

UNITED STATES OF AMERICA DOCKETED
USNRC
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the Matter of)
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PACIFIC GAS AND ELECTRIC COMPANY) Docket Nos. 50-275 O.L.
) 50-323 O.L.
(Diablo Canyon Nuclear Power)
Plant, Units 1 and 2))
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)

JOINT INTERVENORS' SECOND
SUPPLEMENTAL RESPONSE TO
PACIFIC GAS AND ELECTRIC
COMPANY'S FIRST SET
OF INTERROGATORIES

Response to Interrogatory No. 1:

Pursuant to the September 6, 1983 direction of the Appeal Board, the Joint Intervenors provide the following information received through telephone conversations initiated by an anonymous informant since March 1983:

Regarding construction procedures used in attaching Class 1 items to Class 2 platforms, electrical conduits and instrument lines are field routed. The constructor makes an assumption that all platforms are Class I when routing electrical conduits or instruments. Constructors have no way of knowing if the platform is Class 1 or Class 2. There are no built-in procedures to check for Class 1 or Class 2 platforms. No engineers are involved at this juncture. In many places throughout the plant, Class 2 platforms have

received Class 1 materials. Many problems have been uncovered accidentally. Procedures do not exist to uncover them.

Suggested Questions:

Is there a procedure for checking whether electrical conduits or instrument lines are being attached to Class 1 or Class 2 platforms?

Is procedure being implemented?

Why do discrepancies exist?

Have NCR's been filed on these matters?

Any procedure of doing a walk-down?

Where have instructions been given for S.I.P.?

Evidence of correct attachments exists because whenever something is located, whether it is rightly or wrongly attached, it must be written down, and therefore every attachment should have a notation. Verification must exist, and each and every item must be documented. Potential problems with containment tilting have been reported. The energy balance method used in containment analysis is too simplistic and gives a safety factor of 200. In a resolution of the problem, an ambiguous statement of a 200 safety factor was given the go-ahead in a final meeting. The overturning is done on a static method and is unrealistic. Topical Report No. 4 was used for doing work on tanks and certain masses and is not applicable on the

containment because of its limitations. The bearing pressure on the soil will surpass allowable limits.

Suggested Questions:

Is this the conservative way of deciding safety margins?

Could a more rigorous analysis provide a more realistic picture which will reduce the margin of danger?

Is the energy balance method applicable for this type of structure?

Where else has this method been used? What other structures?

Have you done a test on a model? Or a shake test?

Regarding containment tilting, a time history analysis is needed because an overall response for tilting must be done dynamically. Applying ground motion is a simplistic way. Magnification must be considered at a higher level.

Several different issues regarding rupture restraints in general have been raised. It is a very specialized subject. In containment annulus analysis, concerns have been expressed that torsional and horizontal spectra were not developed for each individual structural steel member. Results of torsional spectra can't be known in regard to sensitivity and magnification until developed.

The subject of tornado loads is still being discussed. An analysis was made by lowering the pressure drop calculation, which is to say that calculations were made by lowering the value of the differential pressure to which the

structure would be subjected. The decision to base calculations on lower values was justified by writing it off to "engineering judgment." These problems, especially the block wall question, have not been addressed before. The new tornado analysis was begun after the allegation was raised. Pipe way structures are Class I.

Suggested Questions:

What other things should be addressed to tornado loads?

Was the timing of the new analysis made after the allegation was raised?

Are pipeway structures designed for tornado loads?

Although load combinations used for seismic qualifications in the NSSS system may occasionally give more conservative results, stresses are increased by additional loads. Regarding whether the Hosgri criteria were substituted for the DDE, the NRC said the DDE should be replaced by Hosgri, and in all probability, only Hosgri criteria were considered.

If a container is designed to support the weight of its contents in an earthquake, it would be said to be designed for gravity load. An earthquake, or cyclical, load increases the gravity load when it is pulling down, or reduces the load when it is pulling up. Combining loads may not reduce loads.

Suggested Questions:

What kind of load combinations were used for seismic qualification in the NSSS system?

Was the Hosgri substituted for DDE?

Was design done for both?

Are the acceptance criteria the same for both?

Is seismic load applied in any given direction, or in one direction?

Is the seismic load applied algebraically?

Regarding high energy line breaks, they are not trying to give full compliance to Reg. Guide 1.46. Reg. Guide 1.46 is being used to reduce the number of high energy line breaks to be postulated. The NRC will decide if this is allowable. The NRC issued Reg. Guide 1.46 as a guideline and may be responsible for reducing the safety requirements. If pressure or temperature are to be below limits of a high energy break, it is still called high energy although a break is no longer postulated. They are redefining high energy by making either temperature or pressure the criterion.

Reg. Guide 1.46 requires 10 different items, but only 2 or 3 are being used. Reg. Guide 1.46 is used industry wide, not just on power plants.

Suggested Questions:

How can advantage be taken of stress analysis when fatigue analysis is not being performed?

Define high energy break. Is temperature or pressure the criterion?

If these breaks were all postulated, when was this done?

In the transcript, it was claimed there were only two platforms between the crane wall and the sheer wall, but in the whole containment, there are twenty platforms that are Class 1 and twenty that are Class 2 platforms.

Suggested Question:

Did you have a charter to look for a Class I item on a Class II piece of equipment, or did you find it by accident?

Questions raised in the transcript of the May 4, 1983 meeting regarding the possibility of damage to safety equipment caused by falling light fixtures do not address the issue of the importance of the light fixture as it itself functions. The Brown's Ferry fire was caused by the failure of a 5 cent candle, and the TMI accident was also triggered by a non-safety failure.

The transcript regarding containment toppling showed discussion of safety margins of over 500 while the static analysis safety margin is less than one. There are existing calculations -- not back of the envelope -- which indicate that the analyses may be wrong.

Suggested Question:

Is such a divergence of extreme results an indication that the analyses may be wrong?

There is a lot of discussion going on now about the systems interaction program. No one will take responsibility for anything. They're all complaining about the schedule and lack of manpower. No one is talking about doing a walk-through. These problems may be corrected in the future.

Regarding containment tilting, Topical Report No. 4 is not an internal report, is in the public domain, and is available at the library. The BNL favors torsional spectra analysis, but the IDVP bought it without this analysis. Extreme differences in safety margins when using one method versus the other makes results very suspicious. There are two forms of analysis for torsional response spectra. There is global analysis, which they may be doing now, and individual steel members analysis, which is more detailed and is needed.

Regarding the generic issue of steam generators, calculations have been done regarding postulating breaks in the primary coolant loop, i.e., pipes going into the steam generator under heavy pressure. If a break is postulated, the support of the steam generator is hit by the jet coming out of the line. Calculations prove the supports won't hold, and loss of those supports would cause unacceptable damage. The IDVP is involved to some extent, but Bechtel

has said it's not their problem and has passed it on to Westinghouse. This calculation is the same for all Westinghouse plants.

The Westinghouse rationale regarding postulating breaks is that they have done enough analysis on the pipes proving that they will hold, and that, therefore, they don't have to postulate breaks. They further contend that, if they did postulate breaks, they would not have to determine the effects of the jet. The loads are 20 to 30 times more than the pipes can take with the jets. The problem is that if supports drop, they can damage other things.

The systems interaction program calls for not worrying about non-seismic piping. There is a safety margin of up to five in the S.I.P. program, if the pipes are designed according to code. The seismic response is more than five times the allowable in many areas of the plant. For example, in the turbine building, in some cases the response is 30 times more, and in the containment, on the polar crane, it is 15 times more. Bechtel pointed this out to PGandE, and PGandE said that since Cloud prepared the report, Cloud must defend it. The peak value of the curve in the Design Criteria Memorandum (DCM) C-17 should be checked.

Response to Interrogatory No. 14

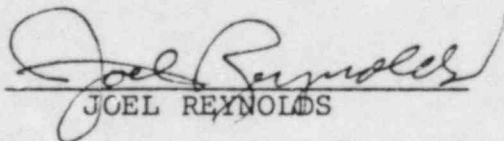
See Exhibit 14-1 to Governor Deukmejian's First Supplemental Answers to Applicant's First Set of Interrogatories.

Dated: September 9, 1983

Respectfully submitted,

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CERTIFICATION

I, Joel R. Reynolds, hereby certify:

1. I am one of the attorneys for the Joint Intervenors in the above-entitled proceeding and, as such, am authorized to execute this certification.

2. I have read the foregoing Joint Intervenors' 2d Supplemental Response to Pacific Gas and Electric Company's First Set of Interrogatories and know the contents thereof.

3. I am informed and believe said answers to be true and correct.

I certify under penalty of perjury that the foregoing is true and correct.

Executed at Los Angeles, California, on September 9,
1983.



JOEL R. REYNOLDS

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CERTIFICATE OF SERVICE

I hereby certify that on this 9th day of September, 1983, I have served copies of the foregoing JOINT INTERVENORS' SECOND SUPPLEMENTAL RESPONSE TO PACIFIC GAS AND ELECTRIC COMPANY'S FIRST SET OF INTERROGATORIES, mailing them through the U.S. mails, first class, postage prepaid.

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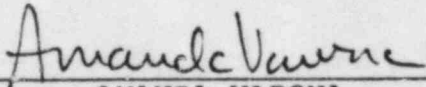
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