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WORK ORDER REP-CABEZON-G006-001

CONTRACT NUMBER: HSFEEM-06-C-0003, Modification #1

REPORT

ON

**Technical Review of the Joseph M. Farley Nuclear  
Power Plant Tone Alert Radio Administrative  
Procedure**

for



**FEMA**

Submitted to:

**Radiological Emergency Preparedness Branch  
1800 South Bell Street  
Arlington, VA 22202-3546**

Submitted by:



**CABEZON**  
GROUP

8850 Columbia 100 Parkway, Suite 314  
Columbia, Maryland 21045-2377

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## I. INTRODUCTION

By interagency letter dated November, 2008,<sup>1</sup> U. S. Nuclear Regulatory Commission (NRC) requested FEMA Radiological Emergency Preparedness (REP) Branch “interpretation of the acceptability of actions taken by the Joseph M. Farley Nuclear Plant (Farley) to meet their Alert and Notification (ANS) design requirements.” A technical review was conducted to support a formal answer the NRC.<sup>2</sup>

As part of that technical review, it was determined that additional information would be required to determine the acceptability of the current tone alert radio (TAR) administrative program against the minimum criteria delineated in FEMA-REP-10, *Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants*.<sup>3</sup>

“Additional information will need to be submitted by Farley...to FEMA for its review to determine whether the present program meets the relevant guidance. This includes the documentation that demonstrates the completion of the following corrective actions:

1. Farley Condition Report 20081040813<sup>4</sup> – “action plan to correct the immediate problem [that the local electric utilities have not been provided timely information on electrical connections and disconnections] and... insure that [Farley does] not have a problem like this in the future.”
2. Farley Condition Report 2008106217<sup>5</sup> – “corrective actions are underway insure that an accurate list of the homes needing Tone Alert Radios is maintained by [Farley].”

In response to those concerns, Southern Nuclear Company, the operator of Farley Nuclear Plant, submitted its tone alert radio distribution and maintenance procedures, including the revision history of the controlling procedure directly to REP Branch.<sup>6</sup>

REP Branch requested that a review of this response be made to determine if the current TAR program meets the relevant guidance of FEMA-REP-10.<sup>3</sup>

## II. EVALUATION SCOPE AND METHODOLOGY

The scope of this review was the current TAR administrative program<sup>6</sup> and comparison of the present program against the program that was previously reviewed and found to be acceptable.<sup>7, 8</sup> The methodology used was to review the submitted procedures<sup>6</sup> and compare them against the relevant criteria of FEMA-REP-10.<sup>3</sup> The relevant guidance is found in section E.6.2.3, Tone Alert Radios, and E.6.2.4, Special Alerting, as it applies to tone alert radios used for institutional alerting systems.

### III. SUMMARY OF RESULTS

#### Procedure Revision History

Procedure GO-EIP-136, "Alert Radio Distribution and Maintenance," Revision 4 (effective date 2/18/88) was the version of the TAR administrative procedure that was submitted in the 1989 design report<sup>8</sup> as Attachment 13 and found to be acceptable.<sup>7</sup> The response letter<sup>4</sup> states that Revision 1 was submitted as Attachment 13 to the Design Report. This may be referring an earlier version of the design report. However, the record is clear that the latest revision that was reviewed and accepted by FEMA was Revision 4.

Since that time, this procedure was revised six times and then superseded by a new procedure, FNP-0-TCP-28.1, FNP Tone Alert Radio Distribution and Maintenance. The current revision of this latter procedure is Version 2 issued August 26, 2008. In part, the reason for the latest revision of this procedure was "to incorporate changes identified in [Action Item] 2008204751." This action item appears to implement the action plan and corrective actions that were required in response to Farley Condition Reports 20081040813<sup>4</sup> and 2008106217.<sup>5</sup>

#### Comparison of the Present Procedure (FNP-0-TCP-28.1, Version 2)<sup>4</sup> with FEMA-REP-10<sup>3</sup>

The new procedure is in a new format, reflects the current organizational structure and responsibilities (e.g., Emergency Preparedness Group (EPG) instead of the Farley Visitor Center staff), and has some additional details and clarifications as to what is meant by "timely" actions relative to TAR distribution. It also includes a new section 4.7; "Electric Utility Oversight and Program Review;" that delineates how EPG will verify that electric utility connect / disconnect listings are maintained current within the TAR program.

Relative to tone alert radios used for alerting residences, a comparison of the current program with FEMA-REP-10<sup>3</sup> is shown below:

FEMA-REP-10 <sup>3</sup> Section E.6.2.3 Criterion	FNP Implementation per FNP-0-TCP-28.1, Version 2 <sup>4</sup>
Tone alert radios should be offered to the public in geographical areas (where needed) and a "best effort" attempt must be made to place the radios.	<ul style="list-style-type: none"> <li>• Section 3.1 and 4.2.2 describe the TAR coverage area as being outside the city limits of Gordon, Ashford and Columbia.</li> <li>• Section 4.2.2 states that a tone alert radio; a siren information and emergency preparedness calendar or brochure will be offered and delivered to residents as soon as possible (typically within 20 business days of recognition). Delivery will be made personally; however, mail out is acceptable providing a delivery confirmation receipt is tracked.</li> <li>• Section 4.1 shows that the basis for determining TAR distribution is the monthly electrical connect / disconnect listings collected by EPG from the local electrical utilities.</li> </ul>

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<b>FEMA-REP-10<sup>3</sup> Section E.6.2.3 Criterion</b>	<b>FNP Implementation per FNP-0-TCP-28.1, Version 2<sup>4</sup></b>
<p>A record system (register) containing an accurate list of addresses (names are optional) must be maintained for those geographical areas using the tone alert radios.</p>	<ul style="list-style-type: none"> <li>• Section 4.6 states that EPG is responsible for keeping a thorough, timely records management program for the TAR distribution and changes. It also states that a telephone log of incoming calls regarding TARs and record of delivery, return, or exchange forms will be recorded and kept on file.</li> <li>• Section 4.2.3 mentions use of the TAR database to note TAR refusals.</li> <li>• Section 4.7 delineates the oversight and review program conducted by EPG, including quarterly contact with the local electrical utilities providing connect and disconnect listings, annual review of the electrical utility program, and triennial walk downs of the entire TAR coverage area to verify the accuracy of the TAR database.</li> </ul>
<p>The addresses of residents refusing tone alert radios should also be noted.</p>	<ul style="list-style-type: none"> <li>• Section 4.2.3 states that any resident who declines a tone alert radio shall be identified to the Early County, GA or Houston County, AL emergency management agency for special needs notification.</li> <li>• Section 4.2.3 also states that refusals shall be noted in the tone alert radio database as a TAR refusal and re-contacted annually and again offered a radio.</li> </ul>
<p>A maintenance program offering operating checks should be available at least annually to the public in geographical areas using the tone alert radios. The maintenance program and the register program (mentioned above) may be integrated.</p>	<ul style="list-style-type: none"> <li>• Section 3.1 states that the emergency information brochures or calendars are provided annually to all residents and businesses. It also states that a replacement TAR battery will be provided in the annual information mailing for the TAR coverage area.</li> <li>• Section 3.2 states that the emergency information brochures or calendars shall include guidance for TAR general use, TAR self testing method and frequency, TAR placement, and general information on the TAR maintenance program (e.g., contact numbers for TAR replacement, issuance or return, and general program testing and validation methods).</li> <li>• Section 4.2.2 states that the emergency information or calendars shall be offered with a TAR for new residents or businesses identified in the monthly electrical connect listings.</li> </ul>
<p>Tests offering the public a means to self-test its receivers are desired at least monthly. However, a final determination of testing frequency rests with appropriate state and local government officials. These results need not be monitored.</p>	<ul style="list-style-type: none"> <li>• This is addressed in the Farley Design Report.<sup>8</sup></li> <li>• FNP-0-TCP-28.1, Version 2, Section 4.7 states that an annual phone survey will be conducted to validate system operability (i.e., residents have their TARs turned on with the volume up).</li> </ul>

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<b>FEMA-REP-10<sup>3</sup> Section E.6.2.3 Criterion</b>	<b>FNP Implementation per FNP-0-TCP-28.1, Version 2<sup>4</sup></b>
<p>Written guidance should accompany the tone alert radio. These instructions should address, where applicable, a tone alert radio's:</p> <ul style="list-style-type: none"> <li>- General usage;</li> <li>- Self-testing frequency and method;</li> <li>- Suggested location (to facilitate efficient monitoring);</li> <li>- Maintenance program; and</li> <li>- Telephone numbers for repair or replacements.</li> </ul> <p>As a reminder, this written guidance should be provided annually to each tone alert radio recipient. This portion of the tone alert radio program may also be integrated with the register and maintenance programs (mentioned above).</p>	<ul style="list-style-type: none"> <li>• Section 3.1 states that the emergency information brochures or calendars are provided annually to all residents and businesses. It also states that a replacement TAR battery will be provided in the annual information mailing for the TAR coverage area.</li> <li>• Section 3.2 states that the emergency information brochures or calendars shall include guidance for TAR general use, TAR self testing method and frequency, TAR placement, and general information on the TAR maintenance program (e.g., contact numbers for TAR replacement, issuance or return, and general program testing and validation methods).</li> </ul>
<p>A determination should be made that the broadcast medium for initiating the tone alert signal has adequate availability (24 hours a day, 7 days a week), signal strength and signal quality.</p>	<p>This is addressed in the Farley Design Report.<sup>8</sup></p>

Relative to tone alert radios used for institutional alerting, a comparison of the current program with FEMA-REP-10<sup>3</sup> is shown below:

<b>FEMA-REP-10<sup>3</sup> Section E.6.2.4 Criterion</b>	<b>FNP Implementation per FNP-0-TCP-28.1, Version 2<sup>4</sup></b>
<p>The design report should include a detailed description of each special alerting method and the rationale for employing this method as a proposed part (or all) of an alert and notification system.</p>	<p>This is addressed in the Farley Design Report.<sup>8</sup></p>
<p>The design report should also contain a description, including any assumptions made, of any analyses or calculations made necessary to verify that individuals with a special alerting area can be provided an alert signal and information message within 15 minutes of the initial decision to activate (or within 45 minutes of such decision when the design objective is to ensure coverage of a population who may not have received the initial alert and notification).</p>	<p>This is addressed, as appropriate, in the Farley Design Report.<sup>8</sup></p>

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FEMA-REP-10 <sup>3</sup> Section E.6.2.4 Criterion	FNP Implementation per FNP-0-TCP-28.1, Version 2 <sup>4</sup>
<p>The design report should also discuss the testing and maintenance of any equipment necessary to employ a special alerting method. In general, full-scale equipment testing should be conducted at least annually. Routine use of this equipment or procedures (independent of their utilization as part of an alert and notification system) demonstrating alert and notification capabilities may be considered to be an acceptable test.</p>	<ul style="list-style-type: none"> <li>• This is addressed in the Farley Design Report.<sup>3</sup> However, FNP-0-TCP-28.1, Version 2, addresses TARs that may be distributed to businesses.</li> <li>• Section 3.1 states that the emergency information brochures or calendars are provided annually to all residents and businesses. It also states that a replacement TAR battery will be provided in the annual information mailing for the TAR coverage area.</li> <li>• Section 3.2 states that the emergency information brochures or calendars shall include guidance for TAR general use, TAR self testing method and frequency, TAR placement, and general information on the TAR maintenance program (e.g., contact numbers for TAR replacement, issuance or return, and general program testing and validation methods).</li> <li>• Section 4.2.2 states that the emergency information or calendars shall be offered with a TAR for new residents or businesses identified in the monthly electrical connect listings.</li> <li>• Section 4.7 states that an annual phone survey will be conducted to validate system operability (i.e., residents have their TARs turned on with the volume up).</li> </ul>
<p>Institutional alerting methods used as part of an alert and notification system should have an effective and continual program, that at a minimum encompasses the following:</p> <ul style="list-style-type: none"> <li>• Specification of those organizations and individuals within those organizations, by title, responsible for the institutional alerting system;</li> <li>• Description of the procedures used to notify these individuals that the alert and notification system is to be activated; and</li> <li>• Distribution of special information to notify those individuals of their responsibility to activate the existing institutional alerting system, including, where appropriate (e.g., for hotels, motels and shopping centers) guidance on the most effective method of alerting system activation or other supporting information (e.g., public information stickers or posters).</li> </ul>	<ul style="list-style-type: none"> <li>• This is addressed in the Farley Design Report.<sup>8</sup> The "special alerting" section states that each of six schools in Houston County that are within the EPZ is provided with a commercial grade radio and a TAR; however, the primary means of notification to the schools is by telephone by the school superintendent who is contacted by Houston County Emergency Management Agency (page 10). There are three industrial facilities located in Early County that are provided with commercial grade TARs (page 11). The contacts (by organization and title) and location are also shown. This information is also shown in summary fashion in Table 5, "Institutions with Commercial Grade Alert Radios." However, FNP-0-TCP-28.1, Version 2, addresses TARs that may be distributed to businesses.</li> <li>• Section 3.1 states that the emergency information brochures or calendars are provided annually to all residents and businesses. It also states that a replacement TAR battery will be provided in the annual information mailing for the TAR coverage area.</li> <li>• Section 4.7 states that EPG will contact local leaders annually to solicit their assistance in emphasizing to residents the importance of keeping their TARs plugged in and operable.</li> </ul>

#### IV. CONCLUSIONS

The following was concluded from this review:

1. FEMA-Accepted TAR procedure versus Present TAR Procedure – Procedure GO-EIP-136, “Alert Radio Distribution and Maintenance,” Revision 4 (effective date 2/18/88) was the version of the TAR administrative procedure that was submitted in the 1989 design report<sup>8</sup> as Attachment 13. Procedure FNP-0-TCP-28.1, Version 2<sup>4</sup> issued August 26, 2008 is the present procedure. This latest procedure retains the essential features of GO-EIP-136, Revision 4<sup>8</sup> that was previously technically reviewed and found to be acceptable.<sup>7</sup>
2. Comparison of Present TAR Procedure to Applicable FEMA-REP-10<sup>3</sup> Guidance – Procedure FNP-0-TCP-28.1, Version 2<sup>4</sup> meets the relevant guidance contained in Sections E.6.2.3 and E.6.2.4 of FEMA-REP-10.<sup>3</sup> Further, Section 4.7 of FNP-0-TCP-28.1, Version 2<sup>4</sup> provides further assurance that the TAR distribution will remain timely and accurate and appears to suitably address the deficiencies described by NRC.<sup>1</sup> The interim notification method delineated in the note below Section 4.2.1 of FNP-0-TCP-28.1, Version 2,<sup>4</sup> special needs notification for those who refuse TARs delineated in Section 4.2.3, timeliness of distribution of emergency preparedness information and TAR (as applicable) as being “typically no more than 20 days from recognition” based on the monthly electrical connect and disconnect listings for new connects appear to be reasonable methods to meet the relevant FEMA-REP-10<sup>3</sup> guidance. However, “typically no more than 20 days” should be specifically verified in conjunction with the annual electric utility program review delineated in Section 4.7.2 of FNP-0-TCP-28.1.<sup>4</sup>
3. “Significant Change” as it May be Applied to the FNP TAR Program - 44 CFR 350 §14 defines a significant change as “one which involves the evaluation and assessment of a planning standard or which involves a matter which, if presented with the plan, would need to have been considered... in making a decision that State or local plans and preparedness are: (1) adequate to protect the health and safety of the public living in the vicinity of the nuclear power facility by providing reasonable assurance that appropriate protective measures can be taken offsite in the event of a radiological emergency; and (2) capable of being implemented.” TARs are intended to provide timely alert and notification to ~81% of the resident population within the Farley 10-mile plume exposure EPZ.<sup>2</sup> (The towns of Ashford, Columbia and Gordon have alerting coverage by sirens). Hence, any change that could negatively affect the accuracy of the TAR register and/or increase the time to provide alert and notification because of the need to employ back-up alerting due to TAR program implementation issues would be of particular concern to FEMA. Any changes of this type clearly fall under the “significant change” definition of 44 CFR 350 §14.
4. Design Report Update – It has been nearly 20 years since the Farley Design Report<sup>8</sup> was issued. Many of the attachments to that report were the procedures that were then in use. There have also been a number of organizational and procedural changes since that time, as exemplified by Procedure FNP-0-TCP-28.1.<sup>4</sup> A suitably formatted (e.g., complete updated document or “insert/remove” only pages/sections that have been changed since 1989) and updated design report should be prepared, addressing and highlighting as appropriate: (1) demographic changes; (2) changes related to institutional alerting; (3) numbers of residences and businesses that have TARs; (4) current TAR models being used; (5) typical rates of change in the TAR distribution (e.g., average number of new TARs, TAR returns, TAR

replacements annually); (6) use of Emergency Alerting System, etc., as applicable; (7) the latest procedures in use; (8) Electric Utility and Oversight Review; (9) delineation of how "typically no more than 20 days from recognition" is interpreted, applied and tracked; and (10) the latest information applicable to the sirens currently in use and that provide the alerting signal to the towns of Ashford, Columbia and Gordon. .

Overall, it appears that the latest procedure submitted by Southern Nuclear Company<sup>6</sup> meets the relevant FEMA-REP-10<sup>3</sup> guidance. It also appears that the latest procedure, if followed, will prevent the conditions noted by NRC<sup>1</sup> from recurring. However, it is time that a suitable update to the design report be prepared to more fully describe the state of the ANS as it exists today.

## V. REFERENCES

1. US Nuclear Regulatory Commission. 2008. Letter – Robert E. Kahler, Chief, Inspection and Regulatory Improvements Branch to Vanessa E. Quinn, Chief Radiological Emergency Preparedness Branch, Federal Emergency Management Agency. *Request for Assistance for Design Interpretation of Alert and Notification System at Joseph M. Farley Nuclear Power Plant with Regard to the Tone Alert Radio Program.* November 26, 2008.
2. Cabezon Group, Inc. 2008. *Report on U.S. Nuclear Regulatory Commission (NRC) “Request for Assistance for Design Interpretation of Alert and Notification System at Joseph M. Farley Nuclear Power Plant with Regard to the Tone Alert Radio Program.”* December 15, 2008.
3. Federal Emergency Management Agency. 1985. *Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants.* FEMA-REP-10. November 1985.
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6. Southern Nuclear Company. 2008. Letter NL-08-1855. M. J. Ajluni, Manager, Nuclear Licensing to Ms. Vanessa E. Quinn, Branch Chief, [FEMA] Radiological Emergency Preparedness Branch. “Tone Alert Radio Distribution and Maintenance Procedures.” December 15, 2008.
7. Ogden Environmental & Energy Services. 1991. “Joseph M. Farley Nuclear Plant Site-Specific Offsite Radiological Emergency Preparedness Alert and Notification System Quality Assurance Verification.” June 4, 1991.
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