



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

November 17, 2009

Mr. Mano Nazar
Senior Vice President, Nuclear and
Chief Nuclear Officer
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: ST. LUCIE PLANT, UNITS 1 AND 2 - EVALUATION OF PROPOSED
EMERGENCY ACTION LEVEL REVISION (TAC NOS. MD9926 AND MD9927)

Dear Mr. Nazar:

By letter dated May 14, 2008, and supplemented by letters dated May 15, and June 12, 2009, Florida Power and Light (the licensee) requested prior U.S. Nuclear Regulatory Commission (NRC) approval for proposed changes to the emergency action levels (EALs) for the St. Lucie Nuclear Power Station.

The requested changes to the licensee's EALs support a conversion from the current EAL scheme to a scheme based on Nuclear Energy Institute (NEI) 99-01, "Methodology for Development of Emergency Action Levels" (Revision 5, February 2008). St. Lucie currently uses an EAL scheme based on NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."

The NRC staff performed a review of the proposed changes to St. Lucie's EALs as directed by Appendix E to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50. The NRC staff determined that incorporation of the proposed changes meets the standards in 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, and provides reasonable assurance that adequate protective measure can and will be taken in the event of a radiological emergency. Therefore, the NRC staff concludes that the licensee's proposed changes to the emergency action levels for St. Lucie, as outlined in its letter dated May 14, 2008, and supplemented by letters dated May 15 and June 12, 2009, are acceptable.

M. Nazar

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We expect the licensee to implement the EALs as approved by the NRC (i.e., as provided in Attachment 1 of the licensee's letter dated June 12, 2009, which includes the implementation of the Emergency Action Level Design Basis Document). The licensee indicated its intent to implement the new EAL schemes within 6 months of NRC approval. If the licensee changes the EALs as approved by this safety evaluation via 10 CFR 50.54(q) prior to implementation, the licensee should ensure that the changes are provided to the NRC during the next Emergency Preparedness baseline inspection.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric J. Leeds". The signature is fluid and cursive, with the first name "Eric" and last name "Leeds" clearly distinguishable.

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Docket Nos. 50-335 and 50-389

Enclosure:
Safety Evaluation

cc: Listserv



UNITED STATES
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SAFETY EVALUATION REGARDING THE
PROPOSED REVISION TO EMERGENCY ACTION LEVELS
FLORIDA POWER AND LIGHT COMPANY, ET AL.
ST. LUCIE PLANT, UNITS 1 AND 2
DOCKET NOS. 50-335 AND 50-389

1.0 INTRODUCTION

By application dated May 14, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML081920701), and supplemented by letters dated May 15, 2009, and June 12, 2009 (ADAMS Accession No.'s. ML091390816, and ML091670256 respectively), Florida Power and Light (the licensee), requested prior U.S. Nuclear Regulatory Commission (NRC) approval for proposed changes to the emergency action levels (EALs) for the St. Lucie Plant.

The requested changes to the licensee's EALs support a conversion from the current EAL scheme to a scheme based on Nuclear Energy Institute (NEI) 99-01, "Methodology for Development of Emergency Action Levels," Revision 5, February 2008, (ADAMS Accession No. ML080450149). Henceforth, NEI 99-01, Revision 5, dated February 2008, will be referred to as NEI 99-01. St. Lucie currently uses an EAL scheme based on NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."

2.0 REGULATORY EVALUATION

The NRC staff reviewed the proposed revision against regulations and guidance described below.

2.1 Regulations

Section 47 of Part 50, "Domestic Licensing of Production and Utilization Facilities," in Title 10 of the *Code of Federal Regulations* (10 CFR) sets forth emergency plan requirements for nuclear power plant facilities. Paragraph 50.47(a)(1)(i) states, in part, ". . . no initial operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." Paragraph 50.47(b) establishes the standards that the on-site and off-site emergency response plans must meet for NRC staff to make a positive finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. One of these standards, 10 CFR 50.47(b)(4), stipulates that emergency plans include a standard emergency classification and action level scheme.

Enclosure

Section IV.B of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, states, in part,

The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. These initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC. Thereafter, emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis. A revision to an emergency action level must be approved by the NRC before implementation if:

- 1) the licensee is changing from one emergency action level scheme to another emergency action level scheme (e.g., a change from an emergency action level scheme based on NUREG-0654 to a scheme based upon NUMARC/NESP-007 or NEI-99-01);
- (2) the licensee is proposing an alternate method for complying with the regulations; or,
- (3) the emergency action level revision decreases the effectiveness of the emergency plan.

2.2 Guidance

Regulatory Guide 1.101, Revisions 3 and 4, "Emergency Planning and Preparedness for Nuclear Power Reactor," endorsed NUMARC/NESP-007 and NEI 99-01 Revision 4, EAL guidance respectively, as acceptable alternatives to the guidance provided in NUREG-0654 for development of EALs to comply with 10 CFR 50.47 and Appendix E to 10 CFR Part 50. A change in an EAL scheme to incorporate the improvements provided in NUMARC/NESP-007 or NEI 99-01 would not decrease the overall effectiveness of the emergency plan, but due to the potential safety significance of the change, needs prior NRC review and approval.

The NRC staff, in a letter dated February 22, 2008, from Christopher Miller to Alan Nelson, NEI, concluded the guidance contained in NEI 99-01, is an acceptable method to develop an EAL scheme that meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4).

The following are also acceptable methods to the NRC staff for developing EALs that meet the requirements of in Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4):

- Appendix 1 to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," dated November 1980;
- NUMARC/NESP-007, Revision 2, "Methodology for Development of Emergency Action Levels," dated January 1992; and
- NEI 99-01, Revision 4, "Methodology for Development of Emergency Action Levels," dated January 2003.

Guidance is also provided in Regulatory Issue Summary (RIS) 2003-18, with Supplements 1 and 2, "Use of NEI 99-01, Methodology for Development of Emergency Action Levels." This provides guidance for developing or changing a standard emergency classification and action level scheme. In addition, this RIS provides recommendations to assist licensees, consistent with Section IV.B to Appendix E of Part 50, in determining whether to seek prior NRC approval of deviations from the guidance.

3.0 TECHNICAL EVALUATION

The proposed changes were submitted to the NRC for a technical and regulatory review prior to implementation by the licensee, as required under Section IV.B of Appendix E to 10 CFR Part 50.

This evaluation is based on a revision to EALs provided in the licensee's application letter and supplemented by the licensee's responses to the NRC's requests for additional information.

The St. Lucie Nuclear Plant currently utilizes an EAL scheme based on NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." The licensee is converting to an EAL scheme based on NEI 99-01.

In its application and supplemental letters, the licensee submitted the proposed EALs for the St. Lucie Plant, its technical basis, a comparison matrix, the EAL numbering scheme, and an explanation for any difference or deviation from NEI 99-01. The comparison matrix provided a cross-reference relating the proposed EAL scheme to the EALs in NEI 99-01. The NRC staff has reviewed the technical basis for the proposed EALs, the differences or deviations from NEI 99-01, and the licensee's justifications. The following NEI 99-01 guidelines were considered:

- consistency (i.e., the EALs would lead to similar decisions under similar circumstances at different plants);
- human engineering and user-friendliness;
- potential for classification upgrade only when there is an increasing threat to public health and safety;

- ease of upgrading and downgrading;
- thoroughness in addressing and disposing of the issues of completeness and accuracy raised regarding Appendix 1 to NUREG-0654;
- technical completeness of each classification level;
- logical progression in classification for multiple events; and
- objective, observable values.

The NRC staff reviewed the proposed EALs and has determined that the proposed EALs are consistent with EALs implemented at similarly designed plants. In addition, these EALs use objective and observable values, and are consistent with the guidance of NEI 99-01 in these areas.

The NRC staff reviewed the proposed EALs to determine if the wording addresses human engineering and user friendliness concerns. The proposed EALs use procedure language, including specific tag numbers for instrument readings and alarms; use flow charts, critical safety function status trees, check lists, and combinations of the above. Based on this review, the staff has determined that the proposed EALs meet the guidelines in NEI 99-01 in this area.

The NRC staff reviewed the proposed EAL sets (a group of EALs within a category related to a common concern, i.e., the Unusual Event, Alert, Site Area Emergency, and General Emergency related to a failure of the plant to shutdown via an automatic scram would be considered an EAL set), and has determined that classification upgrades are based upon an increasing threat to public health and safety, can effectively support upgrading and downgrading, and follow a logical progression for multiple events. Based on this review, the NRC staff concludes that the EALs are consistent with the guidance of NEI 99-01 in these areas.

The NRC staff also reviewed the proposed EALs for technical completeness and accuracy for each classification level. The proposed EALs are based on risk assessment to set the boundaries of the emergency classification levels and assure that all EALs that trigger that emergency classification are in the same range of relative risk. Precursor conditions of more serious emergencies also represent a potential risk to the public and are appropriately classified. The staff has determined that the proposed EALs are consistent with the guidance of NEI 99-01 in these areas.

Based on its review of the proposed EALs, the NRC staff concludes that these EALs are consistent with the guidance in NEI 99-01 in these areas.

4.0 CONCLUSION

The NRC staff performed a technical and regulatory review of the proposed changes to the St Lucie EALs. The staff has determined that the proposed changes meet the guidelines in NEI 99-01, which is an acceptable alternative for development of an EAL scheme that meets the regulatory requirements. Based on this, the staff concludes that the proposed EALs meet the standards in 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR Part 50 and provide

reasonable assurance that the licensee will take adequate protective measures in a radiological emergency. Therefore, based on this conclusion, the NRC staff determines that the proposed EAL changes are acceptable.

Principal Contributor: Don A. Johnson, NSIR

Dated: November 17, 2009

M. Nazar

- 2 -

We expect the licensee to implement the EALs as approved by the NRC (i.e., as provided in Attachment 1 of the licensee's letter dated June 12, 2009, which includes the implementation of the Emergency Action Level Design Basis Document). The licensee indicated its intent to implement the new EAL schemes within 6 months of NRC approval. If the licensee changes the EALs as approved by this safety evaluation via 10 CFR 50.54(q) prior to implementation, the licensee should ensure that the changes are provided to the NRC during the next Emergency Preparedness baseline inspection.

Sincerely,

/RA/

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Docket Nos. 50-335 and 50-389

Enclosure:
Safety Evaluation

cc: Listserv

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ADAMS Accession No.: ML092720671

*via email

OFFICE	NRR/LPL2-2	NRR/LPL2-2/LA	NSIR/DPR/DDEP/BC*
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DATE	10/30/09	10/30/09	10/23/09
OFFICE	NRR/LPL2-2/BC	NRR/DORL/D	NRR/D
NAME	T Boyce	J Gitter w/ changes	E Leeds
DATE	10/30/09	11/02/09	11/17/09

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