

May 8, 2002

Mr. John L. Skolds, President  
and Chief Nuclear Officer  
Exelon Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, Illinois 60555

SUBJECT: CLINTON POWER STATION, UNIT 1 - EMERGENCY ACTION LEVELS  
(TAC NO. MB2086)

Dear Mr. Skolds:

By letter dated May 25, 2001, as supplemented July 9 and October 2, 2001, March 11, and April 9, 2002, AmerGen Energy Company, LLC, proposed revising the Clinton Power Station (CPS) emergency classification scheme. The proposed change is to use the methodology of NUMARC/NESP-007, "Methodology for Development of Emergency Action Levels," Revision 2, to revise the CPS emergency action level (EAL) classification scheme.

The Nuclear Regulatory Commission staff has completed its review of the proposed EALs. We conclude that the revised emergency classification scheme meets the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50, and is acceptable. The basis for this conclusion is contained in the enclosed safety evaluation.

In accordance with Subsection IV.B. of Appendix E, AmerGen has discussed the proposed EALs with the State of Illinois, which has accepted them, as has the local county governmental authority. Therefore, the staff concludes that CPS may implement the proposed revision.

Sincerely,

*/RA/*

Jon B. Hopkins, Senior Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosure: As stated

cc w/encl: See next page

May 8, 2002

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ACRS

GGrant, RIII

JHopkins

OGC

TBlount

THarris

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<b>NAME</b>	<b>JHopkins</b>	<b>THarris</b>	<b>AMendiola</b>
<b>DATE</b>	<b>04/30/02</b>	<b>04/30/02</b>	<b>05/08/02</b>

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Clinton Power Station, Unit 1

cc:

Senior Vice President - Nuclear Services  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, Illinois 60555

Vice President - Mid-West Opns Support  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, Illinois 60555

Senior Vice President - Mid-West  
Regional Operating Group  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, Illinois 60555

Vice President - Licensing and  
Regulatory Affairs  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, Illinois 60555

Manager Licensing - Clinton and LaSalle  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Director-Licensing  
Mid-West Regional Operating Group  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, Illinois 60555

Senior Counsel, Nuclear  
Mid-West Regional Operating Group  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, Illinois 60555

Document Control Desk-Licensing  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, Illinois 60555

Illinois Department of Nuclear Safety  
Office of Nuclear Facility Safety  
1035 Outer Park Drive  
Springfield, IL 62704

Site Vice President - Clinton Power Station  
AmerGen Energy Company, LLC  
Clinton Power Station  
RR 3, Box 228  
Clinton, IL 61727-9351

Clinton Power Station Plant Manager  
AmerGen Energy Company, LLC  
Clinton Power Station  
RR 3, Box 228  
Clinton, IL 61727-9351

Regulatory Assurance Manager - Clinton  
AmerGen Energy Company, LLC  
Clinton Power Station  
RR 3, Box 228  
Clinton, IL 61727-9351

Clinton Power Station, Unit 1

- 2 -

cc:

Resident Inspector  
U.S. Nuclear Regulatory Commission  
RR#3, Bo x 229A  
Clinton, IL 61727

R. T. Hill  
Licensing Services Manager  
General Electric Company  
175 Curtner Avenue, M/C 481  
San Jose, CA 95125

Regional Administrator, Region III  
U.S. Nuclear Regulatory Commission  
801 Warrenville Road  
Lisle, IL 60532-4351

Chairman of DeWitt County  
c/o County Clerk's Office  
DeWitt County Courthouse  
Clinton, IL 61727

J. W. Blattner  
Project Manager  
Sargent & Lundy Engineers  
55 East Monroe Street  
Chicago, IL 60603

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

EMERGENCY ACTION LEVEL CLASSIFICATION SCHEME

CLINTON POWER STATION, UNIT 1

DOCKET NO. 50-461

1.0 INTRODUCTION

By letter dated May 25, 2001, as supplemented by letters dated July 9 and October 2, 2001, March 11, and April 9, 2002, AmerGen Energy Company, LLC ( AmerGen or the licensee) proposed a change to the Clinton Power Station (CPS) emergency action level (EAL) classification scheme. Specifically, the proposed change would use the methodology in Nuclear Utility Management and Resource Council (NUMARC)/National Environmental Studies Program (NESP)-007, "Methodology for Development of Emergency Action Levels," Revision 2 to revise the CPS EAL classification scheme. The U.S. Nuclear Regulatory Commission (NRC) staff has endorsed the NUMARC/NESP-007 methodology for developing site-specific emergency classification schemes.

2.0 APPLICABLE REGULATIONS AND GUIDANCE

2.1 Regulations

10 CFR 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..."

10 CFR Part 50, Appendix E, Section IV.B states, in part: "...These emergency action levels shall be discussed and agreed on by the applicant and State and local governmental authorities and approved by the NRC..."

Appendix E, Subsection IV.C, to 10 CFR Part 50, states, in part: "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 the 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..."

2.2 Guidance Documents

Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 2, states, in part: "The criteria and recommendations contained in Revision 1 of NUREG-0654/FEMA-REP-1 are considered by the NRC staff to be acceptable methods for

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complying with the standards in 10 CFR 50.47 that must be met in onsite and offsite emergency response plans."

NUREG-O654/FEMA-REP-1, Rev 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," includes the following criteria for EALs:

- Section II.D.1 An emergency classification and emergency action level scheme as set forth in Appendix 1 must be established by the licensee.
- Section II.D.2 The initiating conditions shall include the example conditions found in Appendix 1 [of NUREG-0654]...

Regulatory Guide 1.101, Revision 3, endorsed NUMARC/NESP-007, "Methodology for Development of Emergency Action Levels," as an acceptable alternative to NUREG-0654 for developing EAL schemes.

### 3.0 EVALUATION

The licensee proposes three matrices for the emergency class initiating conditions (ICs). The first matrix is for symptom- and event-based IC's that are defined for power operations, hot standby, and hot shutdown. The second matrix contains EALs for loss and potential loss of each of the three fission product barriers. The third matrix is for symptom- and event-based ICs that fall into four "recognition categories": (1) abnormal radiological conditions/abnormal radiological effluent releases, (2) fission product barrier degradation, (3) system malfunctions, and (4) hazards and other conditions.

Most of the proposed EALs under these ICs conform closely to the guidance; however, two of the licensee's proposed changes deviate from the example EALs in NUMARC/NESP-007. The staff reviewed these deviations and found the licensee's justifications acceptable for the following reasons:

- (1) NUMARC/NESP-007 IC AA1 establishes a value of 200 times the technical specification (TS) limits (or Offsite Dose Calculation Manual (ODCM) limits) for effluent release as the threshold for declaring an alert. The licensee has selected a threshold value that would result in a dose rate of 10 millirem per hour (mrem/hr). This release rate is a factor of 10 lower than the threshold value for the site area emergency classification based on dose.

In 1994, the State of Illinois requested that Exelon nuclear sites remove the joint frequency distribution for wind direction, when determining effluent monitor values, to ensure that conservative values were developed for the site area and general emergency thresholds. However, when the joint frequency was factored out, worse case meteorological conditions resulted in site area emergency thresholds less than the alert threshold of 200 times the ODCM. Therefore in response to the State's request, Exelon nuclear sites defined the effluent release limits for the higher classifications, then established the threshold for the alert as a factor of 10 below the site area emergency. In this way, the classification progression is maintained with margin between the class

levels. The alert threshold is sufficiently high to indicate a substantial degradation in the level of safety of the plant even though it is considerably lower than the threshold recommended in NUMARC/NESP-007. The total release rate value is consistent with the ODCM basis value of 500 mrem/yr. The ODCM value is equivalent to 0.057 mrem/hr, and in accordance with the NUMARC/NESP-007 guidance, 200 times this ODCM value is approximately 10 mrem/hr. AmerGen, which is 50 percent owned by Exelon, chose this same approach for CPS. The staff concludes that the above approach is acceptable for CPS.

- (2) NUMARC/NESP-007 IC SU5, "RCS Leakage," defines the unusual event threshold as:
- a. Unidentified or pressure boundary leakage greater than 10 gpm,
- OR
- b. Identified leakage greater than 25 gpm.

The CPS TS define reactor coolant system (RCS) leakage limits in terms of unidentified or total (unidentified and identified) leakage. The licensee has therefore developed a site-specific EAL for RCS leakage in terms of unidentified and total leakage. The licensee will determine whether leakage conditions which do not meet this criteria meet the action statement for the TS limiting condition for operation. If the action time limit is exceeded, a notification of unusual event is declared. The staff concludes that this is an acceptable departure from the guidance based on the plant-specific considerations.

#### 4.0 STATE AND LOCAL GOVERNMENTAL AGREEMENT

Appendix E of 10 CFR Part 50, states: "These emergency action levels will be discussed and agreed on by the applicant and State and local governmental authorities and approved by NRC." In the letter dated May 25, 2001, the licensee stated that "The State of Illinois has reviewed the proposed change in EAL schemes and found them to be acceptable." In the March 11, 2002, letter, the licensee provided the following:

"The Illinois Department of Nuclear Safety (IDNS) provides a technical review of the EALs as documented in Reference 1 (letter of May 25, 2001). DeWitt County Emergency Services and Disaster Agency (ESDA) is the local agency responsible for Emergency Planning in the majority of the 10-mile emergency planning zone (EPZ) around Clinton Power Station (CPS). DeWitt County ESDA has delegated their review of the EALs to IDNS and therefore our letter did not discuss agreement of the local authorities."

By letter dated April 9, 2002, in response to a staff request for clarification, the licensee stated that "AmerGen has confirmed with DeWitt County ESDA that they are satisfied with the review performed by the State of Illinois and do not intend to perform any additional reviews of the proposed EALs."

The staff considers the Dewitt County ESDA's delegation of the review to the technical experts of IDNS tantamount to an agreement with IDNS findings. The staff concludes that this satisfies the requirement of Appendix E.

#### 5.0 CONCLUSION

Based on a review of the proposed change to the EAL classification scheme for CPS, the staff concludes that the revised EALs including the deviations discussed in this review, are consistent with the guidance in NUMARC/NESP-007, continue to meet the requirements of 10 CFR 50.47(b)(4) and Appendix E to 10 CFR Part 50, and are acceptable to the staff.

Principal Contributor: T. Blount

Date: May 8, 2002