

ATTACHMENT 71114.02

INSPECTABLE AREA: Alert and Notification System Evaluation

CORNERSTONE: Emergency Preparedness

INSPECTION BASES: The alert and notification system (ANS) is a critical link for promptly notifying the public of the need to take protective actions. A high rate of reliability and 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) provides test statistics of ANS reliability. However, for the statistics of the PI to be valid, the testing program must be conducted in accordance with federal guidance, noted in the **Federal Emergency Management Agency (FEMA)** approved ANS design report, including any subsequent changes, and supporting FEMA approval letter. The inspection verifies ANS testing program compliance and evaluates the adequacy of the test program, maintenance program and supporting procedures. 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 an understanding of the **FEMA**-approved design report and verification of the approved system tests. The inspector will perform an evaluation of system tests, corrective actions, and maintenance practices.

71114.02-01 INSPECTION OBJECTIVE

01.01 To evaluate the adequacy of the ANS testing program, maintenance program and supporting procedures.

71114.02-02 INSPECTION REQUIREMENTS

02.01 Siren Testing System Design Evaluation

- a. Review the FEMA-approved siren system design report for any approved changes (since the last inspection) to the report, for understanding.
- b. Review the licensee's Emergency Plan (E-Plan) commitments, if any, concerning siren system testing, and the siren system testing procedure, to determine licensee compliance with the design report and/or the E-Plan.
- c. Evaluate the adequacy of siren system testing.

02.02 Program Review

- a. Review the ANS testing and maintenance program and applicable procedures. If possible, interview individuals responsible for the maintenance of the system.
- b. If possible, observe a siren test and evaluate test procedure usage (e.g., determine the timeliness of data collection, and effectiveness of interaction between licensee and county staffs on apparent siren malfunctions).
- c. Review changes to the ANS system, testing procedure and the maintenance program.
- d. Review a sample of 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 for any FEMA-approved changes (since the last inspection) for understanding.
- b. Evaluate testing, corrective actions, and maintenance.

71114.02-03 INSPECTION GUIDANCE

Evaluation of the siren system testing program design need only be performed once. Subsequent inspections shall assess any changes implemented since the initial evaluation.

03.01 Siren Testing System Design Evaluation

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

Review testing commitments approved by FEMA that justify deviations from NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," guidance (e.g., some systems are sounded regularly in lieu of the growl and/or silent tests).

- c. Determine if each test, as performed, tests the components 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 activation signals, to the extent consistent with the system design and the test being conducted, for example:
 - 1. Does the test verify that the siren received the activation signal?
 - 2. Does the test verify that the siren processed the activation signal?
 - 3. Does the test verify that all functions expected for the test responded to the activation signal?
 - 4. Is the test designed to verify the ability of the siren to process activation 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 the testing record to ensure compliance with site procedures.

Verify that the ANS maintenance program includes records of repairs and tests performed.

Primary alert and notification systems should be recognized as an important part of emergency planning to protect the health and safety of the public. Therefore, significant, recurring problems should be fully addressed. Maintenance should be systematic and well-documented; maintenance procedures should be well-written, easy-to-understand, and followed.

Evaluate whether the ANS has design flaws or deficiencies in the test program, maintenance program, or procedures that could result in an unintended loss of the offsite officials' capability to activate the sirens.

- b. If possible, observe a siren test and verify that the test is conducted in accordance with the approved 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 data is 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 a significant change has occurred (or is proposed) to the ANS. If such changes have been implemented (or are going to be implemented), verify that FEMA approval was obtained (or is being sought). Examples of what constitutes a significant change to the ANS include:
 1. Addition to or upgrading of alerting devices based on evidence of inadequate ANS coverage or deletion or re-location of devices.
 2. A change to maintenance methods that is not addressed in the design report.
 3. A change to testing methods that is not addressed in the design report.
 4. A loss of administrative control of special alerting devices that brings into question whether affected population(s) can be notified in a timely manner.

If a question arises as to whether a change is significant such that it requires prior FEMA approval, or that a change has altered the original ANS design such that it no longer appears to meet commitments, a request evaluating the change shall be made to FEMA. In this case, NRC response will be based upon FEMA's evaluation.

- d. Review the system test and maintenance records since the last inspection to identify problems that should have been resolved by the licensee.

Review any response to significant events that stressed the siren system, such as high winds, ice storms, lightning strikes, floods, etc. Determine the timeliness of problem resolution efforts made to recover from such events.

Determine whether problems are recurrent in certain sirens, or siren areas, and review subsequent licensee corrective actions. Review records of any spurious siren activations and associated corrective actions.

Determine if siren repairs were unnecessarily delayed due to inadequate and/or delayed corrective actions (e.g., inappropriate priority assigned to repair efforts, multiple instances of apparent lack of spare parts).

- 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. An individual siren not being available for a continuous period of 4 months or for more than 30% of the time over a period of 12 months may indicate inadequate and/or delayed corrective actions.

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 (EPZ).

- a. Review applicable design documents for understanding of features important to testing non-siren primary notification systems, **as well as** back-up notification systems. System documentation is available in system evaluation reports or may be available from licensee system descriptions. For example, the **primary notification** system may 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, or in the 5- to 10-mile range, route alerting as approved by **FEMA**. The licensing basis should be understood as to what systems constitute the non-siren ANS, **as well as the back-up means of notifications (e.g., route alerting as a back-up means of notifications for a Tone Alert radio, non-siren ANS primary notification system)**. **However, for non-siren ANS it is appropriate to also review the backup notification systems, 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. **However, the back-up means of notification for a non-siren ANS system (e.g., route alerting or telephone systems) shall be evaluated to verify that populations in the EPZ are capable of being notified during an emergency.** 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 or industry.

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. However, if the adequacy of the ANS testing or maintenance program or procedures are in question, a review of compensatory measures (e.g., backup route alerting) is appropriate. Specific questions concerning offsite capability should be referred to **FEMA**.

71114.02-04 RESOURCE ESTIMATE

Direct inspection effort for this attachment is estimated to be, on average, between **4** hours and **8** hours biennially regardless of the number of reactor units at a site.

71114.02-05 PROCEDURE COMPLETION

This procedure is considered complete when all the inspection requirements listed in the procedure have been satisfied. For the purpose of reporting completion in the Reactor Program System (RPS), the sample size is defined as 1. A sample size of 1 will be reported in RPS when the procedure is completed in its entirety.

END

ATTACHMENT 1

Revision History For IP 71114.02

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	06/29/06	Completed four-year historical CN search	None	N/A	N/A
N/A	06/29/06	Rewrite to include evaluation of siren maintenance program in addition to the testing program, clarify what constitutes a significant system change, and align the procedure with the EP SDP. Also, change agency reference from FEMA to DHS. .	Provided training at last national EP counterpart meeting.	January, 2006	ML061580344

N/A	12/07/09 CN 09-031	Changes in inspection requirements and guidance, pertaining to FEMA-approved siren system design report and evaluation of back-up means of notifications for non-siren ANS systems. Also revised number of hours allowed for inspection, per ROP Re-alignment review, 2009. Also, change agency reference from DHS to FEMA.	None	N/A	ML092990272