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b. Three valves shall be operable when the reactor coolant average temperature is greater than 350°F, the reactor is critical, or the Reactor Coolant System is not connected to the Residual Heat Removal System.

c. Valve lift settings shall be maintained at 2485 psig ± 1 percent. *

4. Reactor Coolant Loops

Loop stop valves shall not be closed in more than one loop unless the Reactor Coolant System is connected to the Residual Heat Removal System and the Residual Heat Removal System is operable.

5. Pressurizer

a. The reactor shall be maintained subcritical by at least 1% until the steam bubble is established and the necessary sprays and at least 125 KW of heaters are operable.

b. With the pressurizer inoperable due to inoperable pressurizer heaters, restore the inoperable heaters within 72 hours or be in at least hot shutdown within 6 hours and the reactor coolant system temperature and pressure less than 350°F and 450 psig, respectively, within the following 12 hours.

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* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

3.6 TURBINE CYCLE

Applicability

Applies to the operating status of the Main Steam and Auxiliary Feed Systems.

Objective

To define the conditions required in the Main Steam System and Auxiliary Feed System for protection of the steam generator and to assure the capability to remove residual heat from the core during a loss of station power.

Specification

A. A unit's Reactor Coolant System temperature or pressure shall not exceed 350°F or 450 psig, respectively, or the reactor shall not be critical unless the five main steam line code safety valves associated with each steam generator in unisolated reactor coolant loops are operable with lift setting as specified in Table 3.6-1A and 3.6-1B.

B. To assure residual heat removal capabilities, the following conditions shall be met prior to the commencement of any unit operation that would establish reactor coolant system conditions of 350°F and 450 psig which would preclude operation of the Residual Heat Removal System.

1. Two motor driven auxiliary feedwater pumps shall be operable, and one of three auxiliary feedwater pumps for the opposite unit shall be available.*

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* Available means (1) operable except for automatic initiation instrumentation, (2) offsite or emergency power source may be inoperable in cold shutdown, and (3) it is capable of being used with the opening of the cross-connect.

2. A minimum of 96,000 gallons of water shall be available in the tornado missile protected condensate storage tank to supply emergency water to the auxiliary feedwater pump suctions. A minimum of 60,000 gallons of water shall be available in the tornado protected condensate storage tank of the opposite unit to supply emergency water to the auxiliary feedwater pump suction of that unit.

3. All main steam line code safety valves, associated with steam generators in unisolated reactor coolant loops, shall be operable with lift setting as specified in Table 3.6-1A and 3.6-1B.

C. Prior to reactor power exceeding 10%, the steam driven auxiliary feedwater pump shall be operable.

D. System piping, valves, and control board indication required for the operation of the components enumerated in Specifications 3.6.B.1, 3.6.B.2, 3.6.B.3, and 3.6.C shall be operable with the system piping, valves, and control board indication required for the operation of the opposite unit auxiliary feedwater pump available.*

E. The iodine - 131 activity in the secondary side of any steam generator, in an unisolated reactor coolant loop, shall not exceed 9 curies. Also, the specific activity of the secondary coolant system shall be $\leq$ 0.10 μCi/cc DOSE EQUIVALENT I-131. If the specific activity of the secondary coolant system exceeds 0.10 μCi/cc DOSE EQUIVALENT I-131, the reactor shall be shut down and cooled to 500°F or less within 6 hours after detection and in the cold shutdown condition within the following 30 hours.

* Available means (1) operable except for automatic initiation instrumentation, (2) offsite or emergency power source may be inoperable in cold shutdown, and (3) it is capable of being used with the opening of the cross-connect.

TABLE 3.6-1A

UNIT 1
MAIN STEAM SAFETY VALVE LIFT SETTING

VALVE NUMBER	LIFT SETTING *#	ORIFICE SIZE
SV-MS-101A, B, C	1085 psig	7.07 sq. in.
SV-MS-102A, B, C	1095 psig	16 sq. in.
SV-MS-103A, B, C	1110 psig	16 sq. in.
SV-MS-104A, B, C	1120 psig	16 sq. in.
SV-MS-105A, B, C	1135 psig	16 sq. in.

TABLE 3.6-1B

UNIT 2
MAIN STEAM SAFETY VALVE LIFT SETTING

VALVE NUMBER	LIFT SETTING *#	ORIFICE SIZE
SV-MS-201A, B, C	1085 psig	7.07 sq. in.
SV-MS-202A, B, C	1095 psig	16 sq. in.
SV-MS-203A, B, C	1110 psig	16 sq. in.
SV-MS-204A, B, C	1120 psig	16 sq. in.
SV-MS-205A, B, C	1135 psig	16 sq. in.

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* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

\# The as found condition shall be ± 3% and the as left condition shall be ± 1%.

4.0 SURVEILLANCE REQUIREMENTS

4.0.1 Surveillance Requirements provide for testing, calibrating, or inspecting those systems or components which are required to assure that operation of the units or the station will be as prescribed in the preceding sections.

4.0.2 Surveillance Requirement specified time intervals may be adjusted plus or minus 25 percent to accommodate normal test schedules.

4.0.3 Surveillance Requirements for inservice inspection and testing of ASME Code Class 1, 2, and 3 components shall be applicable as follows:

a. Inservice inspection of ASME Code Class 1, 2, and 3 components and inservice testing of ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

b. Surveillance intervals specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda for the inservice inspection and testing activities required by the ASME Boiler and Pressure Vessel Code and applicable Addenda shall be applicable as follows in these Technical Specifications:

ASME Boiler and Pressure Vessel Code and Applicable Addenda Terminology for Inservice Inspection and Testing Activities	Required Frequencies for Performing Inservice Inspection and Testing Activities
Monthly	At least once per 31 days
Quarterly or Every 3 Months	At least once per 92 days
Cold Shutdown	At least once per CSD
Refueling Shutdown	At least once per RSD

c. The provisions of Specification 4.0.2 are applicable to the above required frequencies for pump and valve testing only. Extensions for inservice inspection of components will be to the requirements of Section XI of the ASME Boiler and Pressure Vessel Code.

d. Performance of the above inservice inspection and testing activities shall be in addition to other specified Surveillance Requirements.

e. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any Technical Specification.

Bases

This specification provides that surveillance activities necessary to insure the Limiting Conditions for Operation are met and will be performed during all operating conditions for which the Limiting Conditions for Operation are applicable.

The provisions of this specification provide allowable tolerances for performing surveillance activities beyond those specified in the nominal surveillance interval. These tolerances are necessary to provide operational flexibility because of scheduling and performance considerations. The phrase "at least" associated with a surveillance frequency does not negate this allowable tolerance value and permits the performance of more frequent surveillance activities.

This specification ensures that inservice inspection, repairs, and replacements of ASME Code Class 1, 2, and 3 components and inservice testing of ASME Code Class 1, 2, and 3 pumps and valves will be performed in accordance with a periodically updated version of Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a. Specific relief from portions of the above requirements has been provided in writing by the Commission and is not a part of these Technical Specifications.

This specification includes a clarification of the frequencies for performing the inservice inspection and testing activities required by Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda. This clarification is provided to ensure consistency in surveillance intervals throughout these Technical Specifications and to remove any ambiguities relative to the frequencies for performing the required inservice inspection and testing activities.

Under the terms of this specification, the more restrictive requirements of the Technical Specifications take precedence over the ASME Boiler and Pressure Vessel Code and applicable Addenda. For example, the Technical Specification definition of operable does not grant a grace period before a device that is not capable of performing its specified function is declared inoperable and takes precedence over the ASME Boiler and Pressure Vessel Code provision which allows a valve to be incapable of performing its specified function for up to 24 hours before being declared inoperable.

TABLE 4.1-2A

MINIMUM FREQUENCY FOR EQUIPMENT TESTS

	Description	Test	Frequency	FSAR Section Reference
1.	Control Rod Assemblies	Rod drop times of all full length rods at hot conditions	Each refueling shutdown or after disassembly or maintenance requiring the breach of the Reactor Coolant System integrity	7
2.	Control Rod Assemblies	Partial movement of all rods	Every 2 weeks	7
3.	Refueling Water Chemical Addition Tank	Functional	Each refueling shutdown	6
4.	Pressurizer Safety Valves	Setpoint	Per TS 4.0.3	4
5.	Main Steam Safety Valves	Setpoint	Per TS 4.0.3	10
6.	Containment Isolation Trip	* Functional	Each refueling shutdown	5
7.	Refueling System Interlocks	* Functional	Prior to refueling	9.12
8.	Service Water System	* Functional	Each refueling shutdown	9.9
9.	Fire Protection Pump and Power Supply	Functional	Monthly	9.10
10.	Primary System Leakage	* Evaluate	Daily	4
11.	Diesel Fuel Supply	* Fuel Inventory	5 days/week	8.5
12.	Boric Acid Piping Heat Tracing Circuits	* Operational	Monthly	9.1
13.	Main Steam Line Trip Valves	Functional Full Closure	Before each startup (TS 4.7)	10

TABLE 4.1-3A

UNIT 1

MINIMUM FREQUENCIES FOR FLUSHING SENSITIZED PIPE

	Flush Flow Path - General Description	Minimum Flush Duration	Frequency	Remarks
1.	From C.S. Pump CS-P-1A to M.O. Isolation Valves	15 minutes	Monthly	Run separately or run in conjunction with or immediately after pump test required by Specification 4.5.A.1
2.	From C.S. Pump CS-P-1B to M.O. Isolation Valves	20 minutes	Monthly	Run separately or run in conjunction with or immediately after pump test required by Specification 4.5.A.1
3.	From L.H.S.I. Pump, SI-P-1A, Discharge Line to MOV 1-863A	20 minutes	Monthly	Run separately or run in conjunction with or immediately after pump test required by Specification 4.11.B.1
4.	S.I. line, from charging pump discharge loop fill header to containment missile barrier, for flow to:			Flushes to be performed only when R.C. System pressure is > 1500 psig
	a. R.C. hot leg loop 1	15 minutes	Monthly	
	b. R.C. hot leg loop 2	10 minutes	Monthly	
	c. R.C. hot leg loop 3	15 minutes	Monthly	
5.	S.I. line, from charging pump discharge header to containment missile barrier, for flow to:			Flushes to be performed only when R.C. System pressure is > 1500 psig
	a. R.C. cold leg loop 1	5 minutes	Monthly	
	b. R.C. cold leg loop 2	5 minutes	Monthly	
	c. R.C. cold leg loop 3	5 minutes	Monthly	

TABLE 4.1-3B

UNIT 2

MINIMUM FREQUENCIES FOR FLUSHING SENSITIZED PIPE

	Flush Flow Path - General Description	Minimum Flush Duration	Frequency	Remarks
1.	From C.S. Pump 2-CS-P-1A to M.O. Isolation Valves	20 minutes	Monthly	Run separately or run in conjunction with or immediately after pump test required by Specification 4.5.A.1
2.	From C.S. Pump 2-CS-P-1B to M.O. Isolation Valves	15 minutes	Monthly	Run separately or run in conjunction with or immediately after pump test required by Specification 4.5.A.1
3.	From L.H.S.I. Pump, 2-SI-P-1A, Discharge Line to MOV 2-863A	20 minutes	Monthly	Run separately or run in conjunction with or immediately after pump test required by Specification 4.11.B.1
4.	6" S.I. line, from L.H.S.I. pumps to containment missile barrier, for flow to:			Flushes to be performed only when R.C. System pressure is > 500 psig. Run separately or run in conjunction with or immediately after pump test required by Specification 4.11.B.1
	a. R.C. hot leg loop 1	35 minutes	Monthly	
	b. R.C. hot leg loop 2	35 minutes	Monthly	
	c. R.C. hot leg loop 3	35 minutes	Monthly	
5.	S.I. line, from charging pump discharge header to containment missile barrier, for flow to:			Flushes to be performed only when R.C. System pressure is > 1500 psig
	a. R.C. cold leg loop 1	5 minutes	Monthly	
	b. R.C. cold leg loop 2	5 minutes	Monthly	
	c. R.C. cold leg loop 3	5 minutes	Monthly	

4.2 AUGMENTED INSPECTIONS

Applicability

Applies to inservice inspections which augment those required by ASME Section XI.

Objective

To provide the additional assurance necessary for the continued integrity of important components involved in safety and plant operation.

Specifications

A. Inspections shall be performed as specified in T.S. Table 4.2-1. Nondestructive examination techniques and acceptance criteria shall be in compliance with the requirements of TS 4.0.3.

B. The normal inspection interval is 10 years.

C. Detailed records of each inspection shall be maintained to allow a continuing evaluation and comparison with future inspections.

Bases

The inspection program for ASME Section XI of the ASME Boiler and Pressure Vessel Code limits its inspection to ASME Code Class 1, 2, and 3 components and supports. Certain components, under Miscellaneous Inspections in this section, were added because of no corresponding code requirement. This added requirement provides the inspection necessary to insure the continued integrity of these components.

Sensitized stainless steel augmented inspections were added to assure piping integrity of this classification.

Item 2.1

ASME Class 1 sensitized stainless steel piping will be inspected at three times the frequency required by the Code. Visual inspections will be conducted, while the piping is pressurized by the procedures defined in Table 4.1-3 of Technical Specification 4.1 concerning flushing of sensitized stainless steel piping.

Item 2.2

Sensitized stainless steel piping designated ASME Class 2 or not subject to Section XI of the ASME Code, will undergo visual and surface examination.

The containment and recirculation spray rings, which are located in the overhead of the containment, will be visually inspected. Additionally, sections of the piping will be examined by liquid penetrant inspection when the piping is visually inspected. At least 25 percent of the examinations shall have been completed by the expiration of one-third of the inspection interval and at least 50 percent shall have been completed by the expiration of two-thirds of the inspection interval. The remaining examinations shall be completed by the end of the inspection interval.

All other piping included in Item 2.2 will be visually inspected at least every two years. Sections of this piping will be examined by liquid penetrant inspection when the piping is visually inspected. For the required visual inspection, the piping will be pressurized by the procedures defined in Table 4.1-3 of Technical Specification 4.1 concerning flushing of sensitized stainless steel piping.

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TABLE 4.2-1

SECTION A. MISCELLANEOUS INSPECTIONS

Item No.	Required Examination Area	Required Examination Methods	Tentative Inspection During 10-Year Interval	Remarks
1.1	Materials Irradiation Surveillance	Tensile and Charpy V notch (wedge open loading) and dosimetry as necessary to insure surveillance	Capsules shall be removed and examined after 10 years. (See Notes 1 and 2)	Capsule #1 = First refueling Capsule #2 = At five years Capsule #3 = At 10 years Capsule #4 = At 20 years Capsule #5-8 = Are spares for complementary or duplicate testing.

Note 1: 1 year corresponds to 1 year effective full power operation.

Note 2: The results obtained from these examinations shall be used to update Figure 3.1-1 as required.

TABLE 4.2-1

SECTION A. MISCELLANEOUS INSPECTIONS

Item No.	Required Examination Area	Required Examination Methods	Tentative Inspection During 10-Year Interval	Remarks
1.2	Primary Pump Flywheel	See remarks	See remarks	Examination to be conducted in accordance with regulatory position C.4.b of regulatory guide 1.14 Rev. 1, August 1975
1.3	Low Pressure Turbine Rotor	Visual and Magnetic Particle or Dye Penetrant	100% of blades every 5 years	None

SECTION B. SENSITIZED STAINLESS STEEL

2.1.1	Circumferential and longitudinal pipe welds and branch pipe connections larger than 4 inches in diameter	Visual and Volumetric	By the end of the interval, a cumulative 75% of the circumferential welds in the piping system would have been examined, including one foot on any longitudinal weld on either side of the butt welds	A minimum of 5% of the welds will be examined every 1-2/3 years (generally each normal refueling outage). See Transcript of Hearing (pp. 303--34) and Initial Decision (p.7, p.10)
2.1.2	Circumferential and longitudinal pipe welds and branch pipe connections	Visual	By the end of the interval a cumulative 100% of the welds and pipe branch connections would be examined a minimum of three times	A minimum of 50% of the welds will be examined every 1-2/3 years (generally, each normal refueling outage). See Transcript of Hearing (pp. 303-304) and Initial Decision (p.7, p.10)

TABLE 4.2-1

SECTION B. SENSITIZED STAINLESS STEEL

Item No.	Required Examination Area	Required Examination Methods	Tentative Inspection During 10-Year Interval	Remarks
2.1.3	Socket welds and pipe branch connections welds 4 inches in diameter and smaller	Visual and Surface	By the end of the interval, a cumulative 75% of the circumferential welds in the piping system and 75% of the pipe branch connections welded joints would be examined.	A minimum of 5% of the circumferential welds and 5% of the pipe branch connection welded joints will be examined every 1-2/3 years (generally each normal refueling outage). See Transcript of Hearing (pp. 303-304) and Initial Decision (p.7, p. 10).
2.2.1	Containment and Recirculation	Visual and Surface	(See Remarks)	At least 25 percent of the examinations shall have been completed by the expiration of one-third of the inspection interval and at least 50 percent shall have been completed by the expiration of two-thirds of the inspection interval. The remaining required examinations shall be completed by the end of the inspection interval. Surface examination will include 6 patches (each 9 inches square) evenly distributed around each spray ring.

TABLE 4.2-1

SECTION B. SENSITIZED STAINLESS STEEL (continued)

Item No.	Required Examination Area	Required Examination Methods	Tentative Inspection During 10-Year Interval	Remarks
2.2.2	Remaining sensitized stainless steel piping	Visual and Surface	(See Remarks)	The piping would be inspected every two years. The inspection will include 100% of the piping by visual examination. Surface examination will include a strip one inch wide and one foot long located on each piping bend.

(Pages TS 4.2-8 through TS 4.2-35 have been deleted)

4.3 ASME CODE CLASS 1, 2, AND 3 SYSTEM PRESSURE TESTS

Applicability

Applies to requirement for ASME Code Class 1, 2, and 3 System Pressure Tests. In this context, closed is defined as the state of system integrity which permits pressurization and subsequent normal operation after the system has been opened.

Objective

To specify requirements for ASME Code Class 1, 2, and 3 System Pressure Tests following normal operation, modification, or repair. The pressure-temperature limits for Reactor Coolant System tests will be in accordance with Figure 3.1-1.

Specification

A. Inservice inspection, which includes system pressure testing, of ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the NRC pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

B. Each time the Reactor Coolant System is closed, the system will be leak tested at a test pressure of not less than the nominal operating pressure +100 psi in conformance with NDT requirements.

BASIS

System pressure testing is performed in order to insure integrity of the system. For normal opening the integrity of the system, in terms of strength, is unchanged. If, for example, the Reactor Coolant System does not leak at the nominal operating pressure plus 100 psi, it will be assumed leaktight for normal operation.

The testing is based on 10 CFR 50.55a and performed pursuant to Section XI of the ASME Code for inservice inspection of Class 1, 2, and 3 components.

(Pages TS 4.3-3 and TS 4.3-4 have been deleted)

4.5 SPRAY SYSTEMS TESTS

Applicability

Applies to the testing of the Spray Systems.

Objective

To verify that the Spray Systems will respond promptly and perform their design function, if required.

Specification

A. Each containment spray subsystem shall be demonstrated operable:

1. By verifying, that on recirculation flow, each containment spray pump performs satisfactorily when tested in accordance with Specification 4.0.3.
2. By verifying that each motor-operated valve in the containment spray flow path performs satisfactorily when tested in accordance with Specification 4.0.3.
3. At least once per 5 years, coincident with the closest refueling outage, by performing an air or smoke flow test and verifying each spray nozzle is unobstructed.
4. Coincident with the containment spray pump test described in Specification 4.5.A.1, by verifying that no particulate material clogs the test spray nozzles in the refueling water storage tank.

B. Each recirculation spray subsystem shall be demonstrated operable:

1. By verifying each recirculation spray pump performs satisfactorily when tested in accordance with Specification 4.0.3.*

* Except that each inside containment recirculation spray pump shall be dry tested at least once per month. The dry test of a recirculation spray pump shall be considered satisfactory if the motor and pump shaft rotates, starts on signal, and the ammeter readings for the motor are comparable to the original dry test ammeter readings.

2. By verifying that each motor-operated valve in the recirculation spray flow paths performs satisfactorily when tested in accordance with Specification 4.0.3.
3. At least once per 5 years, coincident with the closest refueling outage, by performing on air or smoke flow test and verifying each spray nozzle is unobstructed.

C. Each weight-loaded check valve in the containment spray and outside containment recirculation spray subsystems shall be demonstrated operable at least once per 18 months, during shutdown, by cycling the valve one complete cycle of full travel and verifying that each valve opens when the discharge line of the pump is pressurized with air and seats when a vacuum is applied.

Basis

The flow testing of each containment spray pump is performed by opening the normally closed valve in the containment spray pump recirculation line returning water to the refueling water storage tank. The containment spray pump is operated and a quantity of water recirculated to the refueling water storage tank. The discharge to the tank is divided into two fractions; one for the major portion of the recirculation flow and the other to pass a small quantity of water through test nozzles which are identical with those used in the containment spray headers. The purpose of the recirculation through the test nozzles is to assure that there are no particulate material in the refueling water storage tank small enough to pass through pump suction strainers and large enough to clog spray nozzles.

Due to the physical arrangement of the recirculation spray pumps inside the containment, it is impractical to flow-test them periodically. These pumps are capable of being operated dry for 60 seconds and it can be determined that the pump shafts are turning by rotation sensors which indicate in the Main

Control Room. Motor current is indicated on an ammeter in the Control Room, and will be compared with readings recorded during preoperational tests to ascertain that no degradation of pump operation has occurred. The recirculation spray pumps outside the containment have the capability of being dry-run and flow tested. The test of an outside recirculation spray pump is performed by closing the suction line valve and the isolation valve between the pump discharge and the containment penetration. This allows the pump casing to be filled with water and the pump to recirculate water through a test line from the pump discharge to the pump casing.

With a system flush conducted to remove particulate matter prior to the installation of spray nozzles and with corrosion resistant nozzles and piping, it is not considered credible that a significant number of nozzles would plug during the life of the unit to reduce the effectiveness of the subsystems; therefore provisions to air-test the nozzles every 5 years, coinciding with the closest refueling outage, is sufficient to indicate that plugging of the nozzles has not occurred.

The spray nozzles in the refueling water storage tank provide means to ensure that there is no particulate matter in the refueling water storage tank and the containment spray subsystems which could plug or cause deterioration of the spray nozzles. The nozzles in the tank are identical to those used on the containment spray headers.

The flow test of the containment spray pumps and recirculation to the refueling water storage will indicate any plugging of the nozzles by a reduction of flow through the nozzles.

REFERENCES

FSAR Section 6.3.1, Containment Spray Pumps
FSAR Section 6.3.1, Recirculation Spray Pumps

(Pages TS 4.5-4, TS 4.5-5, and TS 4.5-6 have been deleted)

4.11 SAFETY INJECTION SYSTEM TESTS

Applicability

Applies to operational testing of the Safety Injection System.

Objective

To verify that the Safety Injection System will respond promptly and perform its design functions, if required.

Specification

A. The safety injection system shall be demonstrated operable:

1. By verifying, that on recirculation flow, each low head safety injection pump performs satisfactorily when tested in accordance with Specification 4.0.3.
2. By verifying, that on recirculation flow, each charging pump performs satisfactorily when tested in accordance with Specification 4.0.3.
3. By verifying that each motor-operated valve in the safety injection flow path performs satisfactorily when tested in accordance with Specification 4.0.3
4. At least once per 18 months, during shutdown, by:

    a. Verifying that each automatic valve in the flow path actuates to its correct position on a safety injection test signal. The charging and low head safety injection pumps may be immobilized for this test.
    b. Verifying that each of the charging and safety injection pump circuit breakers actuate to its correct position on a safety injection test signal. The charging and low head safety injection pumps may be immobilized for this test.

Basis

Complete system tests cannot be performed when the reactor is operating because a safety injection signal causes containment isolation. The method of assuring operability of these systems is therefore to combine system tests to be performed during refueling shutdowns, with more frequent component tests, which can be performed during reactor operation.

The system tests demonstrate proper automatic operation of the Safety Injection System. A test signal is applied to initiate automatic operation action and verification is made that the components receive the safety injection signal in the proper sequence. The test may be performed with the pumps blocked from starting. The test demonstrates the operation of the valves, pump circuit breakers, and automatic circuitry.

During reactor operation, the instrumentation which is depended on to initiate safety injection is checked periodically, and the initiating circuits are tested in accordance with Specification 4.1. In addition, the active components (pumps and valves) are to be periodically tested to check the operation of the starting circuits and to verify that the pumps are in satisfactory running order. The test interval is determined in accordance with ASME Section XI. The accumulators are a passive safeguard. In accordance with Specification 4.1, the water volume and pressure in the accumulators are checked periodically.

Reference

FSAR Section 6.2, Safety Injection System

ATTACHMENT 2

Discussion of Proposed Changes

Surry Power Station
Units 1 and 2

Discussion of Proposed Changes

By letter dated February 14, 1979 and in accordance with a request from the NRC, we proposed changes to the Technical Specifications for Surry Power Station Units 1 and 2 to meet the new inservice inspection and testing requirements for nuclear power plant components. Subsequent changes to the Code of Federal Regulations and other NRC comments on our proposed Technical Specification change have prompted numerous updates to our proposed request. As a result of the review of our latest proposed Technical Specification change request, dated August 30, 1985, the NRC reviewer made several comments. Our response to the reviewer's comments are contained in the discussion below.

We feel adequate justification for the previously requested changes has been provided. The safety evaluation for those changes is still effective. To facilitate the NRC review of this update, we have provided the following discussion of the changes as they effect our proposed Technical Specifications change request of August 30, 1985. In addition, a safety evaluation of these new changes is provided.

Table of Contents

Page TS ii

Section 3.21 - The title of this section in the Table of Contents differed from the title as it appeared on Page TS 3.21-1. It was determined that the section title in the Table of Contents was incorrect and has been changed.

Section 4.2 - No change.

Section 4.3 - The title for this section in the Table of Contents was revised to add the word "TESTS". This title had been revised as part of our August 30, 1985 submittal; however, the word "TESTS" was mistakenly omitted.

Sections 4.15 and 4.16 - These section titles were moved to Page TS iii because of space limitations on this page.

Each of the changes to this page of the Technical Specifications is strictly an editorial change and should not impact the approval process of this Technical Specification change.

Page TS iii

The words "TECHNICAL SPECIFICATIONS" and "TABLE OF CONTENTS" were added to the top of the page.

Sections 4.15 and 4.16 - These section titles were moved from previous page. Additionally, the word "sources" was added to the end of the title of Section 4.16. The word had inadvertently been omitted in previous revisions.

Sections 4.17 through 4.20 - This change added the titles of four previously approved sections of the Technical Specifications to the Table of Contents.

Section 6.2 - This change revises the title of this section in the Table of Contents to match the title of the section as it appears in the Technical Specifications. The title change was approved when the Technical Specification was approved.

Each of the changes to this page of the Technical Specifications is strictly an editorial change and should not impact the approval of this proposed Technical Specification change.

Technical Specification Section 3.1

Page TS 3.1-4

With regard to our proposed change to Technical Specification Table 4.1-2A, the NRC reviewer requested that for the pressurizer safety valves (Item 4 in the Table), we include the note from page 3/4 4-10 of the Standard Technical Specifications (STS) regarding lift setting pressure at normal operating temperature and pressure.

After reviewing the STS, we agreed to put this note into our Technical Specifications. However, we concluded that Section 4.1 was the inappropriate place for the note. We believe the note should be in Section 3.1 where the valve lift settings are specified. Therefore, Specification 3.1.A.3.c. is changed to to add an asterisk and the note from STS as requested by the NRC reviewer. This is an additional requirement and makes this specification more restrictive.

Technical Specification Section 3.6

With regard to our proposed change to Technical Specification Table 4.1-2A, the NRC reviewer requested, for the main steam safety valves (Item 5 in the Table), that we include the valve setting limits and orifice sizes as on page 3/4 7-3 of the STS.

After reviewing the STS, we agreed with this concept except for the following:

(i) The table in the STS has a note restricting the lift setting tolerance band to be ± 1%. Surry Technical Specifications on the main steam safety valves has no tolerance band stipulated for the lift settings. Present Surry procedures, however, do require a ± 3% "as-found" and ± 1% as left tolerance band. The ± 3% "as-found" tolerance is based on the requirements of the ANSI/ASME Standard, OM-1. Therefore, we propose to use the table concept, listing the main steam safety valves, with a footnote requiring a ± 3% "as-found" and a ± 1% as left tolerance.

(ii) The NRC reviewer has requested that we include this table concept in Section 4.1 of the Surry Technical Specifications. However, we have concluded that Section 4.1 is the inappropriate place for the table. We believe the table should be in Section 3.6 where the operability of the main steam safety valves are discussed.

The following are our proposed revisions to Specification 3.6 of the Technical Specifications:

Page TS 3.6-1

Specification 3.6.A is changed to add the words "with lift settings as specified in Table 3.6-1A and 3.6-1B." to the end of the sentence.

Page TS 3.6-2

Specification 3.6.B.3 is changed to add the words "with lift settings as specified in Table 3.6-1A and 3.6-1B." to the end of the sentence.

Page TS 3.6-7

Page TS 3.6-7 is added with Table 3.6-1A and Table 3.6-1B specifying the main steam safety valve lift settings and orifice sizes in square inches as requested by the NRC reviewer. A note is added to the bottom of the tables to specify the ± 3% "as-found" and ± 1% "as-left" tolerances.

The changes to this section of the Technical Specifications are per the NRC reviewer's request with the exceptions stated above. These are additional requirements and makes these specifications more restrictive.

Technical Specifications Section 4.0

Page TS 4.0-1

Specification 4.0.3.a is revised to add "50," to the paragraph in two places so that the reference to the Code of Federal Regulations reads "10 CFR 50, Section 50.55a." This is an editorial change.

Specification 4.0.3.b is revised to change the word "by" to the word "and" so that the sentence reads "inservice inspection and testing." This is an editorial change.

Page TS 4.0-2

The table in Specification 4.0.3.b is revised to delete the entries for "Inspection Period" and "Inspection Interval" as requested by the NRC reviewer. This change does not decrease the effectiveness of this table.

In addition, the words "Shut Down" in the entries for "Cold Shut Down" and "Refueling Shut Down" have been changed. The proper word usage in this case is "Shutdown" (one word) and the entries now read "Cold Shutdown" and "Refueling Shutdown." This change is an editorial change.

Page TS 4.0-3

In the first paragraph of the Bases, an "s" is added to the end of the word "Condition" in two places. This is an editorial change.

In the third paragraph, first sentence, the phrase "identified per NRC submittal" has been removed as requested by the NRC reviewer. This change does not decrease the effectiveness of this paragraph.

In the same sentence, the phrase "50, Section" is added so that the reference to the Code of Federal Regulations now reads "10 CFR 50, Section 50.55a." This is an editorial change.

Page TS 4.0-4

In the first sentence on this page, the word "ambiquities" should be spelled "ambiguities." This is an editorial change.

Technical Specification Section 4.1

Page TS 4.1-9b

As discussed above, the NRC reviewer's comments have been addressed in Technical Specification Sections 3.1 and 3.6. It was determined that Section 4.1 was an inappropriate place for the additions requested by the NRC reviewer.

The proposed change to Item 13, Main Steam Line Trip Valves, has been approved by the NRC in a separate Technical Specification change (Amendment 114 of 11/17/87). Therefore, the proposed change to Item 13 is withdrawn from this proposed Technical Specification change.

Page TS 4.1-11

The NRC reviewer had no comments on this page of our proposed Technical Specification change.

Page TS 4.1-12

As pointed out by the NRC reviewer, there was a typographical error in the Remarks column of Item 4 on Table 4.1-3B. The Reactor Coolant System pressure was specified to be > 1500 psig, but it should have read > 500 psig. This is an editorial change.

Technical Specification Section 4.2

The NRC reviewer had no comments on this section of the Technical Specifications.

There are additional changes that are needed to this section, but they will be prepared as a separate proposed Technical Specification change.

Technical Specification Section 4.3

The NRC reviewer had no comments on this section of the proposed Technical Specification change.

Technical Specification Section 4.5

The NRC reviewer's comment with regard to Section 4.5 was that he would like to see the STS words (i.e., STS 4.6.2.1, 4.6.2.2, and 4.6.3.2.d).

In response to the NRC reviewer's comment, we have reviewed these sections of the STS with respect to our presently approved Technical Specifications and our previous Technical Specifications change proposal. There are many additional requirements that would have to be added to our Technical Specifications should we be required to conform to the STS.

The general difference between the STS and the Surry Technical Specifications with regard to the Spray Systems is that the STS address each spray subsystem individually and the Surry Technical Specifications groups them in the same section. We agree to some reformatting to this section of the Technical Specifications.

The following is a discussion of the effect of the STS wording on our presently approved Technical Specifications and our previous Technical Specifications change proposal:

Containment Spray System

STS 4.6.2.1.a.1 Flow path valve position is verified during the periodic test of the containment spray system, but it is not presently required by Surry Technical Specifications. Our proposed change to the Technical Specifications also did not include this as a requirement. If imposed, this would be an additional requirement.

STS 4.6.2.1.a.2 The temperature of the borated water in the refueling water storage tank is verified at least once a shift. However, the verification of the temperature is not presently a Technical Specification requirement. Our proposed change to the Technical Specifications also did not include this as a requirement. If imposed, this would be an additional requirement.

STS 4.6.2.1.b — The Surry Technical Specifications currently do not require minimum discharge pressures to determine containment spray pump operability. Our proposed change to the Technical Specifications also did not include this as a requirement. If imposed, this would be an additional requirement.

STS 4.6.2.1.c.1 — Present Surry Technical Specifications do not require the valves to actuate on a test signal. Our proposed Technical Specification change did not add this requirement. As part of their periodic test, the valves are actuated on signal from the control room. If imposed, this would be an additional requirement.

STS 4.6.2.1.c.2 — Present Surry Technical Specifications require the pumps to start as a part of the flow-test. It is not specific that they must start automatically. The proposed change did not add this requirement. However, the periodic test does require the pumps to start on signal from the control room. If imposed, this would be an additional requirement.

STS 4.6.2.1.d — This specification is in the presently approved Surry Technical Specifications; the only difference being the words "coinciding with the closest refueling outage," We would prefer to leave these words in the Specification.

Recirculation Spray System

STS 4.6.2.2.a — There are presently no valves in the inside recirculation spray flow paths, therefore, there is no Technical Specification requirement to test these valves. Flow path valve position is verified during the periodic test of the outside recirculation spray system, but it is not presently required by Surry Technical Specifications. Our proposed change to the Technical Specifications also did not include this as a requirement. If imposed, this would be an additional requirement.

STS 4.6.2.2.b — The Surry Technical Specifications presently require a recirculation flow test of the outside recirculation spray pumps, but because of the inaccessibility of the inside recirculation spray system during normal operation, the inside pumps are dry tested. In addition, the Surry Technical Specifications currently do not require minimum discharge pressures to determine pump operability. Our proposed change to the Technical Specifications also did not include these as requirements. If imposed, this would be an additional requirement. (The issue of flow testing the inside recirculation spray pumps is being addressed in separate correspondence. Refer to our letter, Serial 87-740A, of January 29, 1988).

STS 4.6.2.2.c — Present Surry Technical Specifications requires the outside recirculation spray pumps to start as a part of their flow-test and the inside recirculation spray pumps to start on signal as a part of their dry-test. However, it is not specific that the outside recirculation spray pumps must start automatically. As part of their periodic test, the outside recirculation spray pumps are started from the control room. Likewise, as part of their periodic test, the inside recirculation spray pumps are started by manually operating a control switch. In both cases, the pumps are considered to start on signal. The proposed change to the Technical Specifications also did not include these as requirements. If imposed, this would be an additional requirement.

STS 4.6.2.2.d — Present Surry Technical Specifications do not require the valves to actuate on a test signal. As part of the periodic test, the motor-operated valves are operated from the control room. The proposed change to the Technical Specifications also does not include these as requirements. If imposed, this would be an additional requirement.

STS 4.6.2.2.e — This Specification is in the presently approved Surry Technical Specifications; the only difference being the words "...coinciding with the closest refueling outage,..." We would prefer to leave these words in the Specification.

Containment Isolation Valves

STS 4.6.3.2 — The presently approved Surry Technical Specifications do not require the containment isolation valves associated with the outside recirculation spray and the containment spray systems to open or remain closed at specific differential pressures. Valve seating is required and valve opening is required. The development of the appropriate differential pressures for the testing of these valves and adding them to Technical Specifications would be an additional requirement.

The following are the revisions to Specification 4.5 of our previous Technical Specification change proposal:

Page TS 4.5-1

In accordance with the NRC reviewer's request, we have revised the format of this section. The specifications for the containment spray subsystem, the recirculation spray subsystem, and the containment isolation valves associated with each of these systems have been separated. Hence, Technical Specification 4.5.A now reflects the surveillance requirements for determining the operability of the containment spray subsystem. Likewise, Technical Specification 4.5.B and 4.5.C reflect the surveillance requirements of the recirculation spray subsystem and the weight-loaded containment isolation check valves. In revising this section of the Surry Technical Specifications, STS terminology has been used as appropriate.

Specification 4.5.A.1 provides verification of operability of the containment spray pumps in accordance with the requirements of ASME Section XI and our Inservice Inspection Program. This proposed Technical Specification remains essentially the same as our previous Technical Specifications change proposal. Only the wording is changed to be more like the words in STS. The proposed Technical Specification differs from the STS in that the discharge pressure for the pump is not specified.

Specification 4.5.A.2 provides verification of the operability of the motor-operated valves in the containment spray system. The valves are tested in accordance with the requirements of ASME Section XI and our Inservice Inspection Program. The intent of our previous Technical Specifications change proposal is preserved in this latest revision. Only the format is changed to be more like the STS.

Specification 4.5.A.3 verifies the operability of the containment spray nozzles. The words of this specification are essentially the same as the presently approved Technical Specifications. The format has been changed to be similar to the words in the STS.

Specification 4.5.A.4 provides verification of operability of the containment spray nozzles while using the the borated water from the refueling water storage tank. This is a requirement of the presently approved Technical Specifications and is only being revised to the new format.

Specification 4.5.B.1 provides verification of operability of the recirculation spray pumps in accordance with the requirements of ASME Section XI and our Inservice Inspection Program. This proposed Technical Specification differs from the STS in that the discharge pressure for the pump is not specified. The intent of our previous Technical Specifications change proposal is preserved. Only the wording is changed to be more like the words in STS. The issue of flowtesting the inside recirculation spray pumps for confirmation of operability is being addressed by separate correspondence. Refer to our letter, Serial 87-740A, of January 29, 1988. Correspondingly, a footnote is provided at the bottom of the page specifying testing of the inside recirculation spray pumps remain as in the presently approved Surry Technical Specification. This requirement is in the form of a footnote.

Page TS 4.5-2

Specification 4.5.B.2 provides verification of the operability of the motor-operated valves in the recirculation spray systems. The valves are tested in accordance with the requirements of ASME Section XI and our Inservice Inspection Program. The intent of our previous Technical Specifications change proposal is preserved in this latest revision. Only the format is changed to be more like the STS.

Specification 4.5.B.3 verifies the operability of the recirculation spray nozzles. The words of this specification are essentially the same as the presently approved Technical Specifications. Only the format has been changed to be similar to that in the STS.

Specification 4.5.C provides verification of operability of the weight-loaded containment isolation check valves for the containment spray and the outside containment recirculation spray systems. The words of this specification are essentially the same as the presently approved Technical Specifications. Only the format has been changed to be similar to the words in the STS.

Pages TS 4.5-3 thru 4.5-5

The NRC reviewer had no comments on these pages of our proposed Technical Specification change request. However, the pages are renumbered due to the format change on pages TS 4.5-1 and 4.5-2.

Technical Specification Section 4.7

The NRC has approved a separate revision to this section of the Surry Technical Specifications subsequent to our last proposed change. Since the method of testing these valves described in the present Technical Specifications is essentially the same (actually the frequency is more restrictive) as the method which would be use in accordance with ASME Section XI, we withdraw the proposed changes to this section of the Technical Specifications.

Technical Specification Section 4.8

The NRC reviewer has determined that the relief requested in our proposed changes to this section of the Technical Specifications cannot be granted without additional justification because it is contrary to the STS and NRC guidance. As we are not prepared to supply the justification to support this change at this time, we are withdrawing the proposed changes to this section of the Technical Specifications.

Technical Specification Section 4.11

The NRC reviewer's comment with regard to Section 4.11 was that he would like to see the STS words (i.e., STS 4.5.2.b.2, c, e, f, and g).

In response to the NRC reviewer's comment, we have reviewed these sections of the STS with respect to our presently approved Technical Specifications and our previous Technical Specifications change proposal. With regard to intent, there appears to be very little difference, other than the format, between our proposed Technical Specification change and the sections of the STS referred to by the NRC reviewer. There are, however, many additional requirements that would have to be added to our Technical Specifications should we be required to conform to the STS.

The following is a discussion of the effect of the STS wording on our presently approved Technical Specifications and our previous Technical Specification change proposal:

Emergency Core Cooling Systems

STS 4.5.2.b.2 — The presently approved Technical Specification and our previous Technical Specification change proposal both acknowledge that the valve lineup for Safety injection cannot be accomplished during normal operation. The safety injection valve lineup is necessary only during an accident resulting in loss of coolant. Therefore, the Technical Specifications provide for a system test performed during the refueling outage. Neither the approved Technical Specification nor the previous Technical Specifications change proposal require monthly verification of the valve lineups. If imposed, this would be an additional requirement.

STS 4.5.2.c — Present Surry Technical Specifications do not require visual inspection of the containment sump or areas where loose debris could be transported from the containment sump. However, administrative controls are in place to perform this inspection whenever the containment has been opened and maintenance activities performed. If imposed, this would be an additional requirement.

STS 4.5.2.e.1 — The presently approved Surry Technical Specifications and our previous Technical Specifications change proposal both have this requirement. The specific wording is the only difference.

STS 4.5.2.e.2 — The present Technical Specifications require that the Safety Injection automatic initiation signal be tested once per refueling. This, however, does not test the actual start of the pumps because the pumps are blocked. The test is considered satisfactory as long as the pump circuit breakers receive the signal. Our previous Technical Specification change proposal has the same requirement as the present Technical Specifications. Only the format is different. We propose to use the same intent as our present Technical Specifications and our previous Technical Specification change proposal, but revise the words to match the new format.

Note that the Residual Heat Removal system is not part of our "emergency core cooling system." Therefore, the RHR system is not effected by this Technical Specification.

STS 4.5.2.f

In accordance with the present Technical Specifications, the charging pumps must be operated monthly during normal operation. In doing so, they perform their intended function as part of routine operation, and therefore, no further testing is required of the charging pumps.

The present Technical Specifications require a recirculation flow test of the low head safety injection pumps, but the Technical Specifications currently do not require minimum discharge pressures to determine pump operability. Our previous Technical Specification change proposal required the charging pumps and the low head safety injection pumps to be tested in accordance with Specification 4.0.3. Our proposed Technical Specifications change also did not require minimum discharge pressures to determine operability. In accordance with our inservice testing program for these pumps, test parameters are compared to reference values for determination of operability. If required to designate minimum discharge pressure in the Technical Specifications, this would be an additional requirement.

Note that the Residual Heat Removal system is not part of our "emergency core cooling system." Therefore, the RHR system is not effected by this Technical Specification.

STS 4.5.2.g

Surry does not employ modulating throttle valves in the Safety Injection System. Therefore, this Specification is unnecessary in the Surry Technical Specifications.

The following are the revisions to Specification 4.11 of our proposed Technical Specification change:

Page TS 4.11-1

The title of Section 4.11 in our proposed Technical Specification change was inadvertently underlined. The underline has been removed. This is an editorial change.

Specification 4.11.A.1 provides verification of operability of the low head safety injection pumps in accordance with the requirements of ASME Section XI and our Inservice Inspection Program. This proposed Technical Specification change differs from the STS in that the discharge pressure for the pump is not specified. The intent of our previous Technical Specifications change proposal is preserved in this latest revision. Only the wording is changed to be more like the words in STS.

Specification 4.11.A.2 provides verification of operability of the charging pumps in accordance with the requirements of ASME Section XI and our Inservice Inspection Program. This proposed Technical Specification change differs from the STS in that the discharge pressure for the pump is not specified. The intent of our previous Technical Specifications change proposal is preserved in this revision. Only the wording is changed to be more like the words in STS.

Specification 4.11.A.3 provides verification of the operability of the motor-operated valves in the safety injection system. The valves are tested in accordance with the requirements of ASME Section XI and our Inservice Inspection Program. The intent of our previous Technical Specifications change proposal is preserved in this revision. Only the format is changed to be more like the STS.

Specification 4.11.A.4.a provides verification that the motor-operated valves in the safety injection flow path actuate in response to a safety injection signal. The intent of our previous Technical Specifications change proposal is preserved in this revision. Only the format is changed to be more like the STS.

Specification 4.11.A.4.b provides verification that the charging and low head safety injection pumps would start in response to a safety injection signal. The intent of our previous Technical Specifications change proposal is preserved in this revision. Only the format is changed to be more like the STS.

Page TS 4.11-2 and 4.11-3

The NRC reviewer had no comments on these pages of our proposed Technical Specification change request.

Safety Evaluation

These proposed changes to our previously proposed Technical Specification change have been reviewed and it is concluded:

(a) The probability of occurrence or the consequence of an accident or malfunction of equipment important to safety and previously evaluated in the safety analysis report is not increased since the systems are still proven to be operational by functional test in accordance with ASME Section XI.

(b) The potential for an accident or malfunction of a different type than evaluated previously in the safety analysis report is not created. The level of integrity and the function of these systems are functional tested as prescribed by ASME Section XI.

(c) The required margin of safety as defined in the basis of any Technical Specification is not reduced because the system is proven operable by standards set up in ASME Section XI Codes.

Therefore, this request does not pose an unreviewed safety question as defined in 10 CFR 50.59.

10 CFR 50.92 Significant Hazards Considerations

These changes to the original Technical Specification change have been reviewed and it has been determined that a Significant Hazards Consideration does not exist, in that:

(1) The changes which are administrative in nature, (e.g. format and STS wording) continue to require functional testing for operability in accordance with ASME Section XI. Therefore, a significant increase in the probability or consequences of an accident has not been created.

(2) The changes do not create the possibility of a new or different kind of accident. Only the format and wording have been changed. Pump and valve testing continues in accordance with ASME Section XI requirements and our current approved practices.

(3) The margin to safety is not degraded. Testing and operability requirements are established in accordance with ASME Section XI and the Technical Specifications.