

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

March 21, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station, Unit 1
Docket No. 50-413
Proof and Review Technical Specifications

Dear Mr. Denton:

In response to NUREG-0737 Item I.G.1, "Natural Circulation Testing," Duke Power Company has committed to conduct a natural circulation verification test at Catawba (FSAR Table 14.2.12-2, pages 35 and 36, Attachment 1). Various Technical Specification test exemptions will be required in order to perform this test. The exemptions as shown on Attachment 2 were included in the McGuire Unit 1 Technical Specifications and will need to be included in the Catawba Unit 1 Technical Specifications.

If you have any questions concerning this proposal, please contact Mr. R. W. Ouellette at (704) 373-7530.

Very truly yours,

Hal B. Tucker
HBT

Hal B. Tucker

RWO/php

Attachments

cc: Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

NRC Resident Inspector
Catawba Nuclear Station

Mr. Robert Guild, Esq.
Attorney-at-Law
P. O. Box 12097
Charleston, South Carolina 29412

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cc: Palmetto Alliance
2135½ Devine Street
Columbia, South Carolina 29205

Mr. Jesse L. Riley
Carolina Environmental Study Group
854 Henley Place
Charlotte, North Carolina 28207

Table 14.2.12-2 (Page 35)

NATURAL CIRCULATION VERIFICATION TEST
Abstract

Purpose

To demonstrate the capability of the NSSS to remove sensible heat by natural circulation flow in the primary loop. To verify that pressurizer pressure and level control systems can respond automatically to a loss of forced circulation and can maintain reactor coolant pressure within acceptable limits. To verify that steam generator level and feedwater flow can be maintained under natural circulation conditions in order to maintain effective heat transfer from the reactor coolant system. To verify, to the extent possible, the adequacy of station operating procedures and to provide operator training to satisfy NUREG 0737 requirements.

Prerequisites

The reactor is critical at a power level of approximately 3% full power with all reactor coolant pumps in operation. Rod control is in manual with Bank D positioned to maintain a slightly negative isothermal temperature coefficient. Pressurizer pressure and level control are in automatic. Steam dump control is in the pressure control mode. Steam generator level is being maintained through use of the auxiliary feedwater header.

The intermediate and power range (low setpoint) high level reactor trips have been reduced to approximately 7% rated thermal power. UHI isolation valves have been gagged. All automatic safety injection (Ss) functions except reactor trip have been blocked. Manual initiation of safety injection functions and automatic alarms indicating channel trips remain available to the operator. The steam generator low-low level reactor trip setpoints have been reduced to 5% of span. Overtemperature and overpower ΔT reactor trip signals have been blocked. Safety injection initiation on low steamline pressure has been blocked.

Various Technical Specifications test exemptions are required for the conduct of this test. These special test exemptions are provided in Technical Specifications. Special operator action guidelines are provided by the test procedure to compensate for the blocking of various safety injection functions and reactor trips. The test is required to be performed at core burnups which ensure that no significant core decay heat levels are present.

Test Method

The test will be initiated by tripping all operating reactor coolant pumps. The establishment of natural circulation will be verified by observing the response of wide range hot and cold leg temperatures as well as core exit thermocouples. The response of pressurizer level and pressure will be observed. Steam generator level and pressure response will be monitored. During the performance of this test on Catawba Unit 1 only, the test will be repeated for each operating shift at Catawba or suitable simulator facility, for the purpose of initial operator training. Each RO and SRO will observe or participate in the initiation, detection and maintenance of natural circulation conditions during at least one of the test runs.

Table 14.2.12-2 (Page 36)

NATURAL CIRCULATION VERIFICATION TEST
Abstract

Acceptance Criteria

Core exit temperatures, loop ΔT s, and loop average temperatures do not exceed values specified by the NSSS vendor. ΔT s as determined by the hot leg wide range and core exit temperature indications when compared to the wide range cold leg temperatures stabilize and do not exceed limits supplied by the NSSS vendor. If data taken during first performance of test demonstrates acceptable performance, data does not need to be taken during subsequent operator training.

Special Test Program

For conducting the special low power test program as described in ~~Section I.G.1 of the Safety Evaluation Report related to the operation of the McGuire Nuclear Station, Supplement Number 4 dated January 1981, the Technical specifications may be excepted as follows: (Test numbers refer to those specified in William O. Parker's letter of October 10, 1981 to Harold R. Denton/ Appendix E "McGuire Nuclear Station - Response to TMI concerns")~~:

Technical Specifications

| | | |
|-------|--------------------------------------------|---|
| 2.1.1 | Core Safety Limits | X |
| 2.2.1 | Various Reactor Trips | |
| | Overtemperature ΔT | X |
| | Overpower ΔT | X |
| | Steam Generator Level | X |
| 3.3.1 | Various Reactor Trips | |
| | Overtemperature ΔT | X |
| | Overpower ΔT | X |
| | Steam Generator Level | X |
| 3.3.2 | Safety Injection - All automatic functions | X |
| | Auxiliary feedwater automatic start | X |