

ATTACHMENT 71114.02

INSPECTABLE AREA: Alert and Notification System Evaluation

CORNERSTONE: Emergency Preparedness

INSPECTION BASES: The **primary and backup** alert and notification system (ANS) is a critical link for promptly **alerting and** notifying the public of the need to take protective actions. **Typically, the alerting function is provided by sirens and similar capabilities that gain the attention of the public and cause them to seek further information (i.e., the “notification”) from Emergency Alert System (EAS) broadcast stations within their area. This attachment primarily focuses on the licensee’s performance with regard to the alerting capability reliability and availability as the notification function is generally beyond the licensee’s control.**

Although the function of promptly notifying the public is essentially a requirement of State and local government emergency response plans and is reviewed by the Federal Emergency Management Agency, § IV.D.3 or Appendix E to 10 CFR Part 50, requires the licensee to demonstrate that administrative and physical means for effecting this notification have been established. Additionally, many licensees have assumed responsibility (e.g., self-imposed requirement) for the installation of an ANS and the performance of testing and maintenance activities on behalf of State or local officials.

A high rate of reliability and availability increases the assurance that the licensee can protect public health and safety during an emergency. The **primary and backup ANS **implement** 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 the Federal Emergency Management Agency (FEMA) approved ANS design report (**which addresses primary and backup systems**), and subsequent **approved changes**. This inspection evaluates:**

- the primary and backup ANS testing program compliance**
- the adequacy of the maintenance program**

- the supporting procedures
- back-up notification system.

This procedure is applied to primary and backup ANS to the extent that the license has assumed responsibility for the testing and maintenance of those systems. If the ANS is maintained and tested by a local government, this procedure does not apply.

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

71114.02-01 INSPECTION OBJECTIVE

01.01 To evaluate the licensee's compliance with the testing and maintenance requirements specified in the FEMA-approved ANS Design Report and supporting letters. Initial implementation of this procedure will require an understanding of the FEMA-approved design report and verification of the approved system tests.

71114.02-02 INSPECTION REQUIREMENTS

02.01 Primary and Backup ANS Testing System Design Evaluation

- a. Review the FEMA-approved primary and backup ANS design report for any approved changes (since the last inspection) for understanding. Review any changes to testing procedure and maintenance program for continued consistency with the requirements in the design report.
- b. Review the licensee's Emergency Plan (E-Plan) commitments, if any, concerning the primary and backup ANS testing and procedure(s) to determine licensee compliance with the design report and E-Plan.
- c. Evaluate the adequacy of primary and backup ANS testing.

02.02 Program Review

- a. Review any changes the primary and backup ANS for consistency with the FEMA design report.
- b. Review the primary and backup ANS testing and maintenance program and applicable procedures. If possible, interview individuals responsible for the maintenance of the system.

- c. **Observe**, if possible, a **primary and/or backup ANS** test and evaluate procedure usage (e.g., determine the timeliness of data collection and effectiveness of interaction between licensee and county staffs on apparent siren malfunctions).
- d. Review a sample of corrective actions related to the **primary and backup ANS**.
- e. Determine whether corrective actions have been effective in correcting **primary and backup ANS** problems.

02.03 Requirements 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.

02.04 **Requirements for Backup ANS Capability**

- a. **Identify the licensee's backup means for the ANS.**
- b. **Perform the backup system inspection requirements if the backup ANS utilizes a hardware system (e.g. sirens, tone alert radios, etc.) under the licensee's control and for which the licensee performs testing and maintenance activities in accordance with the FEMA-approved ANS Design Report.**
- c. **Review the licensee's confirmation that the capability is available and determine that any FEMA-identified deficiencies or areas requiring corrective action have been corrected if the backup ANS is not under the licensee's control (e.g., ORO route alerting, "Reverse 911™" systems maintained by the OROs).**

71114.02-03 INSPECTION GUIDANCE

Evaluation of the **primary and backup ANS** 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 **primary and backup 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.

1. 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
2. Review testing commitments approved by FEMA that are deviations from the NUREG-0654 guidance (e.g., some systems are sounded regularly in lieu of the growl and/or silent tests) and structure the inspection accordingly.
- c. Verify siren procedures as performed, test the components of the system necessary for the system to perform its design function as described in the FEMA-approved design report. 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?
 5. Does the test verify the ability to activate the sirens from all control locations specified in the FEMA-design report?
 6. Does the test credit any devices or components that may not be operable for the FEMA-approved configuration (e.g., components requiring AC power in an AC power-independent configuration)?
 7. Do actions performed in advance of a scheduled test have the affect of masking the actual as-found condition of the siren system when the scheduled test is performed (i.e., preconditioning)? Pre-testing the siren equipment and correcting identified deficiencies prior to a regularly scheduled test is incompatible with the ANS PI as a uniform and valid indicator of the siren system reliability to perform its safety function. Unplanned corrective maintenance needed to restore siren system operability, and the post-maintenance testing associated with that maintenance, prior to a regularly scheduled siren test is acceptable.

03.02 Program Review

- a. Determine if a significant change has occurred (or is proposed) to the **primary and/or backup 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 **primary or backup ANS** include:

1. Addition to or upgrading of alerting devices based on evidence of inadequate **primary or backup ANS system** 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 **primary and backup ANS** design such that it no longer appears to meet commitments, **contact the EP program office and request a FEMA evaluation of the change.**

- b. **Review primary and backup ANS program and procedures to demonstrate the licensee's compliance with commitments in the FEMA design report and emergency plan. The review should include:**

1. **Verify required tests and maintenance adequately address commitments made.**
2. **Verify records of maintenance and testing are maintained in accordance with site procedures.**
3. **Verify post maintenance testing required by site procedures is performed, such as following maintenance that could disable a system function.**
4. **Verify a protocol exists for reporting of primary and/or backup ANS equipment failures found during normal operation or testing are reported in a timely manner to the licensee.**
5. **Evaluate the primary and backup ANS test program(s), maintenance program, or procedures for flaws or deficiencies that could result in an**

unintended loss of the offsite officials' capability to activate the primary and backup ANS.

- c. If possible, observe a primary and/or backup ANS test. Verify it's conducted in accordance with the approved procedure and that, as conducted, it supports the previous determination that the design of testing is adequate.
1. Review the method used for collection of test data and determine if it is timely (i.e., an ANS failure would be recognized immediately). 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.
 2. 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 primary and backup ANS status rather than just the conduct of the test.
 3. As applicable, observe the effectiveness of the interaction between the licensee and ORO staffs during the tests and actions taken on test failures.
- d. Review the system test and maintenance records since the last inspection to identify problems that should have been entered into the corrective action program for resolution by the licensee. In addition:
1. 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.
 2. 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.
 3. 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' corrective actions have been effective in resolving primary and backup ANS problems.
1. The ANS PI measures reliability of the offsite Alert and Notification system. 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 **should** be assumed to be effective.

2. **Because a licensee's ANS PI is in the "Green Band" does not mean the system operability is meeting its design reliability.** For example, **an ANS with 100 sirens could have an ANS PI of 95% reliability (in the licensee response band)** and have some sirens that never work. 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 **Requirements** 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 **and backup ANS.**
 1. System documentation is available in **the FEMA-approved ANS design report** or may be available from licensee system descriptions. For example, the primary **alerting** system may consist of tone-alert radios (**TARs**) distributed to individual homes. These types of systems are **generally** only approved **as the primary alerting means** 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.
 2. **The FEAM-approved primary and backup ANS design report** should be understood as to what systems constitute the non-siren ANS, as well as the back-up means of **alerting** (e.g., route alerting as a back-up means of notifications for **TARs, or another**, non-siren ANS primary **alerting** system).
- b. **The testing and maintenance activities for non-siren systems will vary in scope and nature depending on the system structure and the feasibility of testing.**
 1. **Similarly, corrective actions will also differ. The non-siren portions of the ANS or backup system** may be beyond licensee control. **For example, tone-alert radios in private homes cannot be inspected. Accordingly, FEMA typically includes requirements in the ANS Design Report for certain actions intended to provide a modicum of assurance of availability and reliability, in lieu of direct testing and maintenance. FEMA has often**

required a backup capability in these cases. The inspector should review the FEMA-approved Design Report and assess the adequacy of the licensee's performance of these test and maintenance activities in accordance with the FEMA-approved primary and backup ANS Design Report. The FEMA-approved ANS Design Report will contain the commitments that should be used for criteria, but ineffective maintenance should be noted in any case. Typical requirements may include one or more of the following example requirements:

- New persons taking up residence within the EPZ are offered the opportunity to obtain a TAR. There are many ways to accomplish this, for example, monitoring new public utility service connections, community "welcome wagon" initiatives, etc.). It is expected that licensees will be cognizant of new housing and businesses in the regions covered by non-siren ANS.
 - Residences assigned a TAR are contacted annually to determine whether the equipment is operable. This may be done through a letter offering new batteries or other methods.
 - Telephone-based systems are updated periodically and are tested on an annual basis.
2. 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.
 3. 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 and backup system 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 through the EP program office.

03.04 Requirements for Backup ANS Capability

- a. Appendix E, § IV.D.3 of 10 CFR Part 50 requires that the ANS capability include administrative and physical means for a backup method of public alerting and notification. Refer to NSIR-DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," § IV.J, "Backup Means for Alert and Notification Systems," for additional information on an acceptable method of complying with this requirement.

The initial review of the acceptability of this ANS backup will be performed using [Insert TI number and the title here]. In subsequent inspections, the focus should be on any (1) changes made to the FEMA-approved ANS Design Report, the relevant E-Plan commitments, and the supporting testing and maintenance procedures; and (2) and the licensee's performance on meeting the backup ANS commitments. In addition,

1. For a site with an existing backup method described in the FEMA-approved ANS Design Report, the site has until [effective date of rule + 180 days] to implement this capability, including testing and maintenance requirements, in its E-plan and EIPs. If this approved method involves route alerting or other capability not under the control of the licensee, the licensee should confirm that the ORO's responsible for implementing these capabilities have done so.
2. If the site does not currently have an approved ANS backup method, the licensee shall submit a revised ANS Design Report for adequacy review by FEMA no later than [effective date of the rule + 365 days]. The licensee shall install/implement the approved backup ANS capability with 365 days of FEMA's approval of the updated ANS Design Report, or no later than [effective date of rule + three years], whichever occurs first.
3. The inspector should review the licensee's progress on complying with the backup ANS requirement until full compliance is reached.
4. The backup ANS capability is not required to meet the performance requirements established on the primary alerting method. A backup ANS capability that does not meet the design objective established in § IV.D.3 of Appendix E for the primary ANS cannot serve as a compensatory action for a planned outage of the primary ANS capability.

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 REFERENCES

NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants" [MLXXXXXXXXX]

FEMA REP-10 "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants" (ML102510343)

71114.02-06 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

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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
N/A	XX/XX/XX CN XX-XX	Added: <ul style="list-style-type: none"> • Inspection Requirement 02.04 and guidance section 03.04 to address the new EP rule requirements for backup ANS capability • Section 71114.02-05 "References" 	Provided at EP Face to Face counterpart meeting	09/09/2011	