UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-413/89-27 and 50-414/89-27

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242

Docket Nos.: 50-413 and 50-414 License Nos.: NPF-35 and NPF-52

Facility Name: Catawba 1 and 2

Inspection Conducted: September 18-22, 1989

Inspector: _____ 10/26/89
A. J. Szczepaniec, Team Leader Date Signed

Team Members: S. Sparks
S. Tingen
H. Whitener

Approved by: _____ 10/26/89
G. A. Belisle, Chief Date Signed
Test Programs Section
Division of Reactor Safety

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of inservice testing and followup on outstanding items.

Results:

In the areas inspected, violations or deviations were not identified. The licensee's residual heat removal system inservice testing program appeared to be adequate to ensure that components are maintained in an operational readiness state.

A weakness noted was that the licensee had not intended on updating, as necessary, their IST procedures to comply with guidelines stated in Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing Programs, dated April 3, 1989. After discussions between the inspectors and licensee management, the licensee orally committed to review and revise applicable procedures within six months, paragraph 2.

The licensee also had a programmatic weakness in that no program existed for regularly scheduled testing of any relief valves other than those specifically required by Section XI of the American Society of Mechanical Engineer Boiler and Pressure Vessel Code, paragraph 5.

One strength was also identified in that, one specific organization was being used to implement the IST program and the licensee personnel that performed valve stroke timing were highly specialized and independent, paragraphs 2 and 4.

No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

M. Geckle, Engineer, Performance
*M. Glover, Compliance Manager
W. Hallman, Test Engineer
*J. Kamer, Test Engineer
*T. B. Owens, Station Manager
Z. Taylor, Test Engineer

Other licensee employees contacted during this inspection included craftsmen, engineers, operators, mechanics, technicians, and administrative personnel.

NRC Resident Inspectors

W. Orders, Senior Resident Inspector

*Attended exit interview

Acronyms and initialisms used thoughout this report are listed in the last paragraph.

2. RHR System IST Program Inspection (73756)

The purpose of this inspection was to assess how the licensee implements the IST program as it applies to the RHR system and selected adjacent valves. Specific pumps, MOVs, air operated valves, check valves, and relief valves were pre-selected for evaluation. The inspection included, but was not limited to, the following:

Verification that the IST program is current with the relief requests, Safety Evaluation and Technical Evaluation Reports, FSAR commitments, and Section XI of the 1983 edition of the ASME code through the Summer 1983 Addenda.

Verification that test procedures accomplish program requirements.

Review and verification of test results, corrective actions, and post-modification testing.

Verification of proper accuracy and calibration for plant instrumentation and test equipment.

The inspection also specifically examined how the licensee was implementing Section XI requirements as recognized by Generic Letter 89-04. Although the licensee has an IST program approved by an NRC SER, the generic letter states that any changes to procedures or program revisions shall be made, if necessary, to bring the program into compliance with the guidelines presented in the generic letter. The licensee had initiated selected various procedural changes; however, there was no intent to fully comply with the letter's guidelines. The licensee believed it was not necessary since they did have an approved TER for their program. This is regarded as a weakness in that the licensee did not intend to make changes when specific guidance for meeting the Section XI requirements, provided in the generic letter, differed from their procedures.

The licensee, after further discussions with the inspectors, orally committed to review the guidelines of the generic letter and implement any changes needed within six months. Specific examples of required procedural changes are presented in paragraphs 3 and 4 of this report. It was also discussed that any change to their current approved IST program, even though recognized as acceptable by the generic letter, would need to be approved via a relief request prior to implementation.

A strength in the IST program was that the program was basically implemented by one organization, the Performance Group. Within this one group are the personnel who write and update procedures, perform and document testing, and analyze and track test results. This is further discussed in paragraph 4.

Further inspection results have been divided into the following areas:

Check Valve Full Stroke and Backflow Testing
Power Operated Valve Testing
Relief Valve Testing
Leak Rate Testing
Pump Testing

Within the areas inspected, no violations or deviations were identified.

3. Check Valve Full Stroke and Back Flow Testing

The inspectors reviewed the full stroke and back flow IST methods and results obtained during the previous two year period for the following check valves for each unit:

ND-10	NI-175	NI-124	NI-59
ND-44	NI-176	NI-128	NI-70
FW-28	NI-180	NI-125	NI-81
FW-56	NI-181	NI-129	NI-93

The inspectors reviewed the following Unit 1 (corresponding procedures were reviewed for Unit 2 testing) procedures which performed IST on the above check valves:

PT/1/A/4200/57	FW and ND Check Valve Full Stroke Test, Rev. 0
PT/1/A/4200/08A	NI Check Valve Full Stroke Test, Rev. 4
PT/1/A/4200/13H	NI and NV Check Valve Test, Rev. 7
PT/1/A/4200/54	Cold Leg Accumulator Discharge Check Valve Partial Stroke Test, Rev.1
PT/1/A/4200/08B	NI Check Valves to B&C Hot Legs Full Stroke Test, Rev. 4
PT/1/A/4200/53A	FW-28 Partial Stroke Test, Rev. 2
PT/1/A/4200/53B	FW-56 Partial Stroke Test, Rev. 2
PT/0/A/4400/10	Mechanical Exercise of Normally Closed Check Valves, Rev. 0
MP/0/A/7600/10	Westinghouse Swing Check Valve Corrective Maintenance, Rev. 0

Requirements for full stroke exercising check valves are contained in Section XI, Subsection IWV-3522 of the 1983 ASME Code, through the Summer Addenda. In addition, the NRC position on full flow testing is provided in GL 89-04, which states that passing the maximum required accident condition flow through the check valve is considered an acceptable full stroke. The inspectors reviewed testing frequencies, results, and appropriate relief requests for the above check valves, and verified the following:

For check valves FW-28, FW-56, ND-10, and ND-44; partial stroke testing was performed quarterly during RHR pump testing and full stroke testing was performed during CSD in accordance with relief requests AA1 and F03.

For check valves NI-175, NI-176, NI-180, and NI-181; full stroke testing was performed during CSD in accordance with relief request H14.

For check valves NI-125 and NI-129; full stroke testing was performed during CSD in accordance with relief request H11.

For check valves NI-124 and NI-128; full stroke testing performed during each refueling outage in accordance with relief request H10.

For check valves NI-81, NI-82, NI-93, NI-94, NI-59, NI-60, NI-70, and NI-71; partial stroke testing was performed during CSD, and disassembly and inspection performed on a sampling basis in accordance with relief requests H3 and H5.

In addition, where full stroke testing was performed, the inspectors verified that flow rates were specified by procedure and were greater than the maximum design accident flow rate.

The inspectors also reviewed the licensee's internal QA Audit Finding, NP-89-12(CN)(01), dated June 2, 1989. The audit finding identified that check valves in parallel flow paths were not being tested at full flow on an individual component basis. Thus, there was no assurance that full flow was passing through each check valve. Among the valves identified in the audit were check valves NI-124 and NI-128. The licensee's response to the internal QA finding stated that the existing test procedure for full stroke testing of these check valves satisfied ASME Section XI requirements, and the scope of the investigation was limited to the valves identified in the audit report. However, the licensee's stated corrective actions were to review testing procedures for full flow testing check valves, and make procedural changes by the end of the Unit 1 refueling outage, as necessary. The inspectors reviewed the QA audit and subsequent responses, and concluded the following:

> The QA finding is consistent with GL 89-04, which states that a knowledge of only the total flow through multiple parallel lines does not provide verification of flow rates through the individual valves and is not a valid full stroke exercise.

The inspectors identified other check valves in the same system, specifically NI-175, NI-176, NI-125, NI-129, NI-180, and NI-181, which are also in parallel flow paths. Current IST of these check valves only verifies total flow upstream of the parallel flow path, and not flow through individual flow paths. As such, the licensee's initial review of the scope of the investigation to determine the extent of the QA finding was not thorough.

Discussions with the licensee during the inspection indicated that they were aware that current testing was not consistent with GL 89-04, and that check valves other than those identified in the QA audit finding were not tested properly to assure full stroke capability. However, at the time of the response to the QA finding, the licensee was not aware that the positions stated in GL 89-04 applied to plants with an approved Safety Evaluation Report. As such, the licensee did not consider conformance with GL 89-04 to be a requirement, as discussed in paragraph 2. However, the licensee has begun corrective actions to revise procedures such that flows through individual flow paths could be verified, as stated in the response to the internal QA audit.

As stated in paragraph 2, the licensee committed to full compliance with the positions stated in GL 89-04 within six months, including full stroke testing for check valves in parallel flow paths.

The inspectors also reviewed check valve back flow testing. Back flow testing is required per Subsection IWV-3522 of the 1983 ASME Code. In addition, GL 89-04 provides the NRC position on back flow testing of check valves which perform a safety function in the closed position to prevent reverse flow. The following examples were noted where the check valve back flow function was not verified:

Check valves ND-19 and ND-44 are located on the discharge side of RHR pumps A and B. Discussions with licensee engineering personnel indicated the purpose of these check valves is to prevent reverse flow such that the RHR pumps are not damaged.

Check valves FW-28 and FW-56 are located on the suction side of RHR pumps A and B. The purpose of these check valves is to prevent overpressurization of the refueling water storage tank.

The above four check valves are not currently tested to verify their back flow function, which is not consistent with the ASME Section XI Code or GL 89-04. However, since failure to verify check valve back flow function is identified in GL 89-04 as a generic problem, no violation will be issued. As discusses in paragraph 2, licensee management committed to be in full compliance with the positions stated in GL 89-04 within six months, including verification of check valve back flow function.

With the exception of full stroke testing for certain check valves in parallel flow paths and check valve back flow testing as previously discussed, the inspectors consider the licensee's IST program meets ASME Section XI requirements.

Within the areas inspected, no violations or deviations were identified.

4. Power Operated Valve Testing (73756)

The inspectors reviewed the licensee's IST program in the areas of post maintenance testing, remote position indication verification, exercising, full-stroke timing, fail-safe testing, corrective actions for increased stroke times, and valve failures for the following Units 1 and 2 RHR and SI power operated valves:

ND32A	FW27A	NI183B	ND25A
ND65B	FW56B	NI173A	ND59B
ND28A	ND1B	NI178B	NS43A
NI136B	ND2A	NS18A	NS38B
NI185A	ND37A	NS1B	ND26
NI184B	ND36B	ND24A	ND27
	ND60	ND61	

The inspectors also witnessed the licensee performing inservice testing that accomplished power operated valve exercising, full-stroke timing, and fail-safe testing.

The inspectors reviewed the following procedures and documents:

PT/1/A/4200/13D, 13F	ND Valve Inservice Testing
PT/1/A/4200/18A	CF Valve Inservice Testing
PT/1/A/4200/26	NS Valve Inservice Testing
PT/1/A/4200/27	NW Valve Inservice Testing

Duke Power Company, Catawba Nuclear Station, Pump and Valve Inservice Testing Programs, Units 1 and 2

Technical Evaluation Report Pump and Valve Inservice Testing Program Catawba Nuclear Stations Units 1 and 2, dated November 1986

Paragraph IWV-3200 of Section XI of the ASME Code requires valves to be tested following maintenance. This involves exercising and stroke timing power operated valves to verify proper operation. Review of the listed valve's maintenance histories dating back to 1987 indicated that these valves were being adequately tested by the licensee following maintenance.

Paragraph IWV-3300 of Section XI requires valves with remote position indicators to be observed once every two years to verify valve operation is accurately indicated. The licensee verifies remote indication at the control room because that is where power operated valves are stroke timed. The licensee TS, allow this two year interval to be extended by 25 percent provided the combined time interval for three consecutive intervals does not exceed 3.25 times the two year interval. Reviewing the remote position verification performance dates indicated that IWV-3300 and TS frequency requirements were met.

Paragraphs IWV-3412 and IWV-3413 collectively require that power operated valves be exercised and full stroke timed at specific frequencies. The inspectors reviewed stroke times and frequencies dating back to 1987, the licensee's stroke timing methods, and also observed the licensee performing stroke time testing. Review of the stroke times indicated the Code frequencies were adhered to. Review of the licensee's stroke time methods indicated that the licensee utilized several methods to perform stroke timing. Valves stroke times were obtained from ESFAS testing performed at 18 month intervals, Auxiliary Safeguards testing performed quarterly, and by stroking valves individually and timing the stroke with a stop watch or the operator aid computer. Individual valve stroking was accomplished by timing from actuating signal initiation to limit switch or timing limit switch to limit switch. The licensee obtained a relief request that allows timing limit switch to limit switch. In some instances, the ESFAS, Auxiliary Safeguards, and timing from actuating signal initiation methods of stroke timing provided longer stroke times for the same valves than timing limit switch to limit switch. This resulted in increased test frequencies. In order to alleviate this problem, the licensee was in the process of eliminating limit switch to limit switch stroke time testing. Review of the licensee's stroke time methods indicated that the licensee's methods are per the code except for limit switch to limit switch stroke timing. However, the licensee has a relief request which allows limit switch to limit switch stroke time testing. The inspectors verified that the stop watches and operator aid computer used to obtain stroke times were routinely calibrated. The inspector's observations of licensee personnel accomplishing valve stroke

timing were that they were experienced, knowledgeable, and following procedures. Licensee personnel that performed this testing were from the Performance Group. Because testing is the prime responsibility of this group, the personnel appeared to be highly specialized, trained, and independent. This is a strength in the licensee's IST program, as mentioned in paragraph 2.

Paragraph IWV-3413 requires that the limiting value of power operated valves be specified by the owner. GL 89-04 requires that this limiting value be based on the valve average stroke time obtained when the valve is known to be in good condition and operating properly. The inspectors review of the full stroke time limiting value indicated that for some valves the limiting values were significantly higher than the average stroke times. For example, air operated valves ND26, ND27, ND60, and ND61 limiting stroke time values were 90 seconds; however, the average stroke times were approximately 6 seconds. This was noted as another example of where the licensee's program was not in accordance with the GL 89-04 which was considered a weakness as discussed in paragraph 2.

Paragraph IWV-3415 requires that valves with fail-safe actuators be tested at specified frequencies to ensure that the valves operate on loss of actuator power. In order to accomplish stroke time testing on fail-safe actuators, loss of power to the actuator is simulated. Review of stroke times indicated that fail-safe actuators were tested in accordance with the code.

Paragraph IWV-3415 specifies the corrective action for increased stroke times, valves failing to operate, and for valve stroke times exceeding the limiting value of full stroke time. Review of the licensee stroke time results indicated that adequate corrective actions were taken when required.

Within the areas inspected, no violations or deviations were identified.

5. Relief Valve Testing

There are no RHR system relief valves required by Section XI of the code to be tested by the IST program. Furthermore, the licensee does not test any safety-related system relief valves in their IST program, other than the pressurizer code safety valves and the main steam relief valves. A further review and discussion with licensee personnel identified that a program does not exist for conducting regularly scheduled testing of any relief valves other than those in the IST program. This was acknowledged by licensee management and is viewed by the inspectors as a weakness in that there is no program, other than the IST program with its limited scope, that ensures proper operation of system relief valves without having a deficiency or maintenance request identified. It was noticed by the inspectors that a study was initiated to determine what valves would be

appropriate to include in such a testing program, but apparently no further progress was made in that area.

Within the areas inspected, no violations or deviations were identified.

6. Leak rate Testing

The inspector reviewed leak rate testing of pressure isolation valves and containment isolation valves in the RHR and SI systems. The regulatory requirements for leak rate testing are specified in the following documents:

ASME Section XI Code (1983), Subsection IWV.

Technical Specification 3/4.4.

FSAR Table 6.2.4-1.

Inservice Test Program (November 1986).

Approved Relief Requests.

IST Technical Evaluation Report (1986).

Letter (File No. CN-180.25) dated August 15, 1989, defining CIV leak rate limits.

Documentation reviewed for information during this inspection included:

Applicable portion of documents above.

IST Program (for valve testing), Unit 1 and 2.

Plant system drawings for the RHR and SI systems.

PT/1/A/4200/01C, March 10, 1989, Containment Isolation Valve Leak Rate Test.

PT/1/A/4200/01N, January 13, 1989, Reactor Coolant Pressure Boundary Valve Leak Rate Test.

PT/2/A/4200/01L, Controlling Procedure for Type B and C Leak Rate Tests.

Containment integrated leak rate test reports: Unit 1, November 1987 and Unit 2 March 1989 (Type B and C test results).

Systems drawings for the RHR and SI systems were reviewed to identify PIVs and CIVs within these systems. The identified valves were compared to the IST program, Technical Specification 3/4.4 listing of PIVs, technical

evaluation of the IST program, and the leak rate test procedures to verify that the appropriate valves are identified, categorized, and leak rate tested. Test procedures were also reviewed to verify that test methods are acceptable, adequate test instructions are provided, and, correct acceptance criteria are specified. Additionally, implementation of leak rate testing was verified by review of test results. Test results were reviewed for the following PIVs:

NI59	NI125	NI159	NI176
NI60	NI126	NI160	NI180
NI170	NI128	NI165	NI181
NI171	NI129	NI167	NDIB
NI181	NI134	NI169	ND2A
NI193	NI156	NI171	ND36B
NI194	NI157	NI175	ND37A

Data reviewed was obtained during 1986 through January 1989 on Unit 1 and during the May 1989 refueling outage on Unit 2.

The inspector also verified that the Type C leak rate tests for containment isolation valves NI95A, NI96B, NI120B, NI48, and NI47A have been routinely performed in accordance with the requirements of 10 CFR 50, Appendix J.

Based on the these reviews the inspector concluded the following for the RHR and SI systems:

Pressure isolation and containment isolation valves were correctly identified in the IST program.

Adequate leak rate test procedures were developed and implemented.

PIV leak rate tests were performed by acceptable methods at the required frequency.

PIV test data, taken at nominal system pressure of 1000 psi, was adjusted to system functional pressure of 2235 psi in accordance with IWV-3423.

Type C tests were performed in accordance with the limits and requirements of 10 CFR 50, Appendix J.

PIV tests were performed within the limits, analysis, and corrective action requirements of IWV-3426, IWV-3427 and Technical Specification 3/4.4.

Within these areas, no violations or deviations were identified.

7. Pump Testing

RHR system pumps 1 and 2A, and 1 and 2B were selected for review and found to be included in the licensee's IST program. The following test procedures were reviewed:

PT/1/A/4200/10A, Residual Heat Removal Pump 1A Performance Test
PT/1/A/4200/10B, Residual Heat Removal Pump 1B Performance Test
PT/2/A/4200/10A, Residual Heat Removal Pump 2A Performance Test
PT/2/A/4200/10B, Residual Heat Removal Pump 2B Performance Test

The pumps are constant speed, centrifugal pumps which are tested at mini-recirculation flow. The flow path is such that no regulation of the flow rate by a control valve is possible. Once the pump is started and operation has stabilized test data are recorded. Data include flow rate, suction and discharge pressure, bearing temperature, and vibration amplitude. Differential pressure is also calculated. Reference values used for the pump acceptance criteria are maintained by the Section XI, Subsection IWP, test engineer. Acceptance criteria were found to be in agreement with Section XI. All data and testing frequencies reviewed were found satisfactory. Test equipment, instrument accuracy, and calibration were found satisfactory. Two examples of pump maintenance were reviewed and post maintenance testing was found satisfactory. It was noted by the inspector that Unit 1 procedures had undergone a recent revision thereby incorporating the numerous pen-and-ink changes that had been made to the procedure over the past five years. The Unit 2 procedures had not yet been updated; however, a program was in progress to make the changes and a draft of the revision was shown to the inspector. The inspector noted an incorrect accuracy requirement in the the procedure which licensee personnel stated would be corrected.

The licensee was also found to satisfactorily meet pump record keeping requirements. A summary listing of pump testing was maintained on computer. Required test records were maintained by keeping the entire test procedure on file after completion and approval of results. Deficiencies and corrective actions were documented and test plans were specified in the actual test procedure files. Pump technical records were in the vendor manuals.

The inspector also witnessed the inservice testing of auxiliary feedwater pump 1A. Testing was found to be accomplished in a thorough and professional manner and satisfactorily completed in accordance with the procedure and the IST program.

8. Action on Outstanding Items (92701, 92702)

a. (Closed) 50-413, 414/85-BU-03/TI2515/73, Motor Operated Valve Common Mode Failure During Plant Transients Due to Improper Switch Settings

The purpose of this Bulletin is to require licensees to develop and implement a program to ensure that switch settings for high pressure

coolant injection and emergency feedwater system MOVs subject to testing for operational readiness in accordance with 10 CFR 50.55a(g) are properly set, selected, and maintained. IE Bulletin 85-03 was superseded by Generic Letter 89-10, Safety-Related Motor-Operated Valve Testing and Surveillance.

b. (Closed) Temporary Instruction 2515/100, Proper Receipt, Storage, and Handling of Emergency Diesel Generator (EDG) Fuel Oil

TI 2515/100 inspection activities consisted of completing a brief questionnaire involving the licensee's programs to purchase and store emergency diesel generator fuel oil. This information has been completed, thus no additional inspection activities are required.

c. (Open) Unresolved Item 50-413/88-28-04, Valve Stroke Program Inadequacies

This item involved stroke timing valves from limit switch to limit switch and adjusting the open limit switch to 95 percent of full valve stroke in order to meet stroke time requirements.

The purpose of stroke time testing valves in accordance with paragraph IWV-3413 is to verify operability and trend valve degradation. The inspector considerd it acceptable to adjust the open limit switch to 95 percent of full stroke in order to meet response time requirements provided the licensee determined that valve degradation did not occur to cause an increased stroke time. Because it is undesirable to back seat motor operated valves, the open limit switch is normally set at 97-98 percent of full stem travel, and in the cases of fast speed actuators, open limit switches are often set at less than 97 percent of full travel to prevent coasting into the backseat. In cases where the open limit switch is set significantly less the 97 percent full stem travel, it is necessary to evaluate if the valve can pass design flow rates; however, the difference between 95 and 97 percent would not effect flow rate through the valve. During a future inspection, the inspectors will review procedure IP-O-A-3820-04, Operating Checkout of Limitorque and Rotorque Valve Actuators, to verify that the licensee is evaluating valve degradation when adjusting open limit switches to obtain satisfactory stroke times.

IWV-3413 of the ASME code defines full stroke time as the time interval from initiation of the actuating signal to the end of the actuating cycle. The licensee sets the closed limit switch at 90-95 percent of full stem travel on motor operated valves. When timing motor operated valves from limit switch to limit switch the time between actuating signal and start of valve motion, and up to the last ten percent of valve travel is not measured. When timing motor operated valves from actuating signal to limit switch, up to the last

ten percent of valve travel is not measured. Since the licensee has a code relief request that allows light to light valve timing, the code requirement were met; however, both the TS and the FSAR specify maximum allowable stroke time limits and it was not clear to the inspectors if timing valves stroke times light to light or switch to light met the intent of the TS and FSAR.

Table 3.6.2a of the TS specifies the maximum isolation times of Units 1 and 2 CIVs that are required to close on Phase A and B containment isolation signals. Table 3.9.3.14 of the FSAR also lists stroke times for Units 1 and 2 power operated valves. Section 6.2.4.2.1 of the FSAR states that ANSI standard N271-176, Section 4.4.4, specifies the requirements for containment isolation valve closure times. ANSI standard N271-176, Containment Isolation Provisions For Fluid Systems, requires licensees to establish valve closure times to limit, as low as reasonably attainable, the release of radioactivity from containment. ANSI standard N271-176 defines valve closure time as the time it takes for a power operated valve to be in the fully closed position after the actuation power has reached the operator assembly and does not include instrument delay time. Review of containment isolation stroke times revealed that stroke times obtained by the light to light or switch to light method were sometimes very near or equal to limiting value of stroke time specified in the TS. Although these valves passed the stroke time test they did not fully shut and stop flow in the time interval specified by the TS. It was not clear to the inspectors if the basis of the maximum stroke times in table 3.6.2a of the TS were calculated and adjusted accordingly to recognize the licensee stroke time methods. During a future inspection the inspectors will review the basis of the stroke times contained in Tables 3.6.2a of the TS and 3.9.3.14 of the FSAR in order to determine if the licensee light to light and switch to light stroke methods are acceptable.

9. Exit Interview

The inspection scope and results were summarized on September 22, 1989, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection results listed above. Proprietary information is not contained in this report.

Licensee management was informed that Bulletin 85-03 and TI 2515/73 were closed, paragraph 8.a, and that TI 2515/100 was closed, paragraph 8.b.

10. Acronyms and Initialisms

ANSI - American National Standards Institute
ASME - American Society of Mechanical Engineers
CF - Feedwater System

CFR - Code of Federal Regulations
CIV - Containment Isolation Valve
CSD - Cold Shutdown
ESFAS - Engineered Safety Features Actuation System
FSAR - Final safety Analysis Report
FW - Refueling Water System
GL - Generic Letter
IST - Inservice Testing
MOV - Motor Operated Valve
MP - Maintenance Procedure
ND - Residual Heat Removal System
NI - Safety Injection System
NRC - Nuclear Regulatory Commission
NW - Containment Valve Seal Water Injection System
PIV - Pressure Isolation Valve
PT - Performance Test
QA - Quality Assurance
RHR - Residual Heat Removal
SER - Safety Evaluation Report
SI - Safety Injection
TER - Technical Evaluation Report
TS - Technical Specifications