15.4 SURVEILLANCE REQUIREMENTS

15.4.0.1 Surveillance requirements shall be met during all times that the system or component is required to be operable. If the surveillance requirement acceptance criteria is not met, then the system or component shall be declared inoperable and the appropriate LCO entered. If a surveillance requirement is not met within the specified frequency, including the provisions of Specifications 15.4.0.2 and 15.4.0.3 as appropriate, then the system or component shall be declared inoperable and the applicable LCO entered.

15.4.0.2 The specified frequency for each surveillance requirement is met if the surveillance is performed within 1.25 times the specified surveillance frequency, as measured from the previous performance. Exceptions are specified in the individual Specifications.

15.4.0.3 If it is discovered that a surveillance was not performed within its specified frequency, including the provisions of Specification 15.4.0.2, then the requirement to declare the system or component inoperable and entering the LCO may be delayed from the time of discovery up to 24 hours, if the surveillance frequency is $\geq$ 24 hours, or up to the limit of the specified surveillance frequency, whichever is less. This delay is permitted to allow performance of the surveillance.

If the surveillance is not performed within the delay period, then the system or component shall be declared inoperable and the applicable LCO entered.

15.4.0.4 The reactor shall not be placed in a condition where a system or component is required to be operable if the specified surveillances have not been performed satisfactorily within their required frequencies.

If entry into a condition where the system or component is required to be operable is necessary in order to perform the specified surveillance, entry into the operating condition may be made provided prior testing or inspection provides reasonable assurance of operability and the surveillance is performed as soon as practicable following entry into the required operating condition.

Bases

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

Surveillance standards have been developed for two separate categories:

(1) Systems in continuous operational use.
(2) Systems infrequently or not normally used; e.g., engineered safety systems.

Optimum frequency of inspection and calibration of the first category can best be defined by the operating organization and responsible safety review personnel. The type of surveillance required by the second category falls in the realm of performance tests, which must meet the criteria for verifying the availability of engineered safety systems but will not necessarily require a complete operational test. ~~Therefore, surveillance of engineered safety systems is made the subject of individual specifications.~~

Discrepancies noted during surveillance program testing will be recorded and corrected in accordance with ASME XI requirements and/or Specification 15.6 as appropriate.

~~Specified surveillance intervals may be adjusted up to 25% to accommodate normal test schedules and major events such as refueling.~~

15.4.2 ~~IN SERVICE~~ INSERVICE INSPECTION AND TESTING OF SAFETY CLASS COMPONENTS

Applicability

Applies to ~~in service~~ inservice inspection and testing programs for ~~of~~ Safety Class Components.

Objectives

To provide assurance of the continuing integrity and operability of the safety class systems through the establishment of the appropriate programmatic controls.

Specifications

A. Steam Generator Tube Inspection Requirements

1. Tube Inspection

Entry from the hot-leg side with examination from the point of entry completely around the U-bend to the top support of the cold-leg is considered a tube inspection.

2. Sample Selection and Testing

Selection and testing of steam generator tubes shall be made on the following basis:

(a) One steam generator of each unit may be selected for inspection during inservice inspection in accordance with the following requirements:

1. The inservice inspection may be limited to one steam generator on an alternating sequence basis. This examination shall include at least 6% of the tubes if the results of the first or a prior inspection indicate that both generators are performing in a comparable manner.

2. When both steam generators are required to be examined by Table 15.4.2-1 and if the condition of the tubes in one generator is found to be more severe than in the other steam generator of a unit, the steam generator sampling sequence at the subsequent inservice inspection shall be modified to examine the steam generator with the more severe condition.

(b) The minimum sample size, inspection result classification and the associated required action shall be in conformance with the requirements specified in Table 15.4.2-1. The results of each sampling examination of a steam generator shall be classified into the following three categories:

B. In-Service Inspection and Testing of Safety Class Components Other than Steam Generator Tubes

1. Inservice inspection of ASME Code Class 1, Class 2 and Class 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) modified by Section 50.55a(b), except where specific written relief is granted by the NRC, pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

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

2. Containment isolation valves will be tested in accordance with Technical Specification 15.4.4 instead of Section IWV-3420, Valve Leak Rate Test.

3. Inservice testing of ASME Code Class 1, 2, and 3 pumps, valves, and snubbers shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a.

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

Basis

The steam generator tube inspection requirements are based on the guidance given in NRC Regulatory Guide 1.83, "Inservice Inspection of Pressurized Water Reactor Steam Generator Tubes." ASME Section XI Appendix IV is being used for defining the basic requirements or the inspection method. However, at the present time, changes and improvements in steam generator eddy current inspection are occurring faster than the code can be revised. Thus, in order to ensure that the best possible exam of the tubing and/or sleeves is being done, the technique utilized will, in general, be the latest industry-accepted technique. This means that complete word-for-word compliance with Appendix IV may not be possible. However, the basic requirements and intent will be met, to the extent practical.

Specification 15.4.2.B delineates programmatic requirements for establishing Inservice Inspection and Testing programs in accordance with the ASME Section XI Code and 10 CFR 50.55a requirements. The Code establishes criteria for system and component inspection and testing to ensure an appropriate level of reliability and detection of abnormal conditions. Failure to meet Code requirements is evaluated on an individual system or component bases to determine operability. Appropriate LCOs are entered if a system or component is determined to be inoperable.

As stated in 15.4.2.B.1, safety class components, other than the steam generator tubing, will be inspected in accordance with ASME Section XI. The code edition/addenda utilized for the inspection interval will be as defined in 10

CFR 50. The same code is utilized for both Unit 1 and Unit 2. Safety-related components are classified as safety Class 1, 2, or 3. The code boundaries are defined based upon the following documents:

(a) Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants."

(b) American National Standard N18.2, "Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants."

(c) Point Beach Nuclear Plant Units 1 & 2 Final Safety Analysis Report.

Code classified components are tabulated showing each specific examination area and the examination requirements in an inspection interval long-term plan. This plan is completely revised for each ten-year inspection interval.

15.4.5 EMERGENCY CORE COOLING SYSTEM, AND CONTAINMENT COOLING SYSTEM TESTS

Applicability:

Applies to testing of the Emergency Core Cooling System and the Containment Cooling System.

Objective:

To verify that the subject systems will respond promptly and perform their design functions, if required.

Specification:

I. System Tests and Surveillances

A. Safety Injection System

1. System tests shall be performed during reactor shutdowns for major fuel reloading. The test shall be performed in accordance with the following procedure:

a. With the Reactor Coolant System pressure less than or equal to 350 psig and temperature less than or equal to 350°F, a test safety injection signal will be applied to initiate operation of the system. The motor breakers for the safety injection and residual heat removal pumps are placed in the "test" position for this test.

2. The test will be considered satisfactory if control board indication and visual observations indicate that all components have received the safety injection signal in the proper sequence and timing.

That is, the appropriate pump motor breakers shall have opened and closed, and all valves shall have completed their travel.

B. Containment Spray System

1. System tests shall be performed during reactor shutdowns for major fuel reloading. The test shall be performed with the isolation valves in the spray supply lines at the containment blocked closed. Operation of the system is initiated by tripping the normal actuation instrumentation. The motor breakers for the pumps shall be placed in the "test" position for this test.
2. The test will be considered satisfactory if visual observations indicate all components have operated satisfactorily.
3. The spray nozzles shall be checked to verify that they are not obstructed at intervals not exceeding five years.

C. Containment Fan Coolers

1. Each fan cooler unit shall be tested at each refueling to verify proper operation of the backdraft dampers and the service water bypass valves.
2. Containment fan cooler accident fans shall be tested monthly to verify operability. Acceptable performance shall be that the accident fan starts and running current is verified.

II. Component Tests and Surveillances

A. Pumps

1. The safety injection pumps, residual heat removal pumps, and

containment spray pumps shall be ~~started and operated on recirculation flow monthly~~ tested in accordance with the Inservice Test Program.

2. Acceptable levels of performance shall be that the pumps start, reach their required developed head at ~~miniflow~~, and operate for at least fifteen minutes on the ~~miniflow line~~ full-flow test lines.

~~B. Valves~~

~~1. The refueling water storage tank outlet valves shall be tested in performing the pump tests.~~

~~2. The spray additive valves shall be checked for operability monthly.~~

~~3. The accumulator check valves will be checked for operability during each refueling shutdown.~~

~~4. The concentrated boric acid tank isolation valves to the safety injection system shall be tested monthly.~~

B. Other

1. At least every refueling, verify by visual inspection each containment sump suction inlet is not restricted by debris and the debris strainers show no evidence of structural distress or abnormal corrosion.

2. Verify each manual, power operated, and automatic valve necessary to insure system operability in the emergency core cooling and containment spray systems that is not locked, sealed, or otherwise secured in position, is in the correct position at least once every 31 days.

Basis

The Safety Injection System and the Containment Spray System are principal plant Safety Systems that are normally inoperative during reactor operation. Complete systems tests cannot be performed when the reactor is operating because a safety injection signal causes containment isolation and a Containment Spray System test requires the system to be temporarily disabled. The method of assuring operability of these systems is therefore to combine systems tests to be performed during refueling shutdowns, with more frequent component tests, which can be performed during reactor operation.

The systems tests demonstrate proper automatic operation of the Safety Injection and Containment Spray Systems. With the pumps blocked from starting, a test signal is applied to initiate automatic action, and verification is made that the components receive the safety injection signal in the proper sequence. The test demonstrates the operation of the valves, pump circuit breakers, and automatic circuitry.[1]

During reactor operation, the instrumentation which is depended on to initiate safety injection and containment spray is generally checked weekly and the initiating circuits are tested monthly (in accordance with Specification 15.4.1). In addition, the active components (pumps and valves) are to be tested ~~monthly~~ in accordance with ASME Section XI requirements, to check the operation of the starting circuits and to verify that the pumps are in satisfactory running order. ~~The test interval of one month is based on the judgement that~~ More frequent testing would not significantly increase the reliability (i.e. the probability that the component would operate when required), yet more frequent testing would result in increased wear over a long period of time.

Other systems that are also important to the emergency cooling function are the accumulators, the Component Cooling System, the Service Water System and the containment fan coolers. The accumulators are a passive safeguard. In accordance with Specification 15.4.1, the water volume and pressure in the accumulators are checked periodically. The other systems mentioned operate when the reactor is in operation and by these means are continuously monitored for satisfactory performance.

References

(1) FSAR Section 6.2.