

January 17, 2007

Christopher M. Crane
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SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2; BYRON STATION, UNIT NOS. 1 AND 2; CLINTON POWER STATION, UNIT NO. 1; DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3; LASALLE COUNTY STATION, UNITS 1 AND 2; LIMERICK GENERATING STATION, UNITS 1 AND 2; OYSTER CREEK NUCLEAR GENERATING STATION; PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3; QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2; AND THREE MILE ISLAND NUCLEAR STATION, UNITS 1 AND 2 - REVISION OF EMERGENCY ACTION LEVELS IN RADIOLOGICAL EMERGENCY RESPONSE PLAN (TAC NOS. MD2846 THROUGH MD2862, AND LS2697)

Dear Mr. Crane:

By letter dated August 15, 2006, and supplemented by letters dated December 1, and December 14, 2006, Exelon Generation Company, LLC, and AmerGen Energy Company, LLC, (Exelon/AmerGen), requested prior Nuclear Regulatory Commission (NRC) approval for changes to the emergency action levels (EALs) for the following stations: Braidwood Station, Units 1 and 2; Byron Station, Unit Nos. 1 and 2; Clinton Power Station, Unit No. 1; Dresden Nuclear Station, Units 2 and 3; LaSalle County Station, Units 1 and 2; Limerick Generating Station, Units 1 and 2; Oyster Creek Generating Station; Peach Bottom Atomic Power Station, Units 2 and 3; Quad Cities Nuclear Station, Units 1 and 2; and Three Mile Island Nuclear Station, Units 1 and 2 (TMI).

Subsequent to Exelon/AmerGen's December 1, 2006, supplemental response, Exelon/AmerGen informed the staff during a teleconference on December 13, 2006, that they intend to supplement the EAL submittal for TMI. Exelon/AmerGen followed that notification with an e-mail on December 14, 2006, reiterating their intent to supplement the TMI submittal. Therefore, this letter does not address TMI.

The changes to the EALs support a conversion from an EAL scheme currently based on NUMARC/NESP-007, Revision 2, "Methodology for Development of Emergency Action Levels" to a scheme based on NEI 99-01, "Methodology for Development of Emergency Action Levels" (Revision 4, January 2003), in accordance with Regulatory Issue Summary 2003-18, with Supplements 1 and 2, "Use of NEI 99-01, Methodology for Development of Emergency Action Levels."

As discussed in the enclosed safety evaluation, the Commission concludes that the EAL changes proposed herein meet the standards of 10 CFR 50.47(b) and the requirements of Section IV.B of Appendix E to 10 CFR Part 50, and are, therefore, acceptable.

Sincerely,

/RA/

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Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456 and STN 50-457; STN 50-454 and STN 50-455; 50-461; 50-237, and 50-249; 50-373 and 50-374; 50-352 and 50-353; 50-219; 50-277 and 50-278; 50-254 and 50-265; 50-289; and 50-320

Enclosure: Safety Evaluation

cc w/encl: See next page

As discussed in the enclosed safety evaluation, the Commission concludes that the EAL changes proposed herein meet the standards of 10 CFR 50.47(b) and the requirements of Section IV.B of Appendix E to 10 CFR Part 50, and are, therefore, acceptable.

Sincerely,

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Enclosure: Safety Evaluation

cc w/encl: See next page

PUBLIC	LPL3-2 R/F	RidsNrrDorlLpl3-2
RidsNrrPMCGratton	RidsNrrLAEWhitt	RidsAcrcAcnwMailCenter
RidsOgcRp	RidsRgn3MailCenter	RidsNrrDorlDpr
RidsNrrPMRKuntz	RidsNrrPMSSands	RidsNrrPMJWilliams
RidsNrrPMEMiller	RidsNrrPMRGuzman	EWeiss, NSIR
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ADAMS Accession No.: ML070120260

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO A PROPOSED REVISION TO THE EMERGENCY ACTION LEVELS
FOR THE
BRAIDWOOD STATION, UNITS 1 AND 2; BYRON STATION, UNIT NOS. 1 AND 2; CLINTON
POWER STATION, UNIT NO. 1; DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3;
LASALLE COUNTY STATION, UNITS 1 AND 2; LIMERICK GENERATING STATION, UNITS 1
AND 2; OYSTER CREEK NUCLEAR GENERATING STATION; PEACH BOTTOM ATOMIC
POWER STATION, UNITS 2 AND 3; AND QUAD CITIES NUCLEAR POWER STATION,
UNITS 1 AND 2
DOCKET NOS. STN 50-456 AND STN 50-457; STN 50-454 AND STN 50-455; 50-461; 50-237,
AND 50-249; 50-373 AND 50-374; 50-352 AND 50-353; 50-219; 50-277, AND 50-278; 50-254
AND 50-265

1.0 INTRODUCTION

By letter dated August 15, 2006 (Reference No. 1), supplemented by letters dated December 1, 2006 (Reference No. 2), and December 14, 2006 (Reference No. 3), Exelon Generation Company, LLC, and AmerGen Energy Company, LLC, (Exelon/AmerGen) requested prior Nuclear Regulatory Commission (NRC) approval for changes to the emergency action levels (EALs) for the following stations: Braidwood Station, Units 1 and 2 (Braidwood); Byron Station, Unit Nos. 1 and 2 (Byron); Clinton Power Station, Unit No. 1 (Clinton); Dresden Nuclear Station, Units 2 and 3 (Dresden); LaSalle County Station, Units 1 and 2 (LaSalle); Limerick Generating Station, Units 1 and 2 (Limerick); Oyster Creek Generating Station (Oyster Creek); Peach Bottom Atomic Power Station, Units 2 and 3 (Peach Bottom); Quad Cities Nuclear Station, Units 1 and 2 (Quad Cities); and Three Mile Island Nuclear Station, Units 1 and 2 (TMI).

Subsequent to Exelon/AmerGen's December 1, 2006, supplemental response, Exelon/AmerGen informed the NRC staff during a teleconference on December 13, 2006, that they intend to supplement the TMI submittal. Exelon/AmerGen followed that notification with an e-mail (Reference No. 8) on December 14, 2006, reiterating their intent to supplement the TMI submittal. Therefore, this letter does not address TMI.

The requested changes to the licensees' EALs supports a conversion from an EAL scheme currently based on NUMARC/NESP-007, Revision 2, "Methodology for Development of Emergency Action Levels" (Reference No. 4), to a scheme based on NEI 99-01, "Methodology

for Development of Emergency Action Levels” (Revision 4, January 2003) (Reference No. 5), in accordance with Regulatory Issue Summary (RIS) 2003-18, with Supplements 1 and 2, “Use of NEI 99-01, Methodology for Development of Emergency Action Levels” (Reference No. 6).

These changes have been evaluated by Exelon/AmerGen to be an alternate method for complying with the regulations and have been submitted to the NRC for prior approval.

2.0 REGULATORY EVALUATION

The NRC staff reviewed the proposed revisions against the following regulations and guidance:

2.1 Regulations

Paragraph (a)(1) to Section 50.47, “Emergency Plans,” of 10 CFR Part 50 states, in part, that no operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Section 50.47 also establishes standards that must be met by the onsite and offsite emergency response plans 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, 50.47(b)(4), stipulates that emergency plans include a standard emergency classification and action level scheme.

Section IV.B to Appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities,” of 10 CFR Part 50 provides that emergency plans are to include EALs, which are to be used as criteria for determining the need for notification and participation of State and local agencies, and which are to be used for determining when and what type of protective measures should be considered both onsite and offsite to protect health and safety. EALs are to be based on in-plant conditions and instrumentation, and also on onsite and offsite monitoring. Section IV.B of Appendix E provides that initial EALs shall be discussed and agreed on by the applicant and State and local authorities, and be approved by NRC, and reviewed annually thereafter with State and local authorities. In addition, Section IV.B of Appendix E states, in part, that an EAL revision must be approved by the NRC before implementation if it involves: (1) the changing from an EAL scheme based on NUREG-0654/FEMA-REP-1 to a scheme based on NUMARC/NESP-007 or NEI 99-01; (2) the licensee is proposing an alternate method for complying with the regulations; or (3) the EAL revision has been evaluated by licensee as constituting a decrease in effectiveness.

2.2 Guidance

Revision 4 to Regulatory Guide (RG) 1.101 (Reference No. 7), issued in July 2003, endorses the guidance contained in Reference No. 5 as acceptable to the NRC staff as an alternative method to that described in the following guidance for developing EALs required 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” (November 1980), and

- Nuclear Utilities Management Council (NUMARC) document, entitled NESP-007, "Methodology for Development of Emergency Action Levels" (Revision 2, January 1992).

Reference No. 6 provides guidance for developing or changing a standard emergency classification and action level scheme. In addition, this provided recommendations to assist licensees, consistent with Section IV.B to Appendix E of Part 50, in determining whether to seek prior NRC staff approval of deviations from the new guidance.

3.0 TECHNICAL EVALUATION

Since the proposed revision to the Exelon/AmerGen EALs were evaluated by Exelon/AmerGen to be an alternate method for complying with the regulations, the proposed changes were submitted to the NRC for approval prior to implementation by the licensees.

The licensees currently utilize an EAL scheme based on Reference No. 4. The licensees are converting to an EAL scheme based on Reference No 5 in accordance with the guidance from Reference No. 6.

The NRC staff has reviewed the application (Reference No. 1), responses to NRC RAIs (Reference No. 2), and the Oyster Creek response (Reference No. 3). The NRC staff reviewed the proposed EALs against the guidance in Reference No. 5 to determine if the EALs, as proposed, meet the following guidelines:

- (1) Consistency, (i.e., the EALs would lead to similar decisions under similar circumstances at different plants);
- (2) Human engineering and user friendliness;
- (3) Potential for classification upgrade only when there is an increasing threat to public health and safety;
- (4) Ease of upgrading and downgrading;
- (5) Thoroughness in addressing, and disposing of, the issues of completeness and accuracy raised regarding NUREG-0654 Appendix 1;
- (6) Technical completeness for each classification level;
- (7) A logical progression in classification for multiple events; and
- (8) Objective, observable values.

The NRC staff reviewed the proposed EALs against EALs implemented at other plants of a similar design and has determined that the proposed EALs are consistent with EALs implemented at other plants, uses objective and observable values, and is consistent with the intent of Reference No. 5.

The NRC staff has determined that the proposed EALs are worded such that human engineering and user friendliness concerns are addressed.

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, follows a logical progression for multiple events, and is in accordance with the intent of Reference No. 5.

The NRC staff reviewed the proposed EALs for technical completeness and accuracy and has determined that the proposed EALs are consistent with Reference No. 5, which was determined to be an acceptable alternative to NUREG-0654, Appendix 1 EALs (Reference No. 7).

4.0 CONCLUSION

The NRC staff performed a review of the proposed changes to the Exelon/AmerGen EALs described in Reference No. 1, as supplemented by Reference Nos. 2 and 3, and determined them to be consistent with the guidance of Reference No. 5. As such, the proposed EAL changes meet the requirements of 10 CFR 50.47(b) and Section IV.B of Appendix E to 10 CFR Part 50. The following are therefore acceptable:

Braidwood: Enclosure 1D to Reference No. 2, Attachment No. 1, including the deletion of EAL CU5 (from Reference No. 5). (ADAMS Accession No. ML063430106).

Byron: Enclosure 2D to Reference No. 2, Attachment No. 2, including the deletion of EAL CU5 (from Reference No. 5). (ADAMS Accession No. ML063460109).

Clinton: Enclosure 3D to Reference No. 2, Attachment No. 3, including the deletion of EAL CU5 (from Reference No. 5) and the deletion of the following Fission Product Barrier EALs from the current EAL scheme based upon Reference No. 4, (ADAMS Accession No. ML063460112):

- Loss of Fuel Clad 2.d, Steamline Radiation,
- Potential Loss of Containment 1.f, Drywell Temperature,
- Loss of Reactor Coolant System (RCS) 3.e, Primary System Relief Valves.

Dresden: Enclosure 4D to Reference No. 2, Attachment No. 4, including the deletion of EAL CU5 (from Reference No. 5) and the deletion of the following Fission Product Barrier EALs from the current EAL scheme based upon Reference No. 4, (ADAMS Accession No. ML063460114):

- Loss of Fuel Clad 2.d, Steamline Radiation,
- Potential Loss of Containment 1.f, Drywell Temperature,
- Loss of RCS 3.e, Primary System Relief Valves.

LaSalle: Enclosure 5D to Reference No. 2, Attachment No. 5, including the deletion of EAL CU5 (from Reference No. 5) and the deletion of the following Fission Product Barrier EALs from the current EAL scheme based upon Reference No. 4, (ADAMS Accession No. ML063460116):

- Loss of Fuel Clad 2.d, Steamline Radiation,
- Potential Loss of Containment 1.f, Drywell Temperature,
- Loss of RCS 3.e, Primary System Relief Valves.

Limerick: Enclosure 6D to Reference No. 2, Attachment No. 6, including the deletion of EAL CU5 (from Reference No. 5), the deletion of EAL MA8 from the current EAL scheme based upon Reference No. 4, and the deletion of the following Fission Product Barrier EALs from the current EAL scheme based upon Reference No. 4, (ADAMS Accession No. ML063460119):

- Loss of RCS 2.d.2, Stuck Open Safety Relief Valve,
- Potential Loss of RCS, Reactor Pressure Level cannot be determined.

Oyster Creek: Enclosure 7D to Reference No. 3, Attachment No. 7, including the deletion of EAL CU5 (from Reference No. 5). (ADAMS Accession No. ML063540086).

Peach Bottom: Enclosure 8D to Reference No. 2, Attachment No. 8, including the deletion of EAL CU5 (from Reference No. 5), the deletion of EAL MA8 from the current EAL scheme based upon Reference No. 4, and the deletion of the following Fission Product Barrier EALs from the current EAL scheme based upon Reference No. 4, (ADAMS Accession No. ML063460125):

- Loss of RCS 2.d.2, Stuck Open Safety Relief Valve,
- Potential Loss of RCS, Reactor Pressure Level cannot be determined.

Quad Cities: Enclosure 9D to Reference No. 2, Attachment No. 9, including the deletion of EAL CU5 (from Reference No. 5) and the deletion of the following Fission Product Barrier EALs from the current EAL scheme based upon Reference No. 4, (ADAMS Accession No. ML063460127):

- Loss of Fuel Clad 2.d, Steamline Radiation,
- Potential Loss of Containment 1.f, Drywell Temperature,
- Loss of RCS 3.e, Primary System Relief Valves.

5.0 REFERENCES

1. Letter Number RS-06-114 from Exelon/AmerGen to the NRC dated August 15, 2006, "Exelon/AmerGen Implementation of Emergency Action Levels Developed from NEI 99-01." ADAMS Accession No. ML062790096.
2. Letter Number RS-06-170 from Exelon/AmerGen to the NRC dated December 1, 2006, "Exelon/AmerGen Response to Request for Additional Information for Implementation of Emergency Action Levels Developed from NEI 99-01." ADAMS Accession No. ML063450456.
3. Letter Number 2130-06-20439 from Exelon/AmerGen to the NRC dated December 14, 2006, "Exelon/AmerGen Supplement to Submittal to Revise Oyster Creek Emergency Action Levels Developed from NEI 99-01." ADAMS Accession No. ML063540086.
4. Nuclear Utilities Management Council (NUMARC) document, entitled NESP-007, "Methodology for Development of Emergency Action Levels" (Revision 2, January 1992). ADAMS Accession No. ML041120174.
5. NEI 99-01 "Methodology for Development of Emergency Action Levels" (Revision 4, January 2003). ADAMS Accession No. ML041470143.
6. Regulatory Issue Summary 2003-18, with Supplements 1 and 2, "Use of NEI 99-01, Methodology for Development of Emergency Action Levels." ADAMS Accession Nos. ML032580518, ML041550395, and ML051450482.

7. Regulatory Guide 1.101, Revision 4, "Emergency Planning and Preparedness for Nuclear Power Reactors." ADAMS Accession No. ML032020276.
8. December 14, 2006, email informing NRC Staff of Exelon/AmerGen's decision to supplement the submittal for TMI at a later date. ADAMS Accession No. ML070120274

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