



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 29, 2009

Mr. Benjamin Waldrep, Vice President  
Brunswick Steam Electric Plant  
Carolina Power & Light Company  
Post Office Box 10429  
Southport, North Carolina 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – REQUEST FOR  
ADDITIONAL INFORMATION REGARDING PROPOSED CHANGES TO  
EMERGENCY ACTION LEVELS BASED ON NUCLEAR ENERGY INSTITUTE  
(NEI) 99-01, REVISION 5 (TAC NOS. ME0117 AND ME0118)

Dear Mr. Waldrep:

By letter dated November 14, 2008, the Carolina Power & Light Company (the licensee) proposed changes to the change in the emergency action levels (EALs) used at the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. The licensee, in this letter, is proposing to change the emergency action levels from a scheme based on NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," to a scheme based on NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 5.

The Nuclear Regulatory Commission (NRC) staff has reviewed the information the licensee provided and determined that additional information is required in order to complete the evaluation. The NRC staff's request for additional information is enclosed. Kindly respond to the enclosed questions within 30 days of the date of this letter. Please contact me at 301-415-1447, if you have any questions on this issue.

Sincerely,

A handwritten signature in black ink that reads "Farideh E. Saba".

Farideh E. Saba, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325 and 50-324

Enclosure: As stated

cc w/encl: Distribution via ListServ

REQUEST FOR ADDITIONAL INFORMATION  
REGARDING THE BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
PROPOSED CHANGES TO EMERGENCY ACTION LEVELS BASED ON  
NUCLEAR ENERGY INSTITUTE 99-01, REVISION 5  
(TAC NOS. ME0117 AND ME0118)

EAL	COMMENT
<p style="text-align: center;">Generic</p>	<p>It is expected that licensee's adhere to endorsed guidance, particularly for Initiating Conditions and Definitions, with no differences or deviations other than those related to a licensee's particular design. This is to ensure regulatory stability of the Emergency Action Levels (EAL) scheme through adherence to Nuclear Regulatory Commission (NRC)-reviewed and endorsed guidance with no non-design related deviations and little to no differences.</p> <p>This also ensures that, as stated in paragraph 50.47(b)(4) of Title 10 of the <i>Code of Federal Regulations</i>, licensees implement a "... standard emergency classification and action level scheme ..."</p> <p>While the NRC is not enforcing strict verbatim compliance with the endorsed guidance, where applicable, the NRC will be pointing out areas where we expect the endorsed guidance to be used to ensure implementation of a standard scheme. This is primarily based upon industry and NRC experience with issues related to the particular EAL.</p> <p>While formatting is usually not technically relevant to the staff's review of EALs, when inconsistent formatting may result in potential misunderstanding, an RAI will be developed to correct the formatting or to obtain additional information in support of the deviation.</p>
<p style="text-align: center;">Bases Information</p>	<ol style="list-style-type: none"> <li>1. Staff has noted numerous discrepancies between the proposed Bases Information wording and the endorsed Bases Information wording. Incorporate the endorsed wording to ensure a standard emergency classification and action level scheme or provide detailed justification for not doing so in each case.</li> <li>2. Staff noted that you used the term "buss" and sometimes called it "bus." While it could be spelled either way, please be consistent.</li> <li>3. Make sure you use the correct terminology for dose and dose rate throughout the document.</li> </ol>

Enclosure

RAI #	EAL	Question
1	Global RAI	In general, the use of the terms "VALID" and "UNPLANNED" in the Brunswick Nuclear Plant's (BNP's) EAL is not consistent with the endorsed guidance. To ensure implementation of a standard emergency classification and action level scheme, either use these terms consistent with Nuclear Energy Institute (NEI) 99-01, Revision 5 or explain why BNP's EAL differs from the endorsed guidance. Several of the following RAIs are specifically referring to this issue.
2	Section 2.10	Section 2.10, Planned Vs. Unplanned Event, wording differs from the wording in the first paragraph of Section 3.9 of with the endorsed guidance. Explain why different wording was chosen or adopt the endorsed wording to ensure implementation of a standard emergency classification and action level scheme.
3	Section 2.11	Explain why the 2nd paragraph in Section 3.12 of NEI 99-01 (the endorsed guidance) which addresses 15 minutes time period for classifying transient events is not included in BNP's EAL Section 2.11, Classifying Transient Events, or insert this paragraph in Section 2.11 to ensure implementation of a standard emergency classification and action level scheme.
4	Section 3.0	For clarification, provide date and Agencywide Documents Access and Management Systems (ADAMS) accession number of the version of NEI 99-01, Revision 5 that is used for developing BNP's EAL. The NRC staff requests that the licensee references NEI 99-01, Revision 5 with the ADAMS Accession Number of ML080450149 to ensure that the multiple draft copies of this document that are in ADAMS are not inadvertently used.

RAI #	EAL	Question
5	Section 4.0	<p>Definitions need to be consistent with Section 5.4 of NEI 99-01, Revision 5 (ADAMS Accession No. ML080450149) to ensure implementation of a standard emergency classification and action level scheme:</p> <ul style="list-style-type: none"><li>a. The NEI 99-01 states that Protected Area and Vital Area are typically site-specific area. Provide site-specific definitions of these terms.</li><li>b. Explain why definitions of the terms IMMIDENT, ISFSI, PROJECTILE, and UNISOLABLE are not included in Section 4.0 of BNP's EAL Technical Bases.</li><li>c. What is (ref. 3.1.4) that is addressed in the definition of Hostile Action?</li><li>d. The endorsed guidance does not include definitions of Immediately Adjacent, Inoperable, Immediately Dangerous to Life and Health (IDLH), Intruder, and Lower Flammability Limit (LFL). Explain why these are included in Section 4.0 of BNP's EAL and where these terms are used.</li></ul>
6	Section 5.0	<ul style="list-style-type: none"><li>a. Section 5.0, "BNP-TO-NEI 99-01 CROSSREFERENCE," of BNP's EAL Technical Bases, has the following errors and/or inconsistencies.<ul style="list-style-type: none"><li>1. BNP EAL RA2.1 is actually NEI AA2.2.</li><li>2. BNP EAL RA2.2 is actually NEI AA2.1.</li><li>3. BNP EAL RS1.3 is actually NEI AS1.4.</li></ul></li><li>b. Explain why BNP-TO-NEI 99-01 CROSSREFERENCE does not reference NEI AU1.1 and AA1.1.</li><li>c. In addition BNP-TO-NEI 99-01 CROSSREFERENCE has a few discrepancies with the EAL Comparison Matrix, Table 2.</li></ul>

RAI #	EAL	Question
7	RU1.1 RA1.1 RS1.1 RG1.1	a. Do the Outside Dose Calculation Manual (ODCM) setpoints correlate to the units given for the applicable monitor(s)? b. Are the setpoints equivalent to the stated 2(200) times the ODCM limit? Explain why the expected difference between the classification levels was not maintained. c. Explain why you find it advantageous to separate the gaseous and liquid release EALs when you are using the same table as you have stated in the EAL Technical Bases. d. Regarding RS1.1, RG1.1, since you have so few monitors available, state the compensatory measures you would take if/when these monitors become unavailable, or provide additional monitors applicable for this EAL (if any).
8	RS1.2	a. Explain how the 2nd paragraph of the NEI 99-01 Basis, which is stated in BNP RSA1.2, is applicable to this EAL. b. RSI.2 Site Area Emergency is for Dose assessment using actual meteorology indicates doses > 0.1 Rem TEDE or 0.5 Rem thyroid CDE at or beyond the site boundary. Explain why a dose rate terms (mRem/hr) is used in the BNP Basis instead of an actual dose term (Rem). c. RS1.2 states that "For the purposes of this EAL, the Site Boundary for BNP is defined in Figure 4.1-1 of the BNP Technical Specifications." Provide additional site-specific detail for site boundary in the BNP basis for this EAL.
9	RS1.3 RG1.3	a. Verify that the correct term in these EALs is R (for Roentgen), not Rem. b. RS1.3 and RG 1.3 state that "For the purposes of this EAL, the Site Boundary for BNP is defined in Figure 4.1-1 of the BNP Technical Specifications." Provide additional site-specific detail for site boundary in the BNP Basis for these EALs.
10	RU2.1	Explain why the terms "UNPLANNED" and "VALID" are not addressed in the BNP EAL or add them to the EAL to ensure implementation of a standard emergency classification and action level scheme.
11	RA2.1	a. Explain why the term "VALID" is not addressed in the BNP EAL or add it to the EAL to ensure implementation of a standard emergency classification and action level scheme. b. Explain why the actual setpoints are not in the actual EAL. It is expected that these setpoints be incorporated into the EAL.

RAI #	EAL	Question
12	RA2.3	<ul style="list-style-type: none"> <li>a. The BNP Basis references EAL RA2.4. Where is this?</li> <li>b. Explain why there is not an area radiation monitor (ARM) for monitoring Control Room (CR) radiation levels, even in the vicinity of the CR?</li> </ul>
13	CU2.2 CU2.3	<ul style="list-style-type: none"> <li>a. For CU2.2 only, explain why term “UNPLANNED” is not addressed in the BNP EAL or add it to the EAL to ensure implementation of a standard emergency classification and action level scheme.</li> <li>b. If using the NEI initiating condition numbering base (CU2.1, CU2.2, etc.) then the IC noun name is expected to be the same. Explain why BNP EAL noun name is differs from the NEI IC, or follow the endorsed guidance ensure implementation of a standard emergency classification and action level scheme.</li> <li>c. Explain why EAL wording differs from the endorsed wording for the EALs and IC, or use the endorsed wording to ensure implementation of a standard emergency classification and action level scheme.</li> </ul>
14	CA2.1	Explain why EAL wording differs from the endorsed wording for the EALs and IC, or use the endorsed wording to ensure implementation of a standard emergency classification and action level scheme
15	CS2.3 CG2.2	It is expected that licensees develop an indicator using available radiation monitoring to capture loss of inventory conditions when level indication is out of service. Develop the appropriate indicator to ensure implementation of a standard emergency classification and action level scheme by using the endorsed guidance wording.
16	CG2.1	It appears that you incorrectly labeled the note as NOTE-3 when it should be NOTE-6.
17	CU3.1 CA3.1 SU4.1 SA4.1	Explain why the term “UNPLANNED” is not addressed in the BNP EAL or add it to the EAL to ensure implementation of a standard emergency classification and action level scheme.

RAI #	EAL	Question
18	CU4.1 SU4.2	<p>a. Explain how the Selective Signaling System will notify the NRC. If it cannot, then justify its inclusion for this EAL or remove the system.</p> <p>b. For CU4.1, it appears that “defueled” as an Operating Mode is missing from this EAL. Explain or add this operation mode.</p> <p>c. For SU4.2, the last sentence of the BNP Basis states that “This EAL is the cold condition equivalent of the hot condition EAL SU4.2.” This appears to be an incorrect statement. Clarify.</p>
19	HU1.2 HA1.2	<p>a. For HU1.2, BNP Basis states that the Control Room wind speed recorder can measure wind speeds of 100 miles per hour (MPH). However, HU1.2, Unusual Event, is for Tornado striking within Protected Area boundary or sustained high winds &gt;105 mph. Explain why the 105 mph value was chosen as it is above the stated range of the recorder.</p> <p>b. Also, HA1.2, Alert, states that “Tornado striking or sustained high winds &gt; 100 mph resulting in visible damage to any Table H-1 plant structures / equipment or Control Room indication of degraded performance of those safety systems.” This statement is inconsistent with HU1.2 as stated above. Correct the inconsistency or justify the difference.</p>
20	HA1.1	<p>HA1.1 is defined as “Seismic event &gt; Operating Basis Earthquake (0.08 g) per analysis...” Provide further detail related to the analysis that is performed to determine if Operating Basis Earthquake was exceeded, specifically:</p> <p>a. Is it available in the Control Room?</p> <p>b. Is the staff trained and available 24 hours per day, 7 days per week?</p> <p>c. Will this analysis allow for a timely EAL declaration? If not, why is it an EAL threshold?</p>

RAI #	EAL	Question
21	HU2.2	<p>a. HU2.2 is described as “Explosion within Protected Area boundary resulting in visible damage to permanent structures or equipment.” However, “...resulting in visible damage...” is for the alert classification not the UE classification. Clarify or remove this part and its related basis information.</p> <p>b. The 1st sentence of the 2nd paragraph of the BNP Basis states that “A steam line break or steam explosion that damages surrounding permanent structures or equipment would be classified under this EAL.” This is not consistent with the endorsed standard emergency classification and action level scheme. Explain.</p>
22	HU3.1	<p>THE 5th paragraph of the BNP Basis states that “Releases occurring during planned surveillance activities or planned maintenance/tag-out activities are excluded.” This is not consistent with the endorsed standard emergency classification and action level scheme. Explain or revise this EAL to be consistent with the endorsed guidance.</p>
23	HA3.1	<p>The 3rd paragraph of the BNP Basis that states that “For the purposes of this EAL, the Site Boundary is defined in Figure 4.1-1 of the BNP Technical Specifications (ref. 2).” Explain how it is applicable to this EAL.</p>
24	HA4.1	<p>You added site-specific information to HU4.1 but not this EAL. Explain the inconsistency.</p>
25	SS1.2	<p>a. Explain why description of SS1.2 is not consistent with the same IC numbering base (SS1.1, SS1.2, etc. in the endorsed guidance). Otherwise follow the endorsed guidance to ensure implementation of a standard emergency classification and action level scheme.</p> <p>b. Explain why “...for 15 minutes or longer” is missing from BNP EAL or add this part to the EAL to ensure implementation of a standard emergency classification and action level scheme.</p>
26	SU2.1	<p>It appears that the BNP basis has a gap in it. Clarify whether any information is missing from this EAL.</p>

RAI #	EAL	Question
27	SA2.1 SS2.1 SG2.1	For these ICs in the anticipated transient without scram (ATWS) set, staff expectation is to follow the endorsed wording for the EALs and ICs, with the addition of the 2 percent power (APRM Downscale) value. Restore these EALs to compliance with the endorsed wording, or provide supporting justification as to why the NRC should consider the endorsed wording to not be applicable to your site, i.e., there is a design issue precluding the use of the endorsed wording. This is to ensure implementation of a standard emergency classification and action level scheme by using the endorsed guidance wording. While SG2.1 is close enough to the endorsed guidance to be endorsed, SA2.1 and SS2.1 are not, explain.
28	SA4.1	NEI 99-01, Revision 5, Table 5-S-1, "Recognition Category "S" Initiating Condition Matrix," summarizes system malfunction EALs. Explain why this information is not included in the BNP EAL or provide it in the EAL to be consistent with the endorsed guidance.
29	SU5.1	Explain why the BNP SU5.1 includes a 2nd EAL threshold in parenthesis (Process Off-Gas Rad Hi-Hi alarm 1(2)UA-03 4-2).
30	Fission barrier matrix	<ul style="list-style-type: none"> <li>a. FC Barrier – Loss 1: This is not the same as the endorsed guidance. Restore to the wording used in the endorsed guidance to ensure implementation of a standard emergency classification and action level scheme.</li> <li>b. RCS Barrier – Loss 3: This is not the same as the endorsed guidance. Restore to the wording used in the endorsed guidance to ensure implementation of a standard emergency classification and action level scheme.</li> <li>c. Explain in greater detail why your design cannot support the development of any additional FB Matrix indicator as expected by the endorsed guidance ("others").</li> </ul>

May 29, 2009

Mr. Benjamin Waldrep, Vice President  
Brunswick Steam Electric Plant  
Carolina Power & Light Company  
Post Office Box 10429  
Southport, North Carolina 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – REQUEST FOR  
ADDITIONAL INFORMATION REGARDING PROPOSED CHANGES TO  
EMERGENCY ACTION LEVELS BASED ON NUCLEAR ENERGY INSTITUTE  
(NEI) 99-01, REVISION 5 (TAC NOS. ME0117 AND ME0118)

Dear Mr. Waldrep:

By letter dated November 14, 2008, the Carolina Power & Light Company (the licensee) proposed changes to the change in the emergency action levels (EALs) used at the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. The licensee, in this letter, is proposing to change the emergency action levels from a scheme based on NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," to a scheme based on NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 5.

The Nuclear Regulatory Commission (NRC) staff has reviewed the information the licensee provided and determined that additional information is required in order to complete the evaluation. The NRC staff's request for additional information is enclosed. Kindly respond to the enclosed questions within 30 days of the date of this letter. Please contact me at 301-415-1447, if you have any questions on this issue.

Sincerely,

*/RA/*

Farideh E. Saba, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325 and 50-324

Enclosure: As stated

cc w/encl: Distribution via ListServ

Distribution:

PUBLIC	LPL2-2 R/F	RidsNrrDorlLpl2-2
RidsNrrPMFSaba	RidsOgcRp	RidsNrrLACSola (Hard Copy)
RidsAcrcAcnw_MailCTR	RidsRgn2MailCenter	RidsNrrDorIDpr
Don Johnson, NSIR	RidsNsir/DprDdep	KWilliams

ADAMS ACCESSION: ML091470520

NRR-088

OFFICE	LPL2-2/PM	LPL2-2/LA	NSIR/BC	LPL2-2/BC
NAME	FSaba	CSola	KWilliams	TBoyce
DATE	05/29/09	05/28/09	05/29/09	05/29/09

OFFICIAL RECORD