



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

FEB 27 1987

TO: All Licensees, Applicants and Holders of Operating Licenses
Not Required to be Reviewed for Seismic Adequacy of Equipment
Under the Provisions of USI A-46, "Seismic Qualification of
Equipment in Operating Plants"

GENTLEMEN:

SUBJECT: VERIFICATION OF SEISMIC ADEQUACY OF MECHANICAL AND
ELECTRICAL EQUIPMENT IN OPERATING REACTORS, UNRESOLVED
SAFETY ISSUE (USI) A-46 (Generic Letter 87-03)

As a result of the technical resolution of USI A-46, "Seismic Qualification of Equipment in Operating Plants," the NRC has concluded that the seismic adequacy of certain equipment in those operating nuclear power plants which have not previously been reviewed to current licensing requirements for seismic qualification must be reviewed to seismic criteria defined in the USI A-46 technical resolution. The USI A-46 developed procedures make use of earthquake experience data supplemented by test data to verify the seismic capability of equipment below specified earthquake motion bounds. In the staff's judgment, this approach is the most reasonable and cost-effective means of ensuring that the purpose of General Design Criterion 2 (10 CFR Part 50 Appendix A) is met for these plants.

Because affected plants are being asked to carry out this evaluation against criteria not used to establish the design basis of the facility, this resolution is a backfit under 10 CFR 50.109. The backfit analysis and findings may be found in the USI A-46 Regulatory Analysis (NUREG 1211) at pp. 31.

We have documented evidence in staff SERs that your plant either has been, or is required to be, reviewed to current licensing requirements for Seismic Qualification of Equipment (i.e., SRP-3.10, IEEE-344/75 and Regulatory Guide 1.100) and therefore you are not required to respond to this letter or to perform the plant reviews described in the enclosures.

The information developed in resolving USI A-46 is described in the enclosures to this letter and is being provided to you for information only.

We would also like to call to your attention several recent incidents reported in Licensee Event Reports (LERs) which involved inadequate or missing anchorage. Between late March 1986 and May 1986, three LERs were received that documented inadequate seismic anchorage of electrical equipment in operating nuclear power plants. The initial case was at the Davis-Besse 1 plant (LER 86-011) where cabinet doors on Cyberex Class 1E equipment for essential instrument 120

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VAC power were found to lack the required door bolts. The second LER concerned emergency diesel generator switchgear cabinets at the Cooper plant that were not fastened to embedded channels beneath the cabinets (LER 86-009). The third deficiency was found at the Dresden 2 and 3 plants, where it was determined that the control room control panels did not have positive anchorage to the floor (LER 86-009). In each instance, the deficiency had existed since plant construction and was the result of installation errors, since the design drawings had specified seismic anchorage. As a consequence of these events, a review was initiated by the NRC Office for Analysis and Evaluation of Operational Data (AEOD). This review included an LER search which revealed four other instances of inadequate seismic anchorage or support of safety related electrical equipment plus other related seismic inadequacies.

We are enclosing the regulatory analysis (NUREG 1211) and the USI A-46 technical findings (NUREG 1030) for your information. The generic letter, which was issued to each nuclear plant that is required to perform seismic adequacy reviews under the provisions of USI A-46, is included as Appendix A to NUREG-1211.

Sincerely,



Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosures:

1. NUREG 1211
2. NUREG 1030

cc: Service List *See jacket*

LIST OF RECENTLY ISSUED GENERIC LETTERS

Generic Letter No.	Subject	Date of Issuance	Issued To
GL 87-02	VERIFICATION OF SEISMIC ADEQUACY OF MECHANICAL AND ELECTRICAL EQUIPMENT IN OPERATING REACTORS (USI A-46)	02/19/87	ALL HOLDERS OF OPERATING LICENSES NOT REVIEWED TO CURRENT LICENSING CRITERIA ON SEISMIC QUALIFICATION OF EQUIPMENT
GL 87-01	PUBLIC AVAILABILITY OF THE NRC OPERATOR LICENSING EXAMINATION QUESTION BANK	01/08/87	ALL POWER REACTOR LICENSEES AND APPLICANTS FOR AN OPERATING LICENSE
GL 86-17	AVAILABILITY OF NUREG-1169, "TECHNICAL FINDINGS RELATED TO GENERIC ISSUE C-8 BWR MSIC LEAKAGE AND LEAKAGE CONTROL SYSTEM	10/17/86	ALL LICENSEES OF BOILING WATER REACTORS
GL 86-16	WESTINGHOUSE ECCS EVALUATION MODELS	10/22/86	ALL PRESSURIZED WATER REACTOR APPLICANTS AND LICENSEES
GL 86-15	INFORMATION RELATING TO COMPLIANCE WITH 10 CFR 50.49, "EQ OF ELECTRICAL EQUIPMENT IMPORTANT TO SAFETY"	09/22/86	ALL LICENSEES AND HOLDERS OF AN APPLICATION FOR AN OPERATING LICENSE
GL 86-14	OPERATOR LICENSING EXAMINATIONS	08/20/86	ALL POWER REACTOR LICENSEES AND APPLICANTS
GL 86-13	POTENTIAL INCONSISTENCY BETWEEN PLANT SAFETY ANALYSES AND TECHNICAL SPECIFICATIONS	07/23/86	ALL POWER REACTOR LICENSEES WITH CE AND B&W PRESSURIZED WATER REACTORS
GL 86-12	CRITERIA FOR UNIQUE PURPOSE EXEMPTION FROM CONVERSION FROM THE USE OF HEU FUEL	07/03/86	ALL NON-POWER REACTOR LICENSEES AUTHORIZED TO USE HEU FUEL

- 2 -
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VAC power were found to lack the required door bolts. The second LER concerned emergency diesel generator switchgear cabinets at the Cooper plant that were not fastened to embedded channels beneath the cabinets (LER 86-009). The third deficiency was found at the Dresden 2 and 3 plants, where it was determined that the control room control panels did not have positive anchorage to the floor (LER 86-009). In each instance, the deficiency had existed since plant construction and was the result of installation errors, since the design drawings had specified seismic anchorage. As a consequence of these events, a review was initiated by the NRC Office for Analysis and Evaluation of Operational Data (AEOD). This review included an LER search which revealed four other instances of inadequate seismic anchorage or support of safety related electrical equipment plus other related seismic inadequacies.

We are enclosing the regulatory analysis (NUREG 1211) and the USI A-46 technical findings (NUREG 1030) for your information. The generic letter, which was issued to each nuclear plant that is required to perform seismic adequacy reviews under the provisions of USI A-46, is included as Appendix A to NUREG-1211.

Sincerely,

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosures:

- 1. NUREG 1211
- 2. NUREG 1030

cc: Service List

Distribution:

- Central File
- DSRO Chron File
- EIB Reading File
- H. Denton
- R. Vollmer
- F. Hebdon
- S. Rubin
- T. Speis
- B. Sheron
- R. Bosnak
- N. Anderson
- T. Y. Chang

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(* see previous concurrence)

OFC	:EIB:DSRO	:EIB:DSRO	:EIB:DSRO	:DD:DSRO	:D:DSRO	:DD:NRR	:D:NRR
NAME	:*TChang/vt	:*NAnderson/	:*RBosnak	:*BSheron	:*TSpeis	:RVollmer	:HDenton
DATE	:3/6/87	:3/ /87	:3/ /87	:3/ /87	:3/ /87	:3/6/87	:3/6/87

The second LER concerned emergency diesel generator switchgear cabinets at the Cooper plant that were not fastened to embedded channels beneath the cabinets (LER 86-009). The third deficiency was found at the Dresden 2 and 3 plants, where it was determined that the control room control panels did not have positive anchorage to the floor (LER 86-009). In each instance, the deficiency had existed since plant construction and was the result of installation errors, since the design drawings had specified seismic anchorage. As a consequence of these events, a review was initiated by the NRC Office for Analysis and Evaluation of Operational Data (AEOD). This review included an LER search which revealed four other instances of inadequate seismic anchorage or support of safety related electrical equipment plus other related seismic inadequacies. This information is documented in AEOD report "Seismic Anchors for Electrical and Control Panels" (AEOD/E611).

We are enclosing the generic letter which was issued to each nuclear plant that is required to perform seismic adequacy reviews under the provisions of USI A-46, the regulatory analysis (NUREG 1211) and the USI A-46 Technical Findings (NUREG 1030) for your information.

Sincerely,

Original Signed By:
Richard H. Vollmer

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

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3. NUREG 1030

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(* see previous concurrence)

Handwritten initials/signature

OFC	:EIB:DSRO	:EIB:DSRO	:DD:DSRO	:D:DSRO	:DD:NRR	:D:NRR	:
NAME	:NAnderson/dw*	RBosnak*	:BSheron*	:TSpeis*	:RVollmer	:HDenton	:
DATE	:2/ /87	:2/ /87	:2/ /87	:2/ /87	:2/ /87	:2/ /87	:

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