

ATTACHMENT 71114.02

INSPECTABLE AREA: Alert and Notification System Testing

CORNERSTONE: Emergency Preparedness

INSPECTION BASES: The alert and notification system (ANS) is a critical link in the system for prompt notification of the public of the need to take protective actions. A high rate of availability increases the assurance that the licensee can protect public health and safety during an emergency. The ANS implements a portion of the risk-significant planning standard, 10 CFR 50.47(b)(5). A performance indicator (PI), ANS Reliability, addresses performance in this area. However, for the statistics of the PI to be valid, the testing program must be conducted in accordance with federal guidance. The inspection verifies testing program compliance. Inspection guidance for systems that rely on means other than sirens for primary notification of the public is provided as supplemental inspection requirements.

This inspection verifies aspects of the Emergency Preparedness Cornerstone for which there are no indicators to measure performance.

LEVEL OF EFFORT: Initial implementation of this procedure will require verification of the design of system tests.

71114.02-01 INSPECTION OBJECTIVE

01.01 To evaluate the adequacy of the ANS testing program.

71114.02-02 INSPECTION REQUIREMENTS

02.01 Siren Testing System Design Evaluation

- a. Review design of siren system for understanding.
- b. Review the licensee siren system testing procedure and determine compliance.
- c. Evaluate adequacy of testing,

02.02 Program Review

- a. Review testing after maintenance.
- b. If possible, observe a siren test and determine the timeliness of data collection.
- c. Review changes to the siren system or to the testing procedure.
- d. Review corrective actions related to the siren system.
- e. Determine whether corrective actions have been effective in correcting siren system problems.

02.03 Supplemental for Non-Siren ANS systems

- a. Review the design of the notification system.
- b. Evaluate testing and maintenance.

71114.02-03 INSPECTION GUIDANCE

Evaluation of the siren system testing program design need only be performed once. Subsequent inspections may make use of the initial evaluation to assess any changes.

03.01 Siren Testing System Design Evaluation

- a. Review applicable design documents for the siren system for understanding of features important to testing. System documentation is available in system evaluation reports or may be available from licensee system descriptions.
- b. Review the licensee siren system testing procedure and determine compliance with commitments. A typical testing procedure would include the elements of NUREG-0654, Appendix 3, as follows:
 - Silent test: every two weeks
 - Growl test: quarterly and after maintenance is performed
 - Complete cycle test: at least annually

Review testing commitments approved by the Federal Emergency Management Agency that may justify deviations from the guidance. Consider that some systems are sounded regularly in lieu of the growl and/or silent tests.

- c. Determine if each test, as performed, actually tests the elements of the system necessary for the system to perform its design function. Consider if the silent test verifies the ability of the sirens to receive and process radio signals, to the extent consistent with the system design and the test being conducted, for example:
 - Does the test verify that the siren received the radio signal?
 - Does the test verify that the siren processed the radio signal?
 - Does the test verify that all functions expected for the test responded to the radio signal?

- Is the test designed to verify the ability of the siren to process radio signals and perform its design function?

03.02 Program Review

- a. Determine if a siren test is required by procedures to be conducted after maintenance that could disable a system function. Determine if such tests are consistently conducted. Review testing record to ensure compliance with site procedures.
- b. If possible, observe a siren test and verify that the test is conducted in accordance with procedure and that as conducted it supports the previous determination that the design of testing is adequate. Review the method used for collection of test data and determine if it is timely, (i. e., a siren failure would be recognized in the near term). Some testing processes rely on a visit to the siren to determine test success and siren status. This may delay collection of data for a period. While this is not desirable, it is acceptable. Inspectors should verify that the data are consistently collected in a reasonable (not absolute) time frame, at least before the next test, but preferably within a couple of days. Verify that data collection actually gathers information on siren status rather than just the conduct of the test.
- c. Determine if changes to the siren system or to the testing procedure could affect testing results. If such changes have been implemented or are going to be implemented, review the changes to determine adequacy. If there have been changes, observe a licensee representative conduct a siren test. Determine that the test and/or system, as changed, continues to meet requirements and the determination made in the evaluation of siren system testing program.
- d. Review the system testing record since the last inspection to identify problems that should have been resolved by the licensee. Review the disposition of problems, if any. Review any response to significant events that stressed the siren system, such as high winds, etc. Determine the timeliness of problem resolution efforts made to recover from such events. Determine whether problems are recurrent in certain siren, or areas and review subsequent licensee corrective actions. Review any spurious siren activations and associated corrective actions.
- e. Determine whether the licensee has been effective in correcting siren system problems. The ANS Reliability PI measures system reliability. Performance above the green/white band threshold (94%) is in the licensee response band. Performance above the white/yellow threshold (90%) is acceptable. For systems operating in the licensee response band, with a validated testing program (i.e., validated through this inspection procedure,) corrective actions could be assumed to be effective. However, there are instances where the licensee has allowed portions of the system to be much less reliable than the system overall. For example a 100-siren system could be at 95% reliability and have some sirens that never work. While this would be in the licensee response band, it should not be accepted and could be a failure to resolve problems. This determination will involve some judgement, but an unacceptable failure rate of isolated sirens would be a reliability significantly (>2 standard deviations) less than the system reliability rate.

03.03 Supplemental for Non-Siren ANS Systems

NOTE: This inspection element should be implemented only when non-siren ANS systems are used as the primary notification method in an area of the emergency planning zone.

- a. Review applicable design documents for understanding of features important to testing. System documentation is available in system evaluation reports or may be available from licensee system descriptions. The system is likely to consist of tone-alert radios distributed to individual homes. These types of systems are only approved for areas of low population density. The non-siren ANS may include telephone calling systems. The licensing basis should be understood as to what systems constitute the non-siren ANS, (e.g., tone-alert radios and telephone or just tone-alert radios). However, for non-siren ANS it is appropriate to also review the backup system for effective testing and maintenance.
- b. The non-siren portion of the ANS may be beyond licensee control. Tone-alert radios in private homes cannot be inspected. However, it is expected that the licensee make a reasonable effort to contact the applicable residents annually in an attempt to ensure the equipment is operable. This may be done through a letter offering new batteries or other methods. The licensing basis will contain the commitments that should be used for criteria, but ineffective maintenance should be noted in any case. Telephone systems should be updated periodically and may be tested on an annual basis also. It is expected that licensees will be cognizant of new housing and businesses in the regions covered by non-siren ANS. This is often accomplished through cooperation with local government.

It should not be necessary to review route alerting methods under this inspection because this area is periodically reviewed by state and/or FEMA reviewers.

71114.02-04 RESOURCE ESTIMATE

| Direct inspection effort for this attachment is estimated to be, on average, between 6 hours
| and 10 hours biennially regardless of the number of reactor units at a site.

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