

June 29, 2000

Mr. James Scarola, Vice President  
Shearon Harris Nuclear Power Plant  
Carolina Power & Light Company  
Post Office Box 165, Mail Code: Zone 1  
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 - EVALUATION OF  
EMERGENCY ACTION LEVEL REVISION 00-1 (TAC NO. MA8705)

Dear Mr. Scarola:

By letter dated April 14, 2000, you submitted Revision 00-1 to the Harris Nuclear Plant (HNP) Emergency Action Levels (EALs) for NRC staff review and approval in accordance with 10 CFR 50, Appendix E. Enclosure 1 of your letter provided a comparison of the currently approved EALs and the proposed Revision 00-1. It also included a summary of the 10 CFR 50.54(q) evaluation that you performed, which included the basis for your determination that the changes do not decrease the effectiveness of the HNP Emergency Plan.

The NRC staff has completed its review of the proposed changes and their supporting documentation. As discussed in the enclosed Safety Evaluation, the staff concludes that the changes meet the requirements of 10 CFR 50.47(b)(4) and Appendix E to 10 CFR Part 50, and can, therefore, be implemented.

Sincerely,

**/RA/**

Richard J. Laufer, Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
ON PROPOSED CHANGES FOR  
CAROLINA POWER & LIGHT COMPANY  
SHEARON HARRIS NUCLEAR POWER PLANT EMERGENCY ACTION LEVELS  
DOCKET NO. 50-400

1.0 INTRODUCTION

By letter dated April 14, 2000, Carolina Power & Light Company (CP&L, the licensee) proposed several changes to the Shearon Harris Nuclear Power Plant, Unit 1 (HNP) Emergency Action Level (EAL) scheme regarding severe natural phenomena. The proposed changes are designed to clarify and improve human factors aspects of the EALs, and to improve the ability to anticipate and follow changing decision points.

2.0 REGULATORY BACKGROUND

Title 10 of the *Code of Federal Regulations* (CFR) Part 50.47(b)(4) states, in part, "A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee."

Appendix E, Subsection IV.B states, in part, "These emergency action levels shall be discussed and agreed on by the applicant and State and local government authorities and approved by the NRC."

Appendix E, Subsection IV.C states, in part "...Emergency action levels (based not only on onsite and offsite radiation monitoring information but also on readings from a number of sensors that indicate a potential emergency, such as pressure in containment and response of the Emergency Core Cooling System) for notification of offsite agencies shall be described. The emergency classes defined shall include (1) notification of unusual events, (2) alert, (3) site area emergency and (4) general emergency."

Regulatory Guide (RG) 1.101, Rev 3, "Emergency Planning and Preparedness for Nuclear Power Reactors," endorsed Revision 1 of NUREG-0654/FEMA-REP-1 and NUMARC/NESP-007, Rev 2, "Methodology for Development of Emergency Action Levels," as an acceptable method for licensees to meet the requirements of 10 CFR 50.47(b)(4) and Appendix E to 10 CFR 50.

### 3.0 EVALUATION

In support of its proposal, the licensee submitted the proposed EALs covering severe natural phenomena with a comparison to the currently approved EALs. They also provided a 10 CFR 50.54 (q) evaluation and associated technical bases. The licensee's EAL scheme is based upon the guidance presented in NUREG-0654. The NRC staff relied on NUREG-0654, in addition to NUMARC/NESP-007, Rev 2, as the basis for its review of the proposed HNP EAL changes.

In the seismic events and adverse weather EALs, the licensee introduced operating mode criteria, and cited the example in NUREG-0654 for a Site Area Emergency (SAE) described as, "Severe natural phenomena being experienced or projected with plant not in cold shutdown." The revised EAL flow diagram has decision blocks which direct the user to declare an Alert if the plant is in cold shutdown and a Site Area Emergency if the plant is in Modes 1-4. This is consistent with NUREG-0654, as well as the operating mode criteria advanced in NUMARC/NESP-007.

For the case of severe weather, the licensee added several decision points including the operating mode criteria. For tornadoes, there is a decision block which addresses whether any damage was done to safety-related equipment or structures. The plant would only be in an SAE if the plant was in Modes 1-4 and sustained damage. Otherwise, the event would be classified as an Alert.

In the current EAL for hurricanes, there are two action levels. The first action level is for projected or measured sustained wind speeds, at 10 meters, greater than 90 MPH. This would be classified as an Alert. The second action level is for sustained wind speeds, at 10 meters, greater than 100 MPH. This would be classified as an SAE.

In the proposed revision, the wind speed threshold for the declaration of an Alert would be raised from 90 MPH to 95 MPH, and the wind speed threshold for an SAE would be raised from 100 MPH to 155 MPH. In addition, if the plant is in Modes 1-4, an SAE would only be declared if the projected or sustained wind speeds were greater than 155 MPH, or there was damage to safety-related equipment or structures. When the plant is in Mode 5, the event would be classified as an Alert regardless of wind speed or damage.

The revised EALs are not as conservative as the current EALs. The wind speeds are higher than the current thresholds and more conditions need to be satisfied than in the existing scheme. However, the new EALs are more realistic with regard to the potential damage to the plant and better reflect the risks to the public health and safety. They are also clearer to the user and reduce the burden on the licensee and the affected support agencies. In addition, they conform to the guidance provided in NUREG-0654.

The licensee introduced the concept of mode specificity in the proposed EALs. This concept recognizes that the risks to the plant and to the public, and the potential for radioactive releases, are lower when the plant is shut down. The impact of severe weather or seismic activities are diminished in a shutdown plant and, therefore, there are less emergency response requirements. The required actions of the licensee and offsite authorities under the Alert category are sufficient for the protection of the public during shutdown.

Wind speed instrumentation, currently used in the industry, can measure wind speeds up to about 100 MPH. State of the art instrumentation is limited to about 140 MPH. Most facilities like HNP use the former instrumentation. Above this level, the determination of wind speed at the site is determined by other methods. At HNP, the licensee uses several sources, including a contracted weather service, the National Weather Service, and the Internet, to obtain information on wind speeds above 100 MPH.

In the current EALs, there is only a 10 MPH wind speed difference between the declaration of an Alert and an SAE. In the proposed change, the difference is 60 MPH. The revised EAL scheme gives all responders more flexibility to respond to this type of event and use their resources more effectively. The benefit of the increased flexibility is smaller for the licensee since it activates its Emergency Response Facilities at the Alert level; however, the benefit for offsite agencies could be significant. The plant is designed to withstand the effects of a wind of up to 179 MPH. Thus, the proposed threshold value of 155 MPH is still conservative in comparison to the design basis value of 179 MPH. This level is more realistic and more indicative of the potential for real damage.

#### 4.0 STATE AND LOCAL GOVERNMENTAL AGREEMENT

In its April 14, 2000, letter, the licensee stated that these proposed EAL changes were discussed and agreed upon by CP&L, the State of North Carolina and local governmental authorities as required by 10 CFR 50, Appendix E, IV.B.

#### 5.0 CONCLUSION

The proposed revisions provide the user with a clear difference between the ALERT and SAE classifications. This proposed change does not change the meaning of the EAL nor does it decrease the effectiveness of the emergency plan. The proposed revised EALs are consistent with guidance provided in NUREG-0654 and NUMARC/NESP-007. The staff concludes that the proposed revised EAL scheme meets the requirements of 10 CFR 50.47(b)(4) and Appendix E to 10 CFR Part 50. Therefore, the licensee can implement the proposed revision.

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Date: June 29, 2000

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