ATTACHMENT 4

PROPOSED TECHNICAL SPECIFICATiON AMENDMENTS FOR MCGUIRE

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS SURVEILLANCE REQUIREMENTS

MONITOR	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES REQUIRING SURVEILLANCE	
1. Containment Atmosphere Gaseous Radioactivity-High (Low Range-EMF-39)	S	R	~~M~~ Q	1, 2, 3, 4	|
2. Spent Fuel Pool ventilation Radioactivity-High (EMF-42)	S	R	~~M~~ Q	**	|
3. Criticality-High Radiation Level (Unit 1 - 1EMF-17 and Unit 2 - 2EMF-4)	S	R	~~M~~ Q	*	|
4. Gaseous Radioactivity-RCS Leakage Detection (Low Range-EMF-39)	S	R	~~M~~ Q	1, 2, 3, 4	|
5. Particulate Radioactivity-RCS Leakage Detection (Low Range-EMF-38)	S	R	~~M~~ Q	1, 2, 3, 4	|

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS SURVEILLANCE REQUIREMENTS

MONITOR	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES REQUIRING SURVEILLANCE
6. Control Room Air Intake Radioactivity-High (EMF-43a and EMF-43b)	S	R	~~M~~ Q	All

TABLE NOTATION

* - With fuel in the fuel handling area.

** - With irradiated fuel in the fuel handling area.

SELECTED PAGES FROM NUREG-1366 AND GENERIC LETTER 93-05

NUREG-1366

Improvements to Technical Specifications Surveillance Requirements

Manuscript Completed: May 1992
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ABSTRACT

In August 1983 an NRC task group was formed to investigate problems with surveillance testing required by Technical Specifications, and to recommend approaches to effect improvements. NUREG-1024 ("Technical Specifications—Enhancing Safety Impact") resulted, and it contained recommendations to review the basis for test frequencies; to ensure that the tests promote safety and do not degrade equipment; and to review surveillance tests so that they do not unnecessarily burden personnel.

The Technical Specifications Improvement Program (TSIP) was established in December 1984 to provide the framework for rewriting and improving the Technical Specifications. As an element of the TSIP, all Technical Specifications surveillance requirements were comprehensively examined as recommended in NUREG-1024. The results of that effort are presented in this report. The study found that while some testing at power is essential to verify equipment and system operability, safety can be improved, equipment degradation decreased, and unnecessary personnel burden relaxed by reducing the amount of testing at power.

turbine valves from every 7 days to every 31 days for North Anna Power Station, Unit 1.

Another factor in this case is the turbine manufacturers' recommendations about the testing frequency of these valves. In some cases, these frequencies are comparable to the existing Technical Specifications.

The NRC staff recommends that, where the turbine manufacturer agrees, the testing interval for turbine valve as part of the turbine overspeed protection system surveillances be extended from weekly and monthly tests to one test done quarterly, in which a direct visual observation will be made of the movement of each of the turbine valves currently required by Technical Specifications to be tested.

A quarterly test corresponds to the most stringent valve testing requirement of the ASME Code.

Findings

- Turbine overspeed testing requires a reduction in power and is a main cause of reactor trips during testing.
- Testing of the turbine valves is necessary and the manufacturers' recommendations should be followed.

Recommendation

Where the turbine manufacturer agrees, the turbine valve testing frequency should be changed to quarterly.

5.14 Radiation Monitors (PWR, BWR)

The Technical Specifications contain three categories of radiation monitors: those used for gaseous and liquid effluent monitoring, those used for monitoring an area and indicating the radiation level, and those that are part of the reactor protection system and engineered safety features actuation systems. The only radiation monitors with a reactor trip function are the main steamline radiation monitors on BWR main steam lines. The engineered safety features actuations are basically isolation functions and air cleanup functions. Many radiation instruments perform a monitoring function; these instruments monitor for reactor coolant leakage, accident conditions in containment, and the release of gaseous and liquid effluents.

As with other instrumentation, radiation monitors are required to undergo three types of surveillances: a channel check, a channel functional test, and a calibration. In addition, a source check is performed.

The capability to source check provides an integral verification of the response of the detector. This is generally required monthly or before using a system that would release potentially radioactive fluid.

The testing of radiation monitors produces a significant number of isolations of the control room, fuel handling building, auxiliary buildings, and various process lines. In addition, the testing requires significant licensee staff. Licensees also stated that the frequent testing tends to degrade the equipment. The instrumentation must be removed from cabinets and reinserted. A majority of the instrumentation is self-checking so that most failures will be found in this way or by channel checks.

The San Onofre licensee proposed that the surveillance test intervals for radiation monitors be extended. Detailed information on failure history was provided for some monitors. In addition, the San Onofre licensee made the following points in support of the extension of the surveillance test interval: The radiation monitors at San Onofre have had a minimal failure history. The failures are normally of remote meter indication which would not impact the safety function. In addition, channel checks and failure alarms would detect failures that require corrective action.

The extent to which these points are generic has not been determined as part of this study. It is, therefore, difficult to take the San Onofre experience and design and to extrapolate it to other reactor sites. This appears to be a situation in which reliability-based Technical Specifications surveillance requirements could be utilized to decrease the frequency of surveillance testing on reliable radiation monitoring systems while requiring more frequent testing on radiation monitors that are not as reliable.

It does seem reasonable to give relief on the frequency of channel functional tests since these tests do not involve the sensor (radiation monitor) itself. Therefore, in order to decrease the licensee burden and increase the availability of the radiation monitoring systems, the NRC staff recommends that channel functional tests on radiation monitoring equipment be performed quarterly. For some radiation monitoring equipment, this surveillance is already done quarterly. Channel checks, source checks, and calibrations would be done at their existing surveillance test intervals.

The NRC staff also recommends that the vendor owners groups study the reliability, set point drift, failure modes, and alarm capabilities of radiation monitors (with industry participation) to determine if further decreases in testing and calibrations are possible.

Finding

- Radiation monitor testing appears to require a large amount of resources.
- Most failures of radiation monitors can be found from channel checks, source checks or alarms.
- There is a large variation in the type and reliability of radiation monitoring equipment among utilities.

Recommendations

- In order to decrease licensee burden and increase the availability of radiation monitors, change the monthly channel functional test to quarterly.
- The vendor owners groups should study whether further reductions in radiation monitor surveillance testing are possible.

5.15 Radioactive Gas Effluent Monitor Calibration Standard (PWR, BWR)

BWRs and PWRs are required by their Technical Specifications to calibrate noble gas activity monitors at refueling. Some of these BWR Technical Specifications have the following note attached to this requirement.

> The initial channel calibration shall be performed using one or more of the reference radioactive standards certified by the National Bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent channel calibration, the initial reference radioactive standards or radioactive sources that have been related to the initial calibration shall be used.

This requirement is viewed by some in the industry as excessive since the equipment vendors supply information or kits for calibrating monitors. The requirement for an NBS standard makes instrument calibration more expensive. A search of plant Technical Specifications shows that the NRC staff has not been requiring an NBS standard for calibration consistently, but there appears to be a reasonable basis for the requirement.

First, there is a great variability between radiation detectors at different sites and the calibration standards and procedures of these detectors. Thus, while an NBS standard may be excessive for one vendor's detectors, this cannot be the generic conclusion.

Secondly, the NRC depends on the accuracy of the licensees' reporting of releases of effluents from the site. In order to have confidence in these releases, a reliable calibration standard is necessary.

Individual licensees may be able to justify a program for effluent monitoring instrumentation which does not include this requirement but, on a generic basis, this requirement appears to be necessary.

Finding

NBS calibration standards are necessary for effluent monitoring instrumentation because of the variety of instruments used and the need for accurate measurements of effluent radioactivity.

Recommendation

Retain this requirement.

5.16 Intermediate Range Monitor and Average Power Range Monitor Channel Functional Tests (BWR)

IRM and APRM channel functional tests are performed every 7 days, while all other RPS channel functional tests are performed once every 31 days.

In the time available, the NRC staff could not determine the reason for this difference. The NRC staff should discuss this difference with the BWR Owners Group to determine whether there is a valid basis for this difference. If justified, the surveillance interval for the IRM and APRM channel functional tests should be changed to every 31 days.

Findings

- IRM and APRM channel functional tests are performed every 7 days while all other RPS channel functional tests are performed every 31 days.
- The reason for this difference was not determined as part of this effort because of time restraints.

Recommendation

The BWR Owners Group should determine if the 7-day requirement for channel functional tests on IRMs and APRMs can be extended.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

September 27, 1993

TO: ALL HOLDERS OF OPERATING LICENSES OR CONSTRUCTION PERMITS FOR NUCLEAR POWER REACTORS

SUBJECT: LINE-ITEM TECHNICAL SPECIFICATIONS IMPROVEMENTS TO REDUCE SURVEILLANCE REQUIREMENTS FOR TESTING DURING POWER OPERATION (GENERIC LETTER 93-05)

The staff of the U.S. Nuclear Regulatory Commission (NRC) has completed a comprehensive examination of surveillance requirements in technical specifications (TS) that require testing during power operation. This effort is a part of the NRC Technical Specifications Improvement Program (TSIP). The results of this work are reported in NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," December 1992. NUREG-1366 is available for examination in the NRC Public Document Room, 2120 L Street, NW, Lower Level, Washington, D.C. and for purchase from the GPO Sales Program by writing to the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. In performing this study, the staff found that, while the majority of the testing at power is important, safety can be improved, equipment degradation decreased, and an unnecessary burden on personnel resources eliminated by reducing the amount of testing that the TS require during power operation. However, only a small fraction of the TS surveillance intervals warranted relaxation. The staff has prepared the enclosed guidance to assist licensees in preparing a license amendment request to implement these recommendations as line-item TS improvements. The NRC issued improved standard technical specifications in September 1992 that incorporated the recommendations of NUREG-1366.

The staff encourages licensees who plan to adopt these line-item TS improvements to propose TS changes that are consistent with the enclosed guidance. Licensees may propose to implement any number of the TS changes that are applicable to their facilities. NRC project managers will perform the review to ensure that the amendment requests conform to this guidance. Please contact your project manager or the contact listed below if you have any questions on this matter.

Licensee action to propose TS changes under the guidance of this generic letter is voluntary. Therefore, such action is not a backfit under the provisions of Section 50.109 to Title 10 of the Code of Federal Regulations (10 CFR 50.109). The following information, although not requested under the provisions of 10 CFR 50.54(f), would help the NRC evaluate costs and benefits for licensees who propose the TS changes described in this generic letter:

- licensee time and costs to prepare the amendment request
- estimate of the long-term costs or savings accruing from this TS change

Office of Management and Budget Clearance Number 3150-0011, which expires June 30, 1994, covers this request. The estimated average number of burden hours is 40 person-hours per licensee response, including those needed to assess the recommendations, search data sources, gather and analyze the data, and prepare the required letters. Send comments on this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB 7714), Division of Information Support Services, Office of Information and Resource Management, U.S. Nuclear Regulatory Commission, Washington, D.C., 20555, and to Ronald Minsk, Office of Information and Regulatory Affairs (3150-0011), NEOB-3019, Office of Management and Budget, Washington, D.C., 20503.

Sincerely,

James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Guidance for Implementing Line-Item Technical Specifications Improvements to Reduce Testing During Power Operation
2. List of Recently Issued NRC Generic Letters

Contact: T. G. Dunning, NRR
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GUIDANCE FOR IMPLEMENTING LINE-ITEM TECHNICAL SPECIFICATIONS IMPROVEMENTS TO REDUCE TESTING DURING POWER OPERATION

INTRODUCTION

This enclosure provides guidance for preparing a license amendment request to change the technical specifications (TS) to reduce testing during power operation. These line-item TS improvements are based on the recommendations of a U.S. Nuclear Regulatory Commission (NRC) study that included a comprehensive examination of surveillance requirements and is reported in NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," December 1992.

Each of the applicable recommendations in NUREG-1366 is addressed herein with examples of TS changes to the standard technical specifications (STS) requirements that were used as model TS when many plants obtained their operating license. The title and number of each of these line-item improvements corresponds to the section title and number in NUREG-1366 in which the staff recommended the change. The staff is providing the NUREG recommendation for each item, but the NUREG finding is provided only where it is necessary to clarify the intent of the NUREG recommendation. The staff is providing the wording for the changes to specific sections of the TS, using the noted model STS requirements with the reactor vendor identified in brackets and noted as "Typ" where it is typical of the change that applies to the TS for reactors of more than one type or vendor. For a few of the recommendations, the staff is providing the wording that was used in an approved amendment request for a specific plant. In such cases, the plant is identified in brackets as the source of the guidance.

The proposed TS changes for plants that have TS in a format that is different than the STS should be consistent with the intent of the NUREG recommendation, the enclosed guidance, and the format of individual plant TS.

COMPATIBILITY WITH OPERATING EXPERIENCE

Licensees should not propose changes to extend any surveillance interval if the recommendations of NUREG-1366 are not compatible with plant operating experience. Therefore, each licensee should include a statement in the license amendment request that all proposed TS changes are compatible with plant operating experience and are consistent with this guidance.

LINE-ITEM TS IMPROVEMENTS

4.1 Moderator Temperature Coefficient Measurements (PWR)

Findings: (1) Technical Specifications require a determination of moderator temperature coefficient at 300 ppm boron concentration. (2) If measured moderator temperature coefficient is more negative (less conservative than the TS value), the licensee must measure the moderator temperature coefficient every 14 EFPDs [effective full-power days] until the end of the cycle. (3) Measuring the moderator temperature coefficient at low boron concentrations is difficult. (4) VEPCO [Virginia Electric Power Company] proposed a method for

5.13 Turbine Overspeed Protection System Testing (PWR, BWR)

Recommendation: Where the turbine manufacturer agrees, the turbine valve testing frequency should be changed to quarterly.

The following condition must be met and addressed to justify the use of this approach:

A statement is required confirming the turbine manufacturer's concurrence with the proposed change.

3/4.3.4 Turbine Overspeed Protection, [W STS (Typ)] TS 4.3.4.2:

The above required Turbine Overspeed Protection System shall be demonstrated OPERABLE:

a. At least once per 92 days by direct observation of the movement of each of the following valves through at least one complete cycle from the running position:

(No change to the listing of turbine valves. Replaced "7" with "92" days and "cycling" with "direct observation of the movement" of each valve.)

b. (Unused)

(Item b is noted as "Unused" since surveillance for direct observation of valve movement is included in item a above.)

5.14 Radiation Monitors (PWR, BWR)

Recommendation: In order to decrease licensee burden and increase the availability of radiation monitors, change the monthly channel functional test to quarterly.

3/4.3.2 Engineered Safety Feature Actuation System Instrumentation, [CE STS (Typ)] TS Table 4.3-2:

Table 4.3-2
ENGINEERED SAFETY FEATURE ACTUATION SYSTEMS INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
5. SHIELD BUILDING FILTRATION (SBFAS)				
e. Containment Radiation - High Gaseous Monitor	S	R	Q	1, 2, 3, 4

(Table 4.3-2, cont.)

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
(5.e, Cont.)				
Particulate Monitor	S	R	Q	1, 2, 3, 4
Area Monitor	S	R	Q	1, 2, 3, 4
7. CONTAINMENT PURGE VALVES ISOLATION				
e. Containment Radiation - High Gaseous Monitor	S	R	Q	1, 2, 3, 4
Particulate Monitor	S	R	Q	1, 2, 3, 4
Area Monitor	S	R	Q	1, 2, 3, 4

(Channel Functional Test frequency changed from "M" to "Q.")

3/4.3.3 Monitoring Instrumentation - Radiation Monitoring Instrumentation, [CE STS (Typ)] TS Table 4.3-3:

TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
(All items)	(No change)	(No change)	Q	(No change)

(Channel Functional Test frequency changed from "M" to "Q.")

3/4.3.3 Monitoring Instrumentation - Radioactive Liquid Effluent Monitoring Instrumentation, - Radioactive Gaseous Effluent Monitoring Instrumentation, [W STS (Typ)] TS Table 4.3-8 and Table 4.3-9:

No change in existing STS guidance is required. The surveillance interval for an Analog Channel Operational Test (equivalent of a Channel Functional Test for other reactor vendors) is specified as "Q" (quarterly). Plants having a monthly test interval for this surveillance may request a change in the test interval to quarterly.

5.15 Radioactive Gas Effluent Monitor Calibration Standard (PWR, BWR)

A TS change was not recommended for this item.