

February 25, 1997

Mr. Lee Liu
Chairman of the Board, President,
and Chief Executive Officer
IES Utilities Inc.
200 First Street, SE
Cedar Rapids, IA 52406-0351

SUBJECT: DUANE ARNOLD ENERGY CENTER - REQUEST FOR ADDITIONAL INFORMATION
ON RESOLUTION OF USI A-46, DUANE ARNOLD ENERGY CENTER
(TAC NO. M69444)

Dear Mr. Liu:

On November 15, 1995, the IES Utilities Inc., (licensee) submitted a summary report for resolution of USI A-46. On July 3, 1996, the staff issued a request for additional information (RAI) regarding the summary report. The staff has reviewed the licensee's response, dated August 30, 1996, to the staff's previous RAI. The evaluation identified certain findings that require additional clarification or information to allow the staff to complete its review. Enclosed is an additional request for information. If you have any questions, please contact me at (301) 415-3028.

Sincerely,

Original signed by:

NRC FILE CENTER COPY

Glenn B. Kelly, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosure: Request for Additional Information

cc w/encl: See next page

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Mr. Lee Liu
IES Utilities Inc.

Duane Arnold Energy Center

cc:

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Kathleen H. Shea, Esquire
Morgan, Lewis, & Bockius
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Cedar Rapids, Iowa 52406

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Des Moines, Iowa 50319

REQUEST FOR ADDITIONAL INFORMATION
REGARDING DUANE ARNOLD ENERGY CENTER
RESPONSE TO STAFF RAI RELATED TO RESOLUTION OF
USI A-46

1. Exhibit 8-1 provided in Addendum 1 (Ref. 1) indicated that "corrosion" and "sagging raceways" were not evaluated as concerns for seismic performance review. Provide a basis for these exclusions.
2. In Addendum 2 (Ref.1), MPR Associates recommended modifications to cable tray supports R4-1, R7-1, and R11-2. Provide a summary of the modifications implemented.
3. As supplementary information to Addendum 5 (Ref.1), provide information regarding the Seismic Capability Engineer's (SCE) basis for judging the settlement and surface (corrosion) condition of the underground diesel tank and bolts.
4. In Addenda 3 and 6 (Ref. 1), the J-bolt capacities have been determined using embedment lengths as "L+12D" (GIP-2 definitions). Provide justification for using 12D for presumably 90° bends of the bolts.
5. On pages 46 and 47 of Addendum 7 (Ref.1), you provided a table of floors where the corresponding IRS exceeded the reference spectrum (1.5 times the bounding spectrum-ABS). For the Reactor Building, the IRS exceedances have been shown for floor elevations 833 ft 6 in. and 855 ft. between the frequencies of 2 and 8 Hz. Section 5 of the 'Summary Report' (Ref. 2) states that in the Reactor Building the ABS bound the IRS at all floor elevations. Provide an explanation for this discrepancy and information about how the SSEL equipment at these floor elevations was evaluated.
6. With respect to the comparison of equipment seismic capacity and seismic demand, for equipment located on floors within 40 feet above the effective grade and where the IRS exceeded the ABS in the structures identified in Addendum 7 of Reference 1, you have elected to use method A in Table 4-1 of the GIP-2. Provide a technical justification for not using the in-structure response spectra provided in your 120-day-response. It appears that some A-46 licensees are making an incorrect comparison between their plant's safe shutdown earthquake (SSE) ground motion response spectrum and the SQUG Bounding Spectrum. The SSE ground motion response spectrum for most nuclear power plants is defined at the plant foundation level. The SQUG Bounding Spectrum is defined at the free field ground surface. For plants located at deep soil or rock sites, there may not be a significant difference between the ground motion amplitudes at the foundation level and those at the ground surface. However, for sites where a structure is founded on shallow

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soil, the amplification of the ground motion from the foundation level to the ground surface may be significant.

- References:
1. Letter from John Franz (DAEC) to NRC, "Response to NRC Request for Additional Information - Resolution of USI A-46," dated August 30, 1996.
 2. Letter (and Attachments) from IES Utilities to USNRC, "Summary Report for Resolution of USI A-46," dated November 15, 1995