



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

July 1, 1980

Docket No. 50-312

Mr. J. J. Mattimoe
Assistant General Manager and
Chief Engineer
Sacramento Municipal Utility District
6201 S Street
P. O. Box 15830
Sacramento, California 95813

Dear Mr. Mattimoe:

Recently we have been notified by the Toledo Edison Company that a number of fuel assembly holddown spring failures have been observed at the Davis-Besse, Unit No. 1 plant which is currently undergoing its first refueling outage. We understand that as a result of these failures, Babcock & Wilcox has requested that you conduct examinations of fuel assemblies at your facility to determine if any failures have occurred. We are interested in knowing the results of holddown spring inspections at your facility as well as the safety significance of operating with broken springs in the core.

Enclosed is a set of questions regarding this subject. It is requested that you provide responses to these questions within 60 days of receipt of this letter.

Sincerely,

Thomas M. Novak, Assistant Director
for Operating Reactors
Division of Licensing

Enclosure:
Holddown Spring
Questions

cc w/enclosure:
See next page

OFFICE	ORB#4:DL	C-ORB#4:DL	AD-OR:DL		
SURNAME	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>		
DATE	7/1/80	7/1/80	7/1/80		

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Sacramento Municipal Utility
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cc w/enclosure(s):

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Business and Municipal Department
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Director, Technical Assessment
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U. S. Environmental Protection Agency
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Atomic Safety and Licensing Board
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Sacramento Municipal Utility
District

cc w/enclosure(s):

Atomic Safety and Licensing Board
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U. S. Nuclear Regulatory Commission
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Atomic Safety and Licensing Appeal
Board Panel
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

California Department of Health
ATTN: Chief, Environmental
Radiation Control Unit
Radiological Health Section
714 P Street, Room 498
Sacramento, California

HOLD-DOWN SPRING QUESTIONS TO LICENSEES

1. (If the reactor is down for refueling and the reactor vessel head is off) Examine all fuel assembly holddown springs in the core and in the spent fuel pool and report the number and extent of damage on the springs and affected assembly components.
or
(Alt.) (If the reactor is operating.) Review video tapes of the core from the last refueling and examine all assemblies in the spent fuel pools. Report the number and extent of damage on the springs and affected assembly components.
2. Provide a discussion of the safety significance of operating with one or more broken springs in the core. Your discussion should include, but not necessarily be limited to the following:
 - a. Assume the holddown spring is broken, provide an estimate of the flow conditions under which the assemblies would be levitated. (Provide the value of the force required to lift the assembly, the flow conditions under which that force would be supplied, the number of coolant pumps that would be in operation under such conditions, and the schedule of reactor operations under which such conditions might have been achieved.) Contrarily, demonstrate the margin between the assembly weight and the calculated maximum applied lift-off force, if there is such margin.
 - b. Have any loose assembly parts (i.e., broken springs, pieces of cladding) been observed anywhere in the primary system? Describe your methods for loose part detection. Are there installed noise detectors capable of detection of broken springs, pieces of cladding, or vibrating assemblies?
 - c. Have there been any excore or in-core neutron detector indications of levitated assemblies? Describe the expected reactivity effects that would result from lift-off or reseating of assemblies with broken hold-down springs. What efforts are being utilized to detect loose assemblies by either nuclear or mechanical monitoring devices?
 - d. Have there been any observed indications of lateral repositioning of loose assemblies? Describe the methods used to detect lateral assembly motion. Describe the degree of lateral repositioning that is physically (dimensionally) possible after lift-off. What are the postulated worst-case effects of a laterally displaced assembly?
 - e. (i) Describe the degree of "worst-case" mechanical damage that would be expected as a result of movement of a "loose" assembly (one with a broken spring) against adjacent assemblies, core baffle, or other core components.
(ii) Discuss the results of flow tests or other experiments that have provided measurements of axial or lateral vibratory motion of an assembly after lift-off or that would otherwise support the response to Q 2.e(i).

3. Provide a description of the cause of the failures and corrective action to reduce the likelihood of future failures at your facility.