Leg Loop 2)
* 4"CV1(2)001BB1 between XCV0465 and XCV0468 (RCS Letdown)
* 8"RH1(2)212BB1 between XRH0020B and 8"SI1(2)208BB1 (Residual Heat Removal System)
* 8"SI1(2)327BB1 between XSI0009C and XSI0010C (High Head Safety Injection)
* 6"SI1(2)308BB1 between XSI0007C and 8"RH1(2)308BB1 (High Head Safety Injection)
* 8"RH1(2)315BB1 between XRH0020C and 8"SI1(2)327BB1 (Residual Heat Removal System)
* 8"RH1(2)308BB1 between XRH0032C and 12"SI1(2)315BB1 (Residual Heat Removal System Train C)
* 12"SI1(2)315BB1 between XSI0038C and XSI0046C (RCS Cold Leg Loop 3)
* 2"RC1(2)121BB1 between RC057A and RC058A (RCS Loop 1)
* 2"RC1(2)220BB1 between RC057B and RC058B (RCS Loop 2)
* 12"RH1(2)101BB1 between XRH060A and XRH061A (RCS Hot Leg Loop 1)
* 12"RH1(2)201BB1 between XRH060B and XRH061B (RCS Hot Leg Loop 2)
* 12"RH1(2)301BB1 between XRH060C and XRH061C (RCS Hot Leg Loop 3))
* 2"RC1(2)321BB1 between RC057C and RC058C (RCS Loop 3)
* 2"RC1(2)418BB1 between RC057D and RC058D (RCS Loop 4)
* 12"SI1(2)125BB1 between XSI0038A and XSI0046A (RCS Cold Leg Loop 1)