

March 15, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

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

NRC STAFF'S ANSWER TO JOINT INTERVENORS' MOTION
TO AUGMENT OR, IN THE ALTERNATIVE, TO REOPEN THE RECORD

I. INTRODUCTION

By Motion filed on February 14, 1984, the Joint Intervenors request that the record on design quality assurance issues be augmented or, in the alternative, be reopened, to receive evidence concerning matters raised in affidavits of Messrs. Charles Stokes and John Cooper and related documentation appended to the Motion.

For reasons discussed below, the NRC Staff opposes the Motion.^{1/}

II. BACKGROUND

From October 31, 1983 through November 21, 1983, a hearing was held before the Atomic Safety and Licensing Appeal Board on a number of issues regarding design quality assurance at the Diablo Canyon Nuclear Power Plant. These issues focused principally on the activities of the

^{1/} During a conference call between the Appeal Board and parties on February 22, 1984, the Appeal Board directed that answers to the Motion be filed so as to be in the hands of the Appeal Board and parties on March 6, 1984. On March 6, 1984 the Appeal Board granted the Staff's request to file its response to the Motion on or before March 15, 1984.

DESIGNATED ORIGINAL

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Independent Design Verification Program (IDVP) conducted under the direction of Teledyne Engineering Services and the Internal Technical Program (ITP) conducted by PG&E/Bachtel relating to matters raised in the Commission's Order Suspending License, CLI-81-30, issued on November 19, 1981, 14 NRC 950. Following the hearing, proposed findings of fact and conclusions of law were filed by all parties and the matter is now pending before the Appeal Board for decision.

During the past year, allegations regarding design quality assurance problems (as well as construction quality assurance and other matters at Diablo Canyon) have been submitted to the Staff by individuals and organizations. The majority of these allegations have been submitted since October 1983. To assure the appropriate resolution of all allegations, the Staff established the Diablo Canyon Allegations Management Program. The program and a status report on the evaluation of those allegations received prior to December 19, 1983 is discussed in Supplement No. 21 to the Staff's Safety Evaluation Report, NUREG-0675 (SSER 21), issued in December 1983, copies of which were sent to the Appeal Board and parties by Board Notification No. 84-003, January 4, 1984. Although a number of allegations have been fully resolved, as reflected in SSER 21, the program is ongoing. A significant number of allegations have been received subsequent to the issuance of SSER 21 and are currently under review. The allegations presented in the affidavits of Messrs. Stokes^{2/} and Cooper

^{2/} By letter dated February 7, 1984, Counsel for the Staff informed the Appeal Board and parties of the potential relevance of the Stokes allegations regarding small bore piping design activities to the issues being considered.

and the related documentation appended to the Motion are among the allegations already resolved or now being reviewed.

III. DISCUSSION

A. Augmentation or Reopening

As stated in their Motion, the Joint Intervenors request that the record in this proceeding be augmented or, in the alternative, reopened to receive further evidence. Either way, they argue, the Motion satisfied the applicable standards.

The standards for determining whether to reopen a record are well established:

[T]he motion must be both timely presented and addressed to a significant safety or environmental issue ...[and] it must be established that "a different result would have been reached initially had [the material submitted in support of the motion] been considered."

Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 NRC ____, (slip op. at p.5, December 19, 1983).

With regard to meeting this heavy burden to support a motion to reopen the Appeal Board has made clear that a proponent must do more than argue that "perfection" in construction has not been obtained. "Perfection" is not a precondition for the issuance of a license. (Id. at 6-7) In the Diablo Canyon proceeding the Appeal Board stated as to alleged deficiencies in the applicant's construction quality assurance program:

we need to bear in mind the enormous size and complexity of this nuclear power plant.... By virtue of the sheer size and complexity of the plant, it is inevitable that errors will occur in the course of construction. Although a program of construction quality assurance is specifically designed to catch construction errors, it is unreasonable to expect the program to uncover all errors. In short, per

fection in plant construction and the facility construction quality assurance program is not a precondition for a license under either the Atomic Energy Act or the Commission's regulations. What is required instead is reasonable assurance that the plant, as built can and will be operated without endangering the public health and safety. [emphasis added]

Id. at 6 and 7.

The Appeal Board went on to identify what evidence regarding quality assurance deficiencies is needed in support of a motion to reopen:

In order for new evidence to raise a "significant safety issue" for purposes of reopening the record, it must be established either that uncorrected construction errors endanger safe plant operation, or that there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely.

Id. at 7.

Moreover, the Commission has stated that "bare allegations . . . [are] not sufficient. Only significant new evidence requires reopening." Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 363 (1981).

Accordingly the test to determine if the record should be reopened is whether there is new evidence which establishes either the existence of uncorrected construction errors endangering the safe operation of the plant or a systematic breakdown of the applicable quality assurance programs "sufficient to raise legitimate doubts as to the adequacy of a plant's construction." See Diablo Canyon, supra, ALAB-756, slip op. at 19. As is discussed below the Joint Intervenors have failed to meet this standard.^{3/}

^{3/} While the motion is not entirely persuasive in arguing that the information provided by Mr. Stokes and more notably Mr. Cooper, could not have been raised in time for the hearing held last October-November, the Staff will not dispute that the Joint Intervenors' motion has been timely filed. Accordingly this standard is not addressed.

With regard to augmenting the existing record, which, as Joint Intervenors point out, has not been formally closed, a less exacting standard than that for a motion to reopen is applicable. Such standard is properly based on a determination of whether the evidence is admissible in NRC proceedings, that is, whether it is "relevant, material and reliable evidence which is not unduly repetitious." 10 C.F.R. § 2.743(c). In addition, a board may take appropriate steps, such as limiting witnesses, striking evidence and imposing appropriate constraints on cross-examination to prevent repetitious or cumulative evidence. 10 C.F.R. § 2.757.

As discussed more fully below, the assertions set forth in the affidavits of Mr. Stokes and Mr. Cooper concern information which is either not new evidence of significant safety concerns or is cumulative of evidence already in this proceeding and thus such evidence should not be accepted by this Appeal Board either through augmentation or reopening of the record.

B. Significance of the Information

As discussed below, the allegations set forth in the affidavits of Messrs. Stokes and Cooper which were filed in support of the instant motion do not meet the standard for reopening a record. Moreover, the information in the allegations is cumulative and, therefore, should not be admitted into this record. See 10 C.F.R. §§ 2.743 and 2.757. The substantive allegations made by Messrs. Stokes and Cooper have been addressed by the Staff in the Affidavits appended hereto. As pertinent to the specific arguments raised by the Joint Intervenors, the Staff's Affidavits are discussed below.

Affidavits of Charles Stokes

Joint Intervenors assert that the following specific allegations raised in Affidavits of Charles Stokes dated November 1983 and February 1984 demonstrate a "breakdown in the seismic redesign of Diablo Canyon initiated after the low power license was suspended in 1981". (Motion at 4).

A. Stokes Affidavit of November 1983

A.1. Construction of New Pipe Supports to Avoid Sample Expansion

As characterized in the Motion, Mr Stokes asserts:

(1) construction of new pipe supports near previously failing supports, in order to redo the calculations and "pass" the failed pipe supports, thereby avoiding the requirement to expand the sample due to an initially high failure rate.

Motion at 5.

Based on an audit of new piping supports performed by the Staff at the site on January 9, 1984 and its review of information submitted by the PG&E on February 7, 1984 which listed reasons for adding new restraints, the Staff could find no evidence of impropriety in the licensee's rationale for adding new supports or in the selection of support locations. (Hartzman Affidavit at 1 and 2; Knight Affidavit at 3). Moreover, the Staff's audit revealed that there was proper documentation of new supports (Hartzman Affidavit at 1 and 2) contrary to the assertion of Mr. Stokes (Stokes November 1983 Affidavit at 12) that the new supports were not documented. Thus, the Staff considers this allegation to be unsubstantiated (Hartzman Affidavit at 2).

A.2. Exaggerated Load Ratings - U-bolts

As characterized in the Motion, Mr. Stokes asserts:

(2) design drawings that exaggerated the load ratings, or strength, of hardware such as U-bolts by up to four times more than claimed by those who sold the bolts. The ratings were possible due to inaccurate assumptions about pipe size and room temperature conditions, as well as failure to mention that the bolts were forcibly bent in order to achieve the load ratings. Engineers were instructed to continue relying on the false load ratings, even after the inaccuracies had been exposed.

Motion at 5.

Based on a review of PG&E submittals and test data submitted in December 1983 and February 1984 meetings with DCP and PG&E on January 6, 1984 and January 9, 1984 and a plant walk-down, the Staff has concluded that there is no basis to his allegation. (Hartzman Affidavit at 3-4; Knight Affidavit at 4).

The Staff review concluded with the finding that the U-bolt load ratings were determined in accordance with prescribed procedures specified in ASME Section III, Subsection NB-3260. (Hartzman Affidavit at 2; Knight at 4). Moreover, the Staff found that the sample size used was consistent with ASME requirements and that the interaction equation expressed in the DCP design documents was adequate. (Hartzman Affidavit at 4).

Mr. Stokes' assertion about pipe size affecting appropriate ratings is without merit. Load rating or load capacity of U-bolts, or any other kind of pipe supports, is independent of the local deformation or thickness of the attached pipe. (Hartzman Affidavit at 4). Further, there is no basis for the referenced pipe "buckling" (Stokes November 1983 Affidavit at 7). The walk-down revealed that the installation practice would not

allow local (ring) buckling, the kind of buckling that Mr. Stokes appears to be concerned about. (Hartzman Affidavit at 4). For the other type of buckling (column buckling) to occur to cause a pipe to collapse while clamped to a U-bolt, the pipe would have to be completely fractured some distance away from the U-bolt. (Id.). No circumstances leading to pipe buckling have been asserted nor have any been reported or noticed during site walk downs. (Id. at 5).

The load rating for the U-bolts is based on the ultimate strength of the bolt material which is invariant between room temperature and 650°F. Accordingly, test loads and the load ratings obtained at room temperature are valid throughout this range. (Hartzman Affidavit at 4). Moreover, contrary to the allegation of Mr. Stokes (Stokes November 1983 Affidavit at 7) the highest pipe temperature in a pressurized water reactor system is 635°F. (Hartzman Affidavit at 5).

It is not clear what Mr. Stokes is making reference to in his allegation that bolts were forcibly bent in order to achieve load ratings. The only bending the Staff has evidence of safety related systems is the deformations experienced by U-bolts at the test loads during the tests. (Id.). Although as noted in SSER No. 21, with respect to Allegation 76, deformed U-bolts were observed in the waste gas system, which is not safety related and thus does not raise a safety concern.

A.3. Transfer of Engineers

As characterized in the Motion, Mr. Stokes asserts:

(3) management action to identify the engineers who had failed pipe supports and transfer them from the assignments. They were replaced by engineers who would not challenge the company line.

Motion at 5.

The Staff has been unable to substantiate that engineers who have failed pipe supports have been transferred and replaced by engineers who would not challenge "the company line". (Knight Affidavit at 4). The Staff has remained alert for specific evidence of such abuses, but none have been evidenced. (Id.).

A.4. Failure to Issue Controlled Documents

As characterized in the Motion, Mr. Stokes asserts:

(4) failure to issue controlled documents for engineers to use in sample calculations. The engineers compensated by basing their analyses for Diablo Canyon on calculations drawn from the unique conditions of different plants, such as Davis Besse, Midland, Catawba and others. As a result, the factual assumptions were inaccurate in up to 30% of the cases.

Motion at 5 and 6.

The above matter was previously considered by the Staff under Allegations Nos. 79, 83 and 84 reported in SSER No. 21. (Knight Affidavit at 5). In connection with this review the Staff determined that there were a number of administrative deficiencies that needed correction in order to yield a design control program that fully comports with expected standards. (Id. at 6) And, while these deficiencies may have contributed to a higher than expected error rate in some of the calculations discussed by Mr. Stokes, all support calculations reviewed to date, including those with errors, have ultimately shown that the support was fully acceptable as installed. (Id.).

A.5-7. Destruction of Calculations - Reanalysis of Failed Pipe Supports

In addition, as characterized in the Motion, Mr. Stokes alleged:

(5) destruction of engineering calculations that failed pipe supports, along with references in the calculations log to the engineering reviews that produced this "wrong" result. In Mr. Stokes' case, the log only reflects his

work for five out of more than 100 calculations which he prepared. "[T]he original calculations demonstrating system failures vanished";

(6) complete reanalysis of the failed pipe supports described above by new engineers, although their official mission was merely to conduct routine reviews for the accuracy of previous completed work;

(7) a stated policy that once an engineer signed off on calculations, "they were Bechtel property and Bechtel could do what they pleased, including destroying them and having someone else rewrite them".

Motion at 6 and 7.

The Staff has reviewed design calculations provided by Mr. Stokes, the relevant DCP design calculations packages and the site design calculations logs. (Hartzman Affidavit at 6). The ten alternate calculations provided by Mr. Stokes indicate that in all ten cases the calculations show that some design requirement was not satisfied. (Id. at 6-9). Not one of these calculations is included in the design packages of record. (Id.). In addition, the allegation that new staffers were assigned to reperform the calculations has been verified by the Staff. (Id. at 6-9).

By letter of February 7, 1984 DCP has stated that consistent with ANSI N45.2.9 the only calculations required to be retained are the final calculations which show the qualification of the design. The same letter indicates that calculations by more than one analyst were at times being conducted simultaneously on the same subject. (Id. at 8).

Based on its review, including a review of the calculational logs, the Staff has found no evidence that management purposely destroyed documentation because failures were shown. (Id. at 8-9). However, the Staff is recommending further investigation by the NRC Office of Investigation. (Id. at 9).

Nevertheless, the Staff believes that these allegations do not raise significant safety concerns because all of our reviews to date indicate that all of the supports as installed are acceptable. (Knight at 9).

A.8. Redefinition of Hardware

As characterized in the Motion, Mr. Stokes asserts:

(8) redefinition of hardware, such as renaming an unintentional restraint as a support, thereby inaccurately reclassifying a design flaw as an additional factor of safety.

Motion at 7.

Based on the Staff's inspection of small bore piping support design, including a walk-through at the site, this allegation was not substantiated. (Knight Affidavit at 8)

A.9. Weld Design Drawings Flaws

As characterized in the Motion, Mr. Stokes asserts:

(9) design flaws that led, inter alia, to welds with radii up to 25% smaller than minimum American Welding Society ("AWS") standards, and failure to provide full penetration of welds, as required by AWS. The design drawings inaccurately represented the nature of the welds in the plan, so quality control inspectors did not look for the flaws that in fact existed.

Motion at 7.

With regard to this assertion, as discussed in the Affidavit of Samuel D. Reynolds, Jr., Mr. Stokes' concern assumes the use of tubular steel such as that produced by some foreign manufacturers with tighter corner radii (less than $2t$, where t is the tubular thickness). (Reynolds Affidavit at 2). Mr. Stokes' assertion is based on the alleged use of tubular sections with radii 25% smaller than used in calculations ($1\frac{1}{2}t$ versus $2t$). (Id.). The Licensee has reported that no foreign tube steel with radii less than $2t$ was received at Diablo Canyon. (Id.). An inde-

pendent check of corner radii of tubular steel at Diablo Canyon by with Lawrence Livermore National Laboratory ("LLNL") indicated that the radii met or exceeded 2t. (Id. at 2 and 5). Accordingly, this assertion is baseless. Finally, as noted in A.10 below contrary to the assertion of inaccurate design drawings leading to inadequate inspections, sufficient documentation was available for adequate inspection of weldments. (Reynolds Affidavit at 4 and 5).

The assertion that the Licensee failed to provide "full penetration of welds, as required by AWS" (Motion at 7, Stokes November, 1983 Affidavit at 16, Exhibit 1 at 2 and 3), is also without basis. The assertion is based on the incorrect assumption that absent indications of symbols "S" (groove depth) and "E" (effective throat) full penetration flare bevel welds are required. (Reynolds Affidavit at 2). As discussed in Mr. Reynolds' affidavit the use of these symbols was not required since the depth of the weld groove was predetermined by the geometry of the tube and the object to which it is being welded, and since the actual throat produced by flush welding met engineering requirements. (Id. at 2 and 3). Accordingly, full penetration welds were not needed. (Id.).

The last issue raised in the motion's allegation 9, "design drawings inaccurately represented the nature of the welds so QC inspectors did not look for the flaws that in fact existed" (Motion at 7) does not present a safety concern of significance. (See Reynolds Affidavit at 3 and 4). It is true that the Licensee did not follow all welding symbology indicated in AWS A2.4. (Reynolds Affidavit at 3). However, with regard to flare bevel and single bevel joint welds and skewed fillet welds (See Stokes November, 1983 Affidavit at 16 and 17 and Exhibit 1) this did not affect

safe plant operations. (Reynolds Affidavit at 4). Further with regard to skewed fillet welds, Mr. Reynolds states that welds with skewed angles less than 30° were not counted in strength considerations, that welds on dihedral angles between 45° and 60° satisfied AWS D1.1 (the Licensee assumed the appropriate penalty), and that for angles between 30° and 45° the Licensee compensated for not using the appropriate penalty by using lower allowable stresses than permitted by AISC. (Id.).

A.10. Failure to Modify Pipe Weld Procedures

As characterized in the Motion, Mr. Stokes asserts:

(10) failure to modify pipe weld procedures to reflect their use on support steel, resulting in both suspect hardware and unreliable quality control inspections that checked for compliance with the wrong procedures.

Motion at 7.

As discussed in Mr. Reynolds' Affidavit, contrary to the assertion of Mr. Stokes (Motion at 7, Stokes November, 1983 Affidavit at 17), the Pullman welding procedure specification (WPS) documents along with the clarification of ESD 223 provided sufficient information to make acceptable welds and for adequate inspection of the weldments. (Reynolds Affidavit at 4 and 5). This was demonstrated by tests conducted by the Licensee on flare bevel joints and independent pipe support inspections conducted by LLNL. (Id.).

A.11. Angle Members Stress

As characterized in the Motion, Mr. Stokes asserts:

(11) angle members, another form of pipe support, that were up to four times too long for allowable bending stress under the relevant professional code. In an hour walkdown, Mr. Stokes found over 200 violations, on approximately 100 out of 300 frames checked. Some unreliable supports have been repaired, while equivalent pieces remain untouched.

Motion at 7 and 8.

This assertion of violation was made by Mr. Stokes when he was not aware of the existence of two technical reports which were used by the DCP to form the bases for the angle beam unbraced length design criteria. (Hartzman Affidavit at 9 and 10). While the unbraced length criteria adopted by DCP from these technical reports exceed those specified by the AISC, the AISC Manual does not provide guidance for evaluation of angle beams greater than certain lengths and indicates that special investigations are necessary for laterally unsupported angle beams. (Id. at 9). Furthermore, the general topic of structural analysis and the specification in the AISC Manual of Steel Construction for angle beams and columns subjected to general loading is an ongoing area of industry investigation. (Id.). While the Staff is presently conducting an in-depth review of the criteria used by the DCP, based on the Staff review to date the DCP criteria regarding unbraced lengths of angle beams appears to be technically sound. (Id.).

A.12. Location of Hilti-bolts

As characterized in the Motion, Mr. Stokes has alleged:

(12) failure to verify the proper location of hilti-bolts due to engineering analyses and QE inspections based on measurements from the wrong base lines.

Motion at 8.

Staff, based on inspections at the site and review of the licensee's documentation, has determined that the spacing of anchor (hilti) bolts was both acceptable and appropriately based on the current industry standards found in Appendix B to the American Concrete Institute Standard 349. Further, the criteria used by PG&E for determining spacing were confirmed by a consultant to PG&E. (Fair Affidavit at 2).

A.13. Failure to Issue Blank Discrepancy Report Forms

According to the Motion, Mr. Stokes asserts a:

(13) failure for sustained periods even to issue blank Discrepancy Report ("DR") forms - the engineering equivalent of Nonconformance Reports - necessary to report major problems

Motion at 8.

This allegation was largely substantiated by the Staff and is related to a perceived lack of sensitivity on the part of the OPEG site management to the concerns of their employees. Nevertheless, the Staff does not believe that this conduct had a significant effect on the reporting of problems and corrective actions are being taken. (Knight Affidavit at 10).

A.14. Retaliation Against Employees

As stated in the Motion, Mr. Stokes alleges that there has been:

(14) retaliation against those who wrote Discrepancy Reports. In October Mr. Stokes took the initiative to obtain blank forms and submit the DR's. The DR's disclosed his unsuccessful efforts to raise these issues within the chain of command up to Bechtel headquarters in San Francisco. Within two weeks he was laid off. Although the official excuse was reduced manpower needs, for the next few weeks the staff was working overtime. On November 14, Mr. Stokes filed a complaint with the Department of Labor pursuant to 42 U.S.C. § 5851, challenging his layoff as retaliatory. On January 9, 1984, the Labor Department found in favor of Mr. Stokes.

As noted in the contexts item B.1. below, the Staff has found no evidence of widespread retaliation or intimidation against individuals who raised concerns. (Bishop Affidavit). A number of instances of alleged retaliatory conduct have, however, been referred to the Office of Investigation for further investigation. (Id.). As noted in the Joint Intervenor's Motion, the particular situation involving Mr. Stokes is pending before the Department of Labor for appropriate administrative disposition.

B. Stokes Affidavit of February 1984

B.1. Policy That Problems Not Be Discussed with the NRC or Quality Control

According to the Motion, Mr. Stokes alleges that there exists

(1) an unwritten policy that problems not be discussed with the NRC or Quality Control, leading to "paranoia" among the workers about such discussions with the NRC.

Motion at 9-10.

As part of inspection/investigation of allegations, the Staff conducted interviews on both a formal and informal basis with hundreds of licensee and contractor craft, quality and engineering personnel supervisors and managers and observed casual communications among the workers. Although there appear to be a small number of individuals (eight) who feel that they have been subject to some form of intimidation, the Staff has found no evidences of widespread repression. The Staff has identified eight cases of possible intimidation which are being addressed by the Department of Labor and/or the NRC office of Investigation. Whether the eight specific instances referred to above are ultimately determined to be in fact attributable to unlawful licensee or contractor practices must await resolution by the Department of Labor and/or completion of the Office of Investigation efforts. (Bishop Affidavit).

B.2. Hiring of Aliens

As characterized in the Motion, Mr. Stokes alleges:

(2) enforcement by management of questionable design practices by hiring aliens or "green cards" who were afraid to disagree with superiors due to risk of firing or deportation.

Motion at 10.

The Staff's efforts did not substantiate the allegation that there exists or existed a corporate policy of hiring foreign nationals to repress the expression of problems. Rather, the employment of such persons appears to be a function of the labor market. (Knight Affidavit at 10-11).

B.3. "Quick Fix" Process

As recounted in the Motion, Mr. Stokes alleges the:

(3) creation of and reliance upon a "Quick Fix" design change program that circumvented formal quality assurance procedures and functioned "essentially as an uncontrolled underground engineering program." Engineers were not informed of the proper procedures, yet they "completely redid the design of hangers, deleted hangers, deleted weld symbols from the drawings, and took similar actions without the benefit of any calculations." The normal quality assurance reporting system for nonconformances was bypassed, even with respect to significant hardware deficiencies recorded only on Quick Fix sheets.

Motion at 10.

Based on the Staff's review of efforts, it believes that the "Quick Fix" program was a legitimate effort on the part of the licensee to expedite the reverification and review process at Diablo Canyon. While the program documentation is still under review and early findings do reflect some shortcomings in implementation of procedures, the Staff nonetheless concludes that the program was appropriately designed to include proper procedures for quality control of all actions taken. (Knight Affidavit at 11).

B.4. Failure to Include Assumptions in Final Calculations

The Motion states Mr. Stokes' allegation that there has been a:

(4) failure to include the assumptions in the final calculations in the seismic design review, thereby precluding effective tracking.

Motion at 10.

The reference in Mr. Stokes' affidavit to "assumption sheets" is obscure. While no "assumptions sheets" have been found in the calculation packages available to the Staff, it is not clear that such sheets are required. (Hartzman Affidavit at 11). In any event all information necessary for an adequate review was found by the Staff to be contained in the final calculation packages. (Id.).

B.5, 6, 7 - Deficient Welding Drawings, Procedures
and Corrective Action

As characterized in the Motion, Mr. Stokes asserts:

(5) deficient design drawings for welding resulted in the various PG&E or DCP departments working to drastically different assumptions -- sometimes differing by as much as 100% -- about the penetration of certain welds. The weaknesses in these drawings were not compensated for by the weld procedures or techniques;

(6) deficient welding procedures, including the main relevant Pullman welding procedure -- ESD 223. That procedure was not applied correctly, contained inaccurate information, and was not generally available to all welders. The potential mistakes resulting from deficient welding procedures and practices were not caught and reviewed by engineering; and,

(7) inadequate corrective action with respect to inspection procedures and weld deficiencies.

Motion at 10-11.

As noted by Mr. Reynolds, Allegation B.5 is simply a variation of Allegations A.9 and A.10 (Motion at page 7) and as discussed above has been found to be unsubstantiated. (Reynolds Affidavit at 5). Furthermore, the Licensee and Pullman have demonstrated the adequacy of the techniques employed for welding of partial penetration and flare bevel joints. (Id.).

In Mr. Reynolds' Affidavit in discussing Allegation B.6 he indicates that the welding procedures utilized and qualified by Pullman met the essential requirements of ASME Section IX and AWS D1.1 and that even

though welders were not given personal copies of the WPS documents (which is not required) they were utilized during welder performance qualifications and were available in the field upon request and maintained by Quality Control in the appropriate areas. (Reynolds Affidavit at 6).

Based on the Affidavit of Mr. Reynolds, Allegation B.7 is unsubstantiated. The results of the independent inspection conducted by LLNL and routine Region V NRC inspections indicate that corrective actions for completed supports is not warranted. (Reynolds Affidavit at 6). Further, steps are being taken to eliminate possible ambiguities in weld symbology and detailed welding techniques for future welding. (Id.). Moreover, with regard to the concern about 37.5° angles being acceptable for groove welds (Stokes Affidavit of February, 1984 at 9), Pullman has demonstrated such acceptability on single bevel joints on a "worst case" basis (Reynolds Affidavit at 3). The other claims made by Mr. Stokes that are referenced in Allegation B.7 (use of tubes with small corner radii (see Stokes February, 1984 Affidavit at 9) and inadequacy of skewed fillet and groove welds (effective throat) (see Stokes February, 1984 Affidavit at 10) were raised in Allegation A.9, and found to be baseless. (See Reynolds Affidavit at 2 and 3).

C. Board Notification 84-022

On February 7, 1984, the Staff, through the referenced Board Notification, provided to the Appeal Board for its in camera consideration, a copy of a transcript of a meeting between members of the NRC staff, Mr. Thomas Devine, GAP, and Mr. Charles Stokes, held on January 25, 1984. The Staff, during a conference call with the Appeal Board and parties on February 22, 1984, agreed to provide a copy of the transcript to each party, suitably

edited to delete the names or other identifying information regarding persons whom the Staff determined should be afforded anonymity. These copies were transmitted to each party under cover letter dated February 23, 1984 from Mr. Thomas Bishop, Region V.

Based on this transcript and as provided by the Appeal Board's Order of February 23, 1984, the Joint Intervenors filed a Supplement to their Motion on March 2, 1984.

All of the allegations brought to the Staff's attention during its meeting with Mr. Stokes were examined to determine whether they raised issues that had not been considered by the Staff. As a result of its review the allegations raised by Mr. Stokes at this meeting, the Staff concluded that all of them fall within the scope of allegations currently under review. (Hartzman Affidavit at 12).

D. NRC Assessment

The Joint Intervenors assert that information presented at a public meeting held on January 31, 1984 with PG&E, as reflected in Staff handouts (attached to the Motion as Exhibit E), warrant augmentation or reopening the record on design quality assurance.

Contrary to the Joint Intervenors' contention, it is the Staff's judgment that, while there have been instances of failure to adhere to appropriate procedures fully in compliance with the literal requirements of 10 C.F.R. Part 50, Appendix B, such occurrences have not raised concerns as to the safe operation of the facility. (Knight Affidavit at 12-15). The impact of such deviations, in terms of design adequacy has not been large (Knight Affidavit at 12-13). Furthermore, aside from the lack of

significance, the evidence of such deviations is cumulative of evidence already of record in this proceeding. (See, e.g. Testimony of Morrill fol. Tr. D-2906 at 4-6, D-3024-26).^{4/}

Briefly stated, the so-called "evidence" of altered current documentation has not been bourn out (Hartzman Affidavit at 12) nor has the charge of destroyed documentation. (Id.).

E. Affidavit of John Cooper

The Joint Intervenors further suggest that, based on information provided in a January 3, 1984 affidavit of John Cooper (appended to the Motion as Exhibit F), the record regarding design quality assurance issues requires augmentation or reopening. As the Joint Intervenors observe, Mr. Cooper's affidavit recites almost in its entirety his long standing concerns regarding the technical adequacy of the Residual Heat Removal (RHR) System, matters which he (and the Joint Intervenors) associates with design quality assurance deficiencies.

First, it cannot be overlooked that Mr. Cooper's concerns are not new; in Mr. Cooper's words, he discovered this matter in May 1981. (Cooper Affidavit at 1). Mr. Cooper's allegations are essentially a reiteration of his earlier concerns documented in Allegations Nos. 37 through 45 addressed

^{4/} A further inspection report is being prepared which deals with a majority of the issues raised in Joint Intervenors' motion. It appears that the final report will not be ready for release for approximately two months. At this time the Staff has no information that would cause it to reach conclusion different from those which it presented at the hearing in November, 1983. (Knight Affidavit at 11-12).

in SSER No. 21 and Allegation 177 (addressed in Liang's Affidavit and attached analyses) and a few items not previously addressed.

Those items not previously addressed include: (1) allegations regarding the effectiveness of natural circulation and the scope of the natural circulation tests at Diablo Canyon (Cooper Affidavit at 7 and 9). (The Staff believes that cooldown by natural circulation is a viable, effective means of decay heat removal that has been extensively demonstrated (Liang Affidavit at 4)); (2) the apparent inconsistency between the PG&E commitment addressed in SSER No. 7 and the Diablo Canyon operating procedure B-2:11 (Cooper Affidavit at 10 and 11). (The Staff concludes that while there may be conflicting requirements the procedures are acceptable (Liang Affidavit at 6-7)); (3) the need for redundancy of the RHR suction line from the RCS hotleg as a result of its ECCS function (Cooper Affidavit at 3-5). (The Staff has reviewed and approved that portion of the RHR system relied on for ECCS function as being in conformance with 10 C.F.R. § 50.46 and Appendix K (Liang Affidavit at 8-9)); and (4) the lack of conformance of the design of the Diablo Canyon RHR to the guidance provided by Regulatory Guide 1.139 (Cooper Affidavit at 8). (The Staff's principal criteria in the area of instrumentation and controls are GDC-23 and IEEE Std. 279, because Reg. Guide 1.139 has not been officially issued by the Commission and is being deferred pending completion of USI.A-45 (Rosa Affidavit at 7 and Liang Affidavit at 11)).

Several allegations raised by Mr. Cooper were previously addressed by the Staff. These items include: (1) the inadvertent closure of the RHR suction isolation valve (Cooper Affidavit at 2), addressed by the Staff in response to Allegation 45 and 177 (Liang Affidavit at 9); (2) the

claim that the single suction line does not meet GDC 34 (Cooper Affidavit at 3), The matter was considered by the Staff in response to Allegation 40 (Liang Affidavit at 9); (3) the belief that the spurious closure of the RHR suction line is a "recurring common cause" fault that can cause both safety related RHR pumps to fail (Cooper Affidavit at 8), discussed by the Staff in connection with its response to Allegations 177 and 45. (Liang Affidavit at 9); (4) the concern over the use of relays and power supplies in the SSPS to effect automatic closure of the RHR isolation valves (Cooper Affidavit at 1, 6 and 121 (Pg. 2 of Exhibit 17b)), addressed in the Staff's response to Allegation No. 37 (Rosa Affidavit at 3-7); and (5) the allegation that the RHR system loss of flow alarm should be provided in the control room immediately (Cooper Affidavit at 6 and 124 (Pg. 4 of Exhibit 17b)), responded to by the Staff in connection with Allegation 39 (Rosa Affidavit at 9-11).

Mr. Cooper also made several observations concerning the Staff's response to Allegation 40 (Exhibit 17b).^{5/} The Staff points out that while the generic implications of RHR system single suction lines are part of the ongoing Unresolved Safety Issue A-45, the system being utilized in Diablo Canyon has been reviewed and approved as acceptable (Liang Affidavit at 11).

^{5/} Reference is made in both the affidavits of Messrs. Liang and Rosa to Exhibit 17b. This exhibit as well as the other exhibits referred to in Mr. Cooper's Affidavit were not attached to copies of the Motion to augment or reopen the record. They were, however, attached to the Cooper Affidavit submitted in connection with Government Accountability Project petition filed pursuant to 10 C.F.R. § 2.206, dated February 2, 1984 provided by Board Notification 84-045, February 29, 1984. A copy of 17b is also attached to the Liang Affidavit.

The Staff still believes, after reviewing the concerns raised by Mr. Cooper, that the RHR system is acceptable (Liang Affidavit at 12 and Rosa Affidavit at 12).

The Joint Intervenors explain in their motion, in connection with Mr. Cooper's Affidavit, that while most of his concerns are with the specific design of the RHR system they also believe that there are a number of quality assurance problems that are also being raised by Mr. Cooper. (Motion at 18). As indicated above and in the relevant affidavits the Staff still believes that the RHR system is acceptable. In addition, expressions of concern regarding quality assurance problems that Mr. Cooper raise are not new but are similar to concerns previously considered by the Staff in SSER No. 21. Thus, his concern over the failure of corrective actions was considered in connection with the Staff analysis of Allegations 44 (Crews Affidavit at 1 and 2); the concern over deficient approved design drawings was addressed in connection with the Staff analysis of Allegation No. 41 (Crews Affidavit at 1 and 2); the violation of internal administrative controls in the disposition of a Nuclear Plant Problem Report was considered in connection with Allegation No. 44 (Crews Affidavit at 3). Mr. Cooper also alleges that there is retaliation against technicians who find too many problems and that there is intimidation and threats by PG&E management. While efforts have been made to pursue Mr. Cooper's specific concerns they have not been successful because of his lack of cooperation (Crews Affidavit at 2 and 3); however, the more general allegation concerning pressure by management that would be counter to good quality practices has been considered by the Staff and it was not believed that there is a widespread repression problem at Diablo Canyon. (Bishop Affidavit at 2).

Two other concerns raised by Mr. Cooper involve the denial of access to necessary design information and the destruction of documents. (Motion at 18). The Staff has reviewed these allegations in Mr. Cooper's Affidavit and has concluded that the information that is submitted does not provide specific evidence of safety concerns which would adversely affect safe operation of the Diablo Canyon facility. (Crews Supplemental Affidavit).

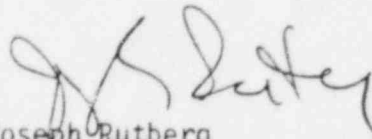
Finally, it is submitted that PG&E has refused to correct an erroneous FSAR description of the RHR. This matter had been considered by the Staff in late 1982. It was determined at that time that the FSAR should be amended to reflect the correct design of the RHR system. At that time, the licensee indicated that the entire FSAR would be updated in September 1983, in accordance with 10 C.F.R. Part 50. (Morrill Affidavit, Exhibit B, p. 6). The Staff concluded that while the allegation was partially substantiated, there was no safety problem or noncompliance with regulatory requirements. (Id.) Subsequently, the Applicant asked for and was granted an exemption which allowed updating the FSAR to be deferred until September 22, 1984. (Schierling Affidavit at 3).

The Staff is satisfied that it would not change its position with respect to those technical matters being raised by Mr. Cooper in connection with the RHR system (Liang Affidavit at 12 and Rosa Affidavit at 12).

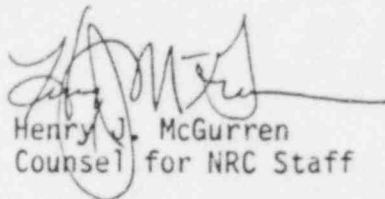
IV. CONCLUSION

For the foregoing reasons, the Staff does not believe that Joint Intervenors have justified either augmentation of or reopening the record in this matter. Accordingly, Joint Intervenors motion should be denied.

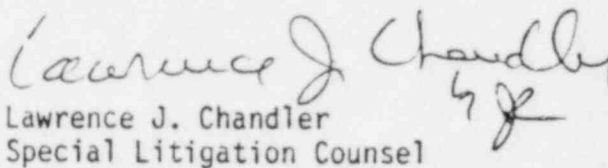
Respectfully submitted,



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Dated at Bethesda, Maryland
this 15th day of March 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S ANSWER TO JOINT INTERVENORS' MOTION TO AUGMENT OR, IN THE ALTERNATIVE, TO REOPEN THE RECORD" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or as indicated by an asterisk through deposit in the Nuclear Regulatory Commission's internal mail system, or as indicated by a double asterisk by use of express mail service, or as indicated by a triple asterisk by hand-delivery, this 15th day of March, 1984:

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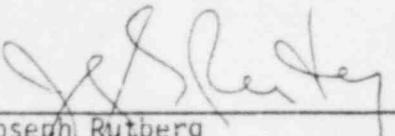
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