REPORT OF INVESTIGATION

TITLE: DIABLO CANYON - 2.206 PETITION

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OFFICE OF INSPECTOR & AUDITOR
U.S. NUCLEAR REGULATORY COMMISSION

~~FREEDOM OF INFORMATION/PRIVACY ACT EXEMPTION (5) (7) (A)~~

Summary

This investigation was initiated based on the Commissioners' Memorandum and Order, "In the Matter of Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), Docket Nos. 50-2750L and 50-3230L, dated April 13, 1984, wherein the Commissioners noted that they had requested the "Office of Inspector and Auditor to review the petition and to take whatever actions it deems necessary." The referenced petition was submitted by the Government Accountability Project (GAP) pursuant to 10 CFR 2.206 and dated April 12, 1984 (Attachment A). Within the petition, GAP stated that:

> "The Office of Inspector and Auditor (OIA) should conduct an investigation to determine (a) whether there have been misleading or material false statements by the NRC staff to the Commission during the March 19, 26, or 27 briefings, or in Supplemental Safety Evaluation Reports SSER-21 (December 1983) or SSER-22 (March 1984), and (b) the causes of the QA breakdown within the NRC staff responsible for Diablo Canyon." (GAP submitted a second 2.206 petition, dated May 3, 1984, which repeated this statement verbatim except for the addition of the April 13 Commission "briefing" to the list of meeting dates.)

Thomas Devine, Legal Director, GAP, and author of the GAP petition, was interviewed during the period June 25-27, 1984, in an effort to clarify the general allegations contained in the petition and to determine whether he could be more specific about the allegations. Subsequently, Devine was permitted to review his Report of Interview to insure its accuracy. The finalized Report of Interview (Attachment B) shows 16 allegations which are numbered and underlined with investigative results as follows:

Allegation 1: That Harold Denton, on March 19, 1984, falsely stated that GAP had contacted James Knight, NRR, March 16, 1984, with allegations against PG&E when multiple contacts had been made by GAP since March 5, 1984.

As presented by Devine (Attachment B, page 1, item 1), GAP had contacts with either Region V or NRR on March 5, 8, 9, 12, 13, 14, and 15, 1984. The significance of the failure to mention the other contacts was alleged to be the view that the Commissioners could have been misled into the belief that the GAP allegations were not made in a timely manner and, therefore, their impact was lessened and, in turn, the Commissioners' decision on whether to permit low power testing at Diablo Canyon was possibly affected. Devine offered in support of this allegation a GAP telegram (Exhibit 1 to Attachment B). (Investigator's Note: The "telegram" appears to have no direct relevance to the matter specifically alleged.) Beginning at page 4 of his affidavit (Exhibit 2 to Attachment B), John Clewett, a GAP attorney, makes specific reference to contacts by him with Lewis Shollenberger, Region V Counsel, on March 8, 12, 14, and 15. More specifically, Thomas Bishop, Region V, was reported to have inquired as to Clewett's "personal knowledge of material false statements being made by PG&E" (page 6).

When interviewed (Attachment C), Denton confirmed the passage in the transcript (Exhibit 1 to Attachment C) referenced by Devine in his Report of Interview. But Denton said that his purpose in mentioning the GAP contact was not for historical purposes or to raise an issue of timeliness on the part of GAP, but rather simply to apprise the Commissioners that the allegations against PG&E had been made by GAP. Further, at the time, he did not think that he knew of the allegations prior to the previous Friday (March 16). He also noted that he did not "have a view on the matter" when he spoke to the Commissioners which reinforced his view that he probably didn't know about the matter prior to March 16. He had also notified the Licensing Board of the GAP allegations.

James P. Knight, Assistant Director for Components and Structures Engineering, NRR, when interviewed (Attachment D) confirmed that he had received Devine's call on March 16 and further observed that he had had the impression at the time that Devine had been in previous contact with Region V. However, he did not pass that impression on to Denton. To his mind the timeliness of GAP's submission was neither a concern nor a consideration.

Thomas Bishop, Director, Division of Reactor Safety and Projects, Region V, in his interview (Attachment E, page 2) said that he did not draw the same conclusions from Denton's statement as did GAP. He did not perceive the comment as an attempt by Denton to discredit GAP and, therefore, did not see the need then, or now, to say anything. He further noted that GAP had already told the Commission in its petition of March 1 that PG&E had made misleading statements.

Allegation 2a: That John B. Martin, on March 19, 1984, falsely stated that the "new allegations are, by and large, from the same people who had the old allegations" and that the new allegations essentially represented mere "wrinkles" on the same issues previously raised in SSER 21 and 22.

According to Devine (Attachment B, page 1, item 2), Martin knew or should have known that 11 of the 17 allegers previously had not spoken to the NRC. Devine also complained that several examples of significant issues had not been addressed in SSER 21 and 22, as listed by him in the 2.206 petition dated April 12 (Attachment A, page 5). As in the case of the allegation against Denton discussed above, Devine also offered the same GAP telegram (Exhibit 1 to Attachment B) and the affidavit of Clewett (Exhibit 2 to Attachment B). Exhibit 1 refers to a failure by the NRC to talk with "two key witnesses" and another "dozen GAP witnesses." Clewett, as discussed above, recounted his efforts to get Region V to interview several "whistleblowers" and workers.

In his interview (Attachment F), Martin pointed out that the purpose of the March 19 meeting was to brief the Commissioners on the first 219 allegations concerning Diablo Canyon. The "new allegations" were contained in a GAP 2.206 petition dated February 2 and a supplement to that petition dated March 1, 1984. Martin went out of his way several times to say that Region V staff had not assessed the allegations in the petitions in depth but that they had read them and had the "impression" that the technical issues were on many of the same things as the original 219 allegations. He further noted that this view was later confirmed when Region V analyzed the allegations (Exhibit 2 to Attachment F). Based on that analysis Region V concluded that 75 percent of the material repeated earlier allegations and came primarily from the same

people who had provided earlier affidavits. Martin also recognized all of the names of the allegers from dealing with the first 219 allegations. He also recognized that some had been interviewed already because of the redundant information they had to offer. Martin did not know at the time the specific number of allegers who had or had not been interviewed. Nevertheless, it was clear to him from an initial reading of the petition (as supplemented) that both the issues and people raising them were by and large the same as previously dealt with. The analysis (Exhibit 2 to Attachment F), as reported in the March 26 meeting, confirmed that some allegations, when reviewed item by item, were variations, i.e., "a slightly different twist," to old issues which is consistent with his stated impression of March 19 that some had new "wrinkles." On the issue of "significant issues" being left out of SSER 21 and 22, Martin observed that those two reports addressed only the first "219" allegations.

To sum up his response to this allegation, Martin noted that he had qualified his comments on the "new allegations" several times as being "non-definite impressions." Secondly, his quoted response had been given in the context of Commissioner Bernthal's interest in computerizing or systematizing treatment of allegations. He responded in a negative manner because his impression then, and as now confirmed in his mind, was that the "new allegations" were indeed "by and large from the same people concerning the same issues" (emphasis added).

Bishop, when interviewed, supported Martin's statement as having been accurate based on a detailed review wherein Region V felt that they had previously talked to approximately 10 of the 13, or so, authors of the affidavits/letters, etc. (Attachment E, page 2).

Allegation 2b: That John B. Martin, on March 27, 1984, falsely stated that the NRC had talked with a witness (Harold Hudson) "for at least nine hours involving several people at several different times."

Devine noted (Attachment B, page 2, item 3) that Martin knew, or should have known, that Hudson had been interviewed only once over a three day period and that he had not been reinterviewed for the purpose of follow up on his earlier allegations. Hudson offered in an affidavit, dated March 22, 1984 (Exhibit 4 to Attachment B, page 3), that "(a)ny statement that the NRC staff followed up with me personally after I first raised my charges would be totally false." Devine said that Martin should have been aware of this comment and issue because Martin "claimed to have read" the affidavit "on or about March 23, 1984." The concern behind this allegation was that the Commission could have been left with the impression that follow-up interviews had been carried out, which was not true.

In response to this allegation, Martin (Attachment F, page 2) first noted that Hudson, himself, had said in a January 1984 affidavit that "on January 6, 9 and 12, I was interviewed extensively by a series of NRC inspectors from Region V" (emphasis added) (Exhibit 5 to Attachment F). Secondly, Martin pointed out that within the same pages (270-271) of the transcript cited by Devine in support of this allegation, he clearly pointed out that Region V did not "close the loop" (reinterview) with people "in all cases" (Exhibit 6 to Attachment F). The focus of his comments was on people (Stokes) where that did happen and not on people like Hudson, although Hudson was never

reinterviewed. Martin said that his comment that "that's not true" (Exhibit 6 to Attachment F, second page) in reference to talking to Hudson, was in response to a comment by Clewett (GAP attorney) that "the staff made no effort whatsoever to get a hold of him" (Hudson) (Exhibit 7 to Attachment F). Finally, Martin noted that an effort was, in fact, made to conduct a follow-up interview with Hudson as illustrated by the Western Union message sent to GAP by Region V on March 15, 1984 (Exhibit 8 to Attachment F).

Allegation 2c: That John B. Martin, on March 19, 1984, falsely stated "when there have been lapses they seem to have corrected themselves...there were problems that tended to get found by the quality and management systems that are set up to do that sort of thing" and in reference to welding deficiencies, "and in every case it appears to be resolved."

Devine (Attachment B, page 3, item 6) asserted that the statements were contradicted by the February 1, 1984, affidavit and January 1984 interview of Harold Hudson. Within his affidavit (Exhibit 5 to Attachment B), Hudson again reiterated his concerns with the perceived QA breakdown for Pullman Power Products work at Diablo Canyon (Exhibit 5 to Attachment B, pages 1-3 and 30-31). He further asserted that the NRC staff should have presented "both sides of the story", i.e., the view that Martin's remarks were not accurate because of contrary views such as those of Hudson (Attachment A, page 9).

Martin observed that his comments (Exhibit 9 to Attachment F), as above, were addressed to the first 219 allegations and were intended to be a general comment - not an absolute statement that problems were found or caught in every case. Hudson's January affidavit was not discussed in detail at the March 19 meeting because it was an attachment to the GAP 2.206 petition dated February 2. Finally, Martin noted that the first two statements were made in the context of PG&E construction quality program while the latter quotation was made within the context of Pullman's 183 internal audits, a separate issue which was discussed later in the meeting (Attachment F, page 3).

According to Bishop, the NRC draws different conclusions than Hudson because many of the examples raised by Hudson were based on his own audit reports which the NRC found were surfaced to Pullman and satisfactorily acted upon by Pullman. Consequently, the system was found to be working (Attachment E, page 2).

Allegation 2d: That John B. Martin, on March 26, 1984, falsely stated, in reference to the qualifying standard for NDE personnel, that "ANSI-N45.2.6 is not the applicable standard."

Devine (Attachment B, page 3, item 8) alleged that at the time Martin made his statement, he knew that the contractor, Pullman, had committed to the same standard in a 1974 memorandum (Exhibit 6 to Attachment B) and that Martin's statement would negate the impact of one of the Nuclear Services Corporation (NSC) audit findings.

Martin pointed out that ANSI-N45.2.6 is applicable to QC inspectors while "SNT-TICA is the applicable standard for Nondestructive Examination (NDE) personnel" (Attachment F, page 3). Also, Region V did point out at the March 19 meeting that Region V had found a problem with QC inspectors (Exhibit 11 to Attachment F). Martin further explained that although Pullman

voluntarily committed to conform their procedures to the ANSI requirements "to the degree practicable," the Pullman procedures were not required to, nor did they reflect, all the features of ANSI-N45.2.6. Region V had cited Pullman for not meeting their own internal procedures. (As indicated in the investigator note Attachment F, page 3), part of GAP's apparent confusion on the issue may have arisen from a misreading of the NRC inspection findings.) Finally, Martin countered the accusation by commenting that he purposely omitted discussion of the issue because (a) "neither Pullman nor PG&E were committed to meet ANSI N45.2.6" and (b) if they were, it "has provisions for what to do if one can't meet the experience requirements recommended by the standard." Accordingly, Karner was correct in the handwritten comments he added to paragraph 3 of the so called "Karner letter" of July 30, 1982 (Exhibit 13 to Attachment F), which was also cited as evidence that Martin had spoken falsely (Attachment A, page 10).

Allegation 2e: That John B. Martin, on March 26, 1984, by omission, made a false statement by failing to correct his statement of March 19 that "in every case it (welding problems) appears to be resolved."

In support of this allegation (Attachment B, page 3, item 9), Devine cites the same July 30, 1982 memorandum discussed above (Exhibit 7 to Attachment B) which purportedly documents the problem of noncompliance by Pullman with qualification requirements (ANSI-N45.2.6) for welding inspectors.

Martin countered (Attachment F, page 4) that the quoted remark was made in reference to 183 internal Pullman audits being discussed at the March 19 Commission meeting. GAP's references to the July 30, 1982, memorandum were, in Martin's view, not relevant to that discussion. In any event, the issues concerning inspector qualifications had already been mentioned to the Commission (Exhibit 11 to Attachment F) and were being dealt with in their proper context (see again discussion of previous allegation).

Both Bishop (Attachment E, page 2) and Kirsch (Attachment G, page 2) supported Martin's view that ANSI-N45.2.6 is not the applicable standard for Pullman.

Allegation 2f: That John B. Martin, on April 13, 1984, falsely stated, in reference to an April 11, 1984, plant tour, that it was found "at least preliminarily, that none of them (perceived deficiencies) violated any requirement."

Devine believes (Attachment B, page 4, item 10) that Martin knew, or should have known, that code violations for five of the perceived deficiencies had been identified. In support of this contention, Devine offered the April 17 1984, affidavit of Richard D. Parks (Exhibit 8 to Attachment B). Within the affidavit Parks does identify five examples of "discrepant conditions" found during the April 11 plant tour and, after describing each problem, cites the specific code violation.

In rebuttal Martin said (Attachment F, pages 4-5) that his comment had been based on a telephonic advisory he had received in Washington, D.C. from Regionn V the previous evening. Hence, he qualified his comment with the phrase "at least preliminarily." Subsequently, he found that although Parks had accurately recorded the "problems," as written down by Kirsch, Region V, apparently Hudson was the author of the "code violations" because Kirsch had

made no such findings (Exhibit 14 to Attachment F). In fact, Region V found in its subsequent inspection no items of noncompliance and so reported that fact (Exhibit 16 to Attachment F).

Allegation 3: That Thomas Bishop, on March 26, 1984, falsely stated that the NRC had not yet been provided additional supporting material for an allegation concerning hydrostatic test records.

Devine pointed out that the questioned records had been provided to Bishop on or about March 2, 1984 (Attachment B, page 2, item 4). In the April 12, 1984, petition, Devine had also stated that "Region V took no initiative whatsoever to obtain the relevant records either from the alleger or from counsel" (Attachment A, page 6).

Bishop, in his interview (Attachment E) pointed out that he had qualified his alleged statement with the phrase "to my knowledge" (Exhibit 1 to Attachment E). He said that he was not aware of the receipt of the materials at the time of the statement. It was subsequently learned that the documents were received by Region V on March 5, 1984 (Exhibit 2 to Attachment E), but that the documents laid around for awhile and were reproduced in part only, without the specific "Exhibit 4 to Attachment 2" of concern to Devine being provided to Bishop. Regardless, based on summaries in the GAP 2.206 petition of March 1, 1984 and other allegations previously received, the issue was already within a "body of knowledge" of Region V. Bishop found Devine's April 12, 1984, statement (also at Exhibit 3 to Attachment E) to be false because Region V did try to set up a meeting on March 15 (Exhibit 4 to Attachment E) and on March 19 Region V representatives appeared for a meeting at which GAP did not appear (Exhibit 5 to Attachment E).

Allegation 4: That James P. Knight, on March 19, 1984, by omission, made a false statement by failing to tell the Commissioners that (a) Isa Yin, NRC, had discovered 48 inspection issues which were material to the licensing decision, of which only some had been discussed; (b) serious questions had been raised by uncontrolled design changes in the "Quick Fix" program; and (c) an undocumented Westinghouse management policy regarding destruction of material records had been instituted.

Devine, in support of this allegation (Attachment B, page 2, item 5) cited the discourse provided by him at pages 6-9 of his April 12, 1984, petition (Attachment A). In sum, he expressed the belief of the Mothers for Peace (his client) that "Mr. Knight's inaccurate briefing represented an organizational breakdown." Devine also indicated that a statement by Isa Yin, dated March 26, 1984, (Exhibit 3 to Attachment B) was also relevant to this allegation.

Knight, in his interview (Attachment D) acknowledged that he was aware of all three matters raised in the allegation at the time of the March 19 meeting. (Investigator Note: Knight's interview refers to "49" inspection issues because at the time of his interview, OIA did not yet have Devine's corrected interview which indicated "48" issues.) Knight felt that within the concise format of the "briefing" he did not think it necessary to go beyond the general comment that allegations were being raised. In addition, according to Knight, Yin had raised many of the issues in a prior public meeting, a lot of them were old issues, and none has any great safety significance.

Knight said that he had discussed "Quick Fix" in a March 15 affidavit wherein he said that the issue did not result in a safety concern (Exhibit 1 to Attachment D). Consequently, he felt no need to raise the matter.

On the third matter, Knight said that the "destruction" concerned original "check lists" after the information had been transferred to other documents. The procedures were found not to be in conflict with Region IV vendor policy and practices. He, therefore, thought it to be a "non-issue" and thus did not bring it up.

Allegation 5a: That Dennis Kirsch, on or about February 29, 1984, by omission, made a false statement by failing to discuss in IE Report 83-37 (a) the NSC audit finding that "(w)hile a written Quality Assurance Program exists, the program does not meet the requirements of 10 CFR 50, Appendix B..." or (b) the interview and February 2 affidavit of Harold Hudson, which verified the accuracy of the NSC audit.

Devine, in addition to his interview (Attachment B, page 3, item 7) had previously raised the same issue, but without identifying Kirsch, in his April 12 petition (Attachment A, pages 9-10).

In his interview (Attachment G), Kirsch explained that the alleged matters were not discussed in IE Report 83-37 because the report "was meant to address the inspection effort conducted during the periods November 14 through 18 and November 28 through December 9, 1983." Secondly, the NRC does not agree with the NSC audit (Exhibit 1 to Attachment G). It also does not agree with Hudson's conclusion/position, although many of his specific examples of past QA breakdowns have been incorporated into the Region V allegation tracking system, have been resolved and closed in SSER 22 (extracts at Exhibits 2 and 3 to Attachment G), or will be resolved.

Allegation 5b: That Kirsch, by omission, made a false statement, by failing to advise the Regional Administrator of an apparent breakdown in corrective action for pipe rupture restraints.

In support of this allegation (Attachment B, page 4, item 11), Devine provided an affidavit executed by Harold Hudson on June 5, 1984 (Exhibit 9 to Attachment B). The essence of the affidavit is "A History of the Pullman... Pipe Rupture Restraint Program..." If, in fact, the substance of the allegation was discussed with Kirsch in April 1984, no mention of that fact appears in the June 5, 1984, affidavit.

Kirsch responded (Attachment G) that Hudson had first raised the issue of pipe rupture restraints during the January 6, 1984, interview (extracts at Exhibit 4 to Attachment G). His allegations were addressed in 19 pages of SSER 22, although reference is made there to"whip" restraints which are the same as rupture restraints (see again Exhibit 3 to Attachment G for the first two of 19 pages). The NRC views GAP as wrong on its facts because the NRC disagrees that there was a corrective actions breakdown. Kirsch went on to point to treatment of the issue in seven IE reports. As a result, Kirsch was familiar with the issue and did not consider Hudson's comments to concern anything the NRC was not already quite aware of.

Allegation 5c: That Dennis Kirsch, by omission, made a false or misleading statement by failing to include in the NRC transcript of a January 5, 1984, interview with two witnesses those portions of the interview where Mr. Russ Nolle (sic) was identified as a management official who obstructed inspectors from performing quality assurance functions.

Devine asserts in his amended allegation that the "omission removed from the record information that was relevant to assess whether site management possessed the necessary character and competence to qualify for a low power license." He also noted that "GAP's draft transcript of the interview is insufficient to perfect the allegation" (Attachment B, pages 5 and 6, item 14).

Kirsch responded (Attachment G, page 3) that the transcripts were made commercially from tapes provided by Clewett (GAP). He noted that contrary to the allegation, the concern with Nolte was addressed at pages 33, 58 and 59 of the transcript, with specific mention of Nolte on the last two pages (Exhibit 6 to Attachment G). Kirsch denied deletion of anything from the transcript and did not think anyone else had.

Investigator Note: By a letter dated July 19, 1984 (Attachment H), Devine returned the original of his Report of Interview (Attachment B) which previously had been requested from him (Attachment I). (Through administrative error the letter was addressed to "James" Devine.) Within Devine's response (Attachment H, "Third" paragraph), Devine cited portions of the January 5 meeting, as transcribed by GAP presumably, which he asserted demonstrated material deletions from the NRC version. He concludes by alleging that this supports "the more fundamental allegation, that he (Kirsch) and other Region V personnel suffer from a conflict-of-interest in responding to allegations." Devine further requested a comparison of page 33 of Region V's transcript to GAP's pages 34-35 (Exhibit 1 to Attachment H). Pages 32 thru 34 (Exhibit 2 to Attachment H) of the Region V transcript were compared to the GAP extract and differences noted are indicated thereon. Assuming all of the GAP transcript is correct (it is noted that some words and phrases in the Region V transcript are missing from the GAP transcript) and, therefore, that the reference to "Knowle(sp)" was left out of the Region V transcript (see Exhibit 2 to Attachment H, page 33), GAP attributes Kirsch's unintelligible comments as being "Russ Nolle?" The inference is then made that the deletion was either for a sinister purpose or demonstrated a "conflict-of-interest" on the part of Kirsch. No factual basis for either assertion was found (see Kirsch's response above.)

Allegation 6: That Richard Vollmer, Director, Division of Engineering, NRR, on July 5, 1984, violated prior staff agreements with witnesses by announcing that NRC inspector Isa Yin no longer would be permitted to conduct interviews with Diablo Canyon witnesses.

Devine alleged (Attachment B, page 7, item 16) that Vollmer's announcement violated a December 1983 NRC staff agreement with Charles Stokes and a May 22, 1984, NRC staff agreement "for Mr. Yin to interview additional whistleblowers to receive evidence of specific safety problems due to the Quick Fix program in Unit 1." As an aggravating factor, Devine asserted that Vollmer made his decision knowing that the whistleblowers had lost confidence in the integrity of the NRC and "would only disclose their evidence to Mr. Yin..." In his

July 19, 1984, letter (Attachment H), Devine also drew attention to a confirmation by Yin in his comments on the peer review team review of License Condition 2.C.(11) that a follow up meeting with a witness was not held (see extract at Exhibit 3 to Attachment H). It is noted that Yin specifically said that comment should be made on why the meeting was not "scheduled."

When interviewed (Attachment J), Vollmer said that it was not a matter of permitting Yin to do more interviews, but rather not giving more work to Yin so that he could return to Region III duties. Further, the decision was made to have the Peer Review Group conduct any additional interviews that might be necessary.

On July 11, 1984, Devine had forwarded to OIA an affidavit executed by him on that same day with the advice that it provided "further support for the events concerning inspector Isa Yin alluded to in allegation 16" of his Report of Interview (Exhibit 2 to Attachment J). Vollmer had also received a copy prior to the interview and had prepared a memorandum in response (Exhibit 3 to Attachment J). Within the memorandum, Vollmer addressed Yin's functional role in relation to the Peer Review Group and provided a detailed accounting of past actions by the "group." In sum, Vollmer concluded that if the Group's findings on Independent Design Verification Program (IDVP), did not disclose any problems, he saw no need for additional audits and would not approve Yin's return to Diablo, particularly in light of Region III's need for his return to normal inspection duties. He went on in the memorandum to record his reactions to various other issues raised by Devine in his affidavit. Vollmer provided an extract of the May 22 transcript which does not indicate any commitment was made at that meeting (Extract at Exhibit 4 to Attachment J). Secondly, Vollmer said that he had talked to Bishop and that Bishop's notes indicated that no such commitment regarding the use of Yin had been made because "NRC resources are NRC's business."

Isa Yin was also interviewed regarding this allegation (Attachment K). Yin noted that at the time of his conversation with Devine, he did not know Devine was recording the information. He further noted that his comments were made after a tiring, long day and after a meal and "a few drinks." He did not know Devine was going to use his remarks (see also Yin's comments concerning Devine's affidavit as published in the July 19 edition of Nucleonics Week (Attachment L). Yin went on to point out several errors in the affidavit, mostly minor; although some set the wrong impression in his view. In sum, Yin said that he did not want to make any allegations against NRC management. His views simply represented a "professional difference" as to how the Peer Review Group was handling the tasks given them in contrast to how he believed Region III would have addressed the same issues. He respects the "professionalism, honesty and integrity of the Peer Review Group as he believes they do his" - it simply was a difference in approach.

Allegation 7: That the NRC staff misled the Commission by stating in NUREG-0675 (Diablo Canyon SSER 22, paragraph 5.4) that the issue of "Design Change and Drawing Control was considered to be "adequately resolved for purposes of licensing decisions."

According to Devine (Attachment B, page 4, item 12), the significance of the allegation was in that the "alleged resolution" cited the tracking of a complicated design change which had, in fact, been "processed through the

system" (of design review and approval). This result ignored the evidence in support of allegations that "thousands of less complicated design changes" did not go through the approval system and so were handled by "Quick Fix" (as was later verified by Isa Yin) and by informal memoranda (with no accountability).

Dennis Hirsch was interviewed concerning this allegation (Attachment G, page 21) and pointed out that the questioned paragraph (Attachment M) was authored by Region V, but was not based on anything having to do with Quick Fix and the Onsight Plant Engineering Group, which was an NRR matter. Region V's effort was only concerned with the Document Control Center at PG&E General Construction and with Foley, the electrical contractor on site. Therefore, paragraph 5.4 was correct within that framework. Thomas Bishop (Attachment E, page 2) confirmed Kirsch's response.

Allegation 8: That a person, or persons unknown, on the NRC staff, made a Government decision outside official channels by publishing in NUREG-0675 (SSER 22), dated March 1984, a finding that "the allegation that management has purposely destroyed documentation is not substantiated" without the results of a proper investigation by the Office of Investigations.

Devine pointed out (Attachment B, page 4, item 13) that pursuant to 10 CFR 1.36, the Office of Investigations (OI) has responsibility for investigation of all suspected wrongdoing on the part of licensees or permitees. He believed that no such investigation existed to support the NRC's conclusions as stated in pages A.4-87.1 thru 87.4 of SSER 22 (NUREG-0675) (Attachment N). The "destroyed design review documents," according to him, addressed whether the design of pipe support installation would withstand earthquake activity within the parameters required by the NRC.

Investigator Note: Review of the cited pages indicates that the passage also makes the point that "the staff was not able to verify "explicitly that on-site management has actually destroyed these calculations exclusively because failure was shown" (emphasis added). The sentence seems to say that the staff can't say absolutely that the documents were destroyed just because they indicated failures, which in turn leaves the impression that at least some were destroyed for that reason. However, the next sentence makes the point that "the only calculations required to be retained are the final calculations which show the qualification of the design, in accordance with ANSI Standard N45.2.9 (1979)." Additionally, the same material within the portion headed "Action Required" indicates that "the staff will conduct further investigations to clarify the conditions under which management is permitted to retain or dispose documentation..."

Upon interview (Attachment O), Dr. Mark Hartzman, Senior Mechanical Engineer, NRR, said that he had made the questioned conclusion because he thought the destruction of some documents (he noted that many others which also showed failings were not destroyed) was "inadvertent" and didn't make sense as a purposeful act given those that weren't also destroyed. Secondly, he noted that most of the calculation packages included all of the design revisions, which was not even required. Further, he noted that reverification has been required and itself verified by an NRC audit.

Hartzman also clarified that his statement in the "Action Required" portion that the "staff" would do further investigation was based on a recommendation

that OI look at the matter. However, as revealed by James P. Knight (Exhibit 2 to Attachment O), the matter was not referred to OI because the judgement was made that there was no suspicion of wrongdoing requiring such referral.

Allegation 9: That a person or persons unknown, on the NRC staff, by omission made false and/or misleading statements by failing to provide sufficiently accurate, complete notice to the Atomic Safety and Licensing Appeal Board of the issue concerning the use of A307 bolts, with the heads removed, as studs welded to the containment liner.

In support of this allegation (Attachment B, page 7, item 15), Devine asserted that "(o)n May 31, 1984, the Quality Assurance Manager (H. W. Karner) for the licensee's contractor Pullman Power Products informed personnel that the use of these bolts was 'NOT acceptable.'" He also noted that within a January 5, 1984, transcript (pages 21-25), the issue of using the A307 bolts in the containment had been raised (Exhibit 10 to Attachment B). Secondly, reference was made to the Appeal Board's reservation of judgment, in its order of June 28, 1984, on the issue, pending a response from the licensee. (Investigation's Note: The copy provided by Devine included only the odd numbered pages. A copy of both pages 10 and 11 is provided at Attachment P). It appears that all of the above is viewed by Devine to call into question the position of the NRC staff as stated "within pages A.4-103.3 through 103.6 of SSER 22 (Attachment Q).

Kirsch (Attachment G, page 3) responded that at the time of the January 5 interview, a team was already at Diablo looking at the same issue. The finding, as reported in SSER 22, was that the alleged practice was alright from a technical viewpoint. Further, Karner had made the comment in question not because such use was technically unacceptable, but because he was tired of dealing with questions concerning whether they were acceptable. The matter is before the Atomic Safety and Licensing Appeal Board (ASLAB). Karner verified Kirsch's view in an affidavit executed July 5, 1984, and submitted in response to the June 28 Board Order (Attachment R).

Collateral Matters

As mentioned at the beginning of this summary, GAP requested in its petition that OIA investigate "the causes of the QA breakdown with the NRC staff responsible for Diablo Canyon." The quotation presumes that there is, in fact, a QA breakdown by the NRC staff. As indicated above, this investigation did not establish misconduct on the part of any NRC employee which could serve as the basis to conclude that there is a QA breakdown in the NRC.

In his Report of Interview (Attachment B, page 5), Devine cited examples of the questionability of "NRC fact finding in regard to Diablo Canyon, e.g., refusing to conduct timely interviews and/or follow up meetings with witnesses; turning over witness affidavits and evidence to the utility (during the conversation, which will be addressed in more detail below, Devine was specifically asked if he had evidence of this and did not respond), thereby compromising the confidentiality of anonymous sources and the integrity of the Office of Investigations cases; relying on unchecked licensee responses as a basis to resolve and/or reclassify the safety significance of allegations; assigning staff members with a conflict of interest to resolve allegations, the confirmation of which would directly challenge the adequacy of the same

individuals' prior inspection efforts; and, applying inconsistent actions to analogous alleged quality assurance violations at Diablo Canyon, compared with previous NRC enforcement actions at the Zimmer, Midland, TMI, and Waterford facilities."

In the letter dated July 19, 1984, returning the original copy of his Report of Interview to OIA (Attachment H), Devine, in addition to those issues discussed in relation to the allegations above, requested that the OIA investigative effort be expanded into "Region V's failure to honor the commitments and procedures" described in the OIA "Kent" report of April 4, 1984, and the "regulatory breakdown" as summarized in his Report of Interview, page five (and as set out in the paragraph next above).

Devine also made the point in his July 19 letter that he thought his witnesses should be interviewed personally about the information he had provided because he was "merely their counsel." The same view was also expressed by Devine in telephone conversations with the reporting investigator on July 23 and 24, 1984. The salient point is that at the conclusion of the second conversation, Devine said that he was "formally" withdrawing the 16 allegations addressed earlier in this report and that he would follow up in writing. Because the allegations above were general in nature and Devine, though asked, provided no specifics as to particulars demonstrating the truth of the allegations, no investigative action was taken in regard to them.

Attachments:
As Stated

ATTACHMENTS

A. Petition, Devine to Palladino, et al, dtd 4/12/84

B. Rpt of Interview, Devine, dtd 7/2/84

C. Rpt of Interview, Denton, dtd 7/3/84

D. Rpt of Interview, Knight, dtd 7/16/84

E. Rpt of Interview, Bishop, dtd 7/16/84

F. Rpt of Interview, Martin, dtd 7/16/84

G. Rpt of Interview, Kirsch, dtd 7/16/84

H. Ltr, Devine to Messenger, dtd 7/19/84

I. Ltr, Messenger to Devine, dtd 7/16/84

J. Rpt of Interview, Vollmer, dtd 7/17/84

K. Rpt of Interview, Yin, dtd 7/18/84

L. Extract, Nucleonics Week, dtd 7/19/84

M. Extract, Diablo Canyon SSER-22

N. Extract, SSER-22, pages A.4-87.1 thru 87.4

O. Rpt of Interview, Hartzman, dtd 7/26/84

P. Pages 10-11, Atomic Safety and Licensing Appeal Board Memo and Order dtd 6/28/84

Q. Extract, SSER-22, pages A.4-103.3 thru 103.6

R. Ltr, Lubbock to Moore, dtd 7/5/84

U.S. NUCLEAR REGULATORY COMMISSION
Office of Inspector and Auditor

Date of transcription July 2, 1984

Report of Interview

Thomas M. Devine, Legal Director, Government Accountability Project (GAP) 1901 Q Street, N.W., Washington, DC 20009, upon interview concerning various allegations raised by him in two petitions, dated April 12 and May 3, 1984, respectively, submitted to the Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 2.206, provided the following information:

During the interview, which was conducted over a period of three days, various matters were discussed with Mr. Devine which were reduced to the following specific allegations and information:

1. That Harold Denton, Director, Office of Nuclear Reactor Regulation (NRR), made a false and/or misleading statement to the Commissioners of the NRC, in that on March 19, 1984, he stated that GAP notified James P. Knight, NRR, of allegations of false ~~and misleading~~ statements by a licensee, Pacific Gas & Electric (PG&E) on March 16, 1984, ~~then knowing~~ that the NRC had been contacted by GAP representatives on multiple occasions beginning March 5, 1984, regarding the allegations and with the knowledge that the statement could mislead the Commissioners into a belief that the allegations were not timely made, thereby affecting their decision as to whether to permit low power testing at the Diablo Canyon facility. (DENTON'S STATEMENT IS FOUND ON PAGE 23 OF THE MARCH 19 COMMISSION BRIEFING TRANSCRIPT.)

   In the event Mr. Denton was ignorant of the prior contacts of March 5, 8, 9, 12, 13, 14 and 15, James P. Knight, NRR, and Thomas Bishop, Region V, were also present at the hearing and were aware of at least some of the contacts, but made no effort to correct Mr. Denton, which constitutes a false statement to the Commissioners by omission.

   The importance of this issue is not so much the statement itself but rather it's capability to influence the Commissioners to believe that because GAP was not raising allegations in a timely manner, they lacked real credibility and therefore should be dismissed and/or given little or no weight in the Commissioners' decision as to whether to permit low power testing at the Diablo Canyon facility. (A list of the contact dates is found at pages 3 and 4 of the April 12, 1984, petition.)

2. That John B. Martin, Regional Administrator, Region V, made false and/or misleading statements to the Commissioners of the NRC, in that on March 19, 1984, he stated that the "new allegations are, by and large, from the same people who had the old allegations," ~~knowing~~ that 11 of the 17 allegers had not previously spoken to the NRC as

Investigation on JUne 25-27, 1984 at Bethesda, MD File # 84-26

by Ronald M. Smith, Senior Investigator, OIA Date dictated July 2, 1984

ATTACHMENT B

of that date, and further stating that the new allegations essentially represented mere "wrinkles" on the same issues previously raised in Supplemental Safety Evaluation Reports (SSER) 21 and 22, knowing that several examples of significant issues not addressed in SSER 21 or 22, in fact, were in existence, the purpose AND/OR EFF of these statements being to influence the Commissioners not to wait for resolution of the allegations prior to permitting low power testing at the Diablo Canyon facility. (Examples of the significant SSER issues referenced above are found at page five of the April 12, 1984, petition.) (MARTIN'S STATEMENTS ARE FOUND ON PAGES 61 AND 64 OF THE ~~REFERENCED~~ MARCH 19 COMMISSION BRIEFING TRANSCRIPT.)

3. That John B. Martin, Regional Administrator, Region V, made a false ~~and~~/misleading ~~statements to~~ Commissioner Gilinsky in that on March 27, 1984, he stated that the NRC had talked with a witness (Harold Hudson) "for at least nine hours involving several people at several different times," ~~then knowing~~ that Hudson had been interviewed only once over a three day period and that he had not been reinterviewed, as was stated by Hudson in a March 22, 1984 affidavit which Martin claimed to have read on or about March 23, 1984. The impact of Martin's statement was that the Commissioner could have been left with the impression that follow-up interviews had been carried out, particularly in the case of Hudson, which was not true, the significance of the failure to reinterview being that the licensees' response to certain allegations ~~would then~~ be accepted by the NRC at face value with no rebuttal by the allegers being permitted. (Martin's reference to reading the Hudson affidavit is found at page seven of the March 26 Commission hearing transcript.) IT WAS PART OF THE PACKAGE RECEIVED ON MARCH 23. MARTIN'S COMMISSIONER GILINSK QUESTION AND MR. MARTIN'S ANSWER ARE FOUND ON PAGES 270 AND 271 OF THE MARCH 27 COMMISSIO ~~HEARING~~ MARCH HEARING TRANSCRIPT. ☆

4. That Thomas Bishop, Region V, made a false and/misleading statement to the Commissioners of the NRC, in that on March 26, 1984, he stated that the NRC had not yet been provided additional supporting material for an allegation concerning hydrostatic test records when, in fact, the records had been provided to him on or about March 2, 1984, knowing that said response ~~would~~ lead the Commissioners to believe that hydrostatic testing was not a problem area ~~and therefore could~~ have influenced their decision to permit low power testing at the Diablo Canyon facility. IN LIGHT OF ~~THE~~ HIS EXCLANATION THAT THE STAFF ALREADY POSSESSED SOME BACKGROUND IN THAT AREA.

It is further believed by Mr. Devine that, regardless of whether Bishop had the materials, it was wrong to just ignore the allegation because of any alleged failure by an outsider to provide claimed "documentation" in support of the allegation, rather than for the NRC to request the data on its own. (BISHOP'S STATEMENTS ARE FOUND ON PAGE 13 OF THE MARCH 26 COMMISSION TRANSCRIPT.)

5. That James P. Knight, NRR, by omission, made a false and/or misleading statement to the Commissioners of the NRC on March 19, 1984, in that he failed to tell them that (a) Mr. Isa Yin, NRC, had discovered 48 inspection issues which were material to the licensing decision, of which only a portion of the issues had been discussed; (b) serious questions had been raised by uncontrolled design changes in the "Quick Fix" program; and, (c) an undocumented Westinghouse management policy regarding destruction of material records had been instituted, knowing that knowledge of any or all of these issues

☆ MR. HUDSON'S MARCH 22 AFFIDAVIT ORIGINALLY WAS FILED AS ATTACHMENT 2 TO A MARCH 23, 1984 PETITION UNDER 10 CFR 2.206. IT IS ATTACHED HERETO. RELEVANT EXCERPTS ARE FOUND ON PAGES 1-3.)

could have affected the Commissioners' decision as to whether to permit low power testing at the Diablo Canyon facility. (Further support and discussion of this allegation is found at pages 6-9 of the April 12, 1984 petition.)

6. That John B. Martin, Regional Administrator, Region V, made a false and misleading statement to the Commissioners of the NRC on March 19, 1984, when he said, in referring to whether the contractor had corrected problems at Diablo Canyon, that "when there have been lapses they seem to have corrected themselves...there were problems that tended to get found by the quality and management systems that are set up to do that sort of thing," and more specifically as to welding deficiencies, said "and in every case it appears to be resolved," knowing that said statements were contradicted by the January 1984 affidavit and interview of Harold Hudson and that his failure to apprise the Commissioners of the fact that there was serious question as to the adequacy of the contractor corrective action could have affected the Commissioners' decision as to whether to permit low power testing at the Diablo Canyon facility. (The Hudson affidavit is attached hereto and further reference to the transcript testimony is found at page 9 of the April 12, 1984 petition.)

7. That Dennis Kirsch, Region V, on or about February 29, 1984, by omission, made a material false statement in IE Report 83-37 when he did not discuss (a) the Nuclear Services Corporation (NSC) audit which found that "While a written Quality Assurance Program exists, the program does not meet the requirements of 10 CFR 50, Appendix B..." or (b) the interview and affidavit of Harold Hudson, which verified the accuracy of the NSC audit in this regard, knowing that the Commissioners of the NRC would rely on the absence of this finding in reaching a decision as to whether to permit low power testing at the Diablo Canyon facility.

8. That John B. Martin, Regional Administrator, Region V, made a false and misleading statement to the Commissioners of the NRC on March 26, 1984, when he stated, in referring to the appropriate standard for qualifying Nondestructive Examination Personnel for quality assurance work at Diablo Canyon, that "ANSI-N45.2.6 is not the applicable standard" knowing (a) that the contractor, Pullman, had committed to the same standard in 1974 because of Atomic Energy Commission pressure; (b) that this statement would negate the impact of one of the NSC audit findings; and, (c) that the Commissioners would rely on the satisfactory resolution of the issue in reaching a decision as to whether to permit low power testing at the Diablo Canyon facility. (See page 10 of the April 12, 1984 petition, and the 1974 Pullman memorandum attached hereto.)

9. That John B. Martin, Regional Administrator, Region V, by omission made a false and misleading statement to the Commissioners of the NRC on March 26, 1984 when he failed to correct his statement of March 19 that "in every case it (welding problems) appears to be resolved" knowing that a memorandum dated July 30, 1982, to which he himself had referred on that same day, reflected that the problem of

noncompliance with ANSI-N45.2.6, which sets qualification requirements for welding inspectors, had not been resolved and further knowing that the omission could affect the Commissioners' decision as to whether to permit low power testing at the Diablo Canyon facility. (See a copy of the July 30 memo attached hereto.)

10. That John B. Martin, Regional Administrator, Region V, made a false and/or misleading statement to the Commissioners of the NRC on April 13, 1984, concerning eight deficiencies identified on a plant tour conducted on April 11, 1984, by stating that it was found "at least preliminarily, that none of them violate any requirement," when he knew, or should have known, that code violations for five of them had been identified, and knowing further that his stated conclusion could affect the Commissioners' decision as to whether to permit low power testing at the Diablo Canyon facility. (See a copy of Park's affidavit dated April 17, 1984, attached hereto, and the transcript of Martin's comments found at page ~~115~~ of the April 13 hearing transcript.)

11. That Dennis Kirsch, Region V, by omission, made a false and/or misleading statement to the Regional Administrator, Region V, by failing to advise him of an apparent breakdown in corrective action for pipe rupture restraints, knowing that had the Regional Administrator known of this problem, he would have been required to so advise the Commissioners and further knowing that this problem could have affected the Commissioners' decision as to whether to permit low power testing at the Diablo Canyon facility. (See a copy of the Harold Hudson affidavit June 5, 1984, attached, which was, in substance, discussed by him with Kirsch in an interview conducted by Kirsch in April 1984.)

12. That the NRC staff misled the Commission by stating in Diablo Canyon SSER 22 (paragraph 5.4) that the issue of "Design Change and Drawing Control" was considered to be "adequately resolved for purposes of licensing decisions." The alleged resolution cited the tracking of a complicated design change which had, in fact, been processed through the system and ignored the evidence in support of allegations that several design changes did not go through the approval system but were handled by "Quick Fix" (as was later verified by Isa Yin) and by informal memoranda (with no accountability).

13. That a person, or persons unknown, in NRR made a Government decision outside official channels which could also adversely affect the confidence of the public in the integrity of the Government by publishing in NUREG 0675, dated March 1984, a finding that "the allegation that management has purposely destroyed documentation is not substantiated," then knowing that this conclusion was not based on any investigation by the NRC's Office of Investigations which, pursuant to 10 CFR 1.36, has responsibility for investigation of all suspected wrongdoing on the part of licensees or permittees. Mr. Devine believed that this action would create at least the "appearance of" actions prescribed under 10 CFR 0.735-49a. He also believed that this finding, unchallenged, could ~~also~~ affect the

Commissioners' decision as to whether to permit low power testing at Diablo Canyon facility. (The above citation is found within pages A.4-87.1 thru 87.4 of SSER-22 (NUREG-0675).

As further background, the "destroyed design review documents" // TO addressed whether the design of pipe support installation would withstand earthquake activity within the parameters required by the NRC's November 1981 order suspending PG&G's license for Diablo Canyon. Successful completion of the review was required by the NRC before the license could be reinstated for the purpose of low power testing. WAS THE ORIGINAL ALLEGER WHO PRESENTED DIRECT EVIDENCE TO THE STAFF AND OI ON THIS ISSUE LAST DECEMBER. MR. STOKES REQUESTS TO BE INTERVIEWED BY MR. SMITH

14. A basis may exist for one additional allegation concerning the deletion by Dennis Kirsch, Region V, of substantive portions of the transcript of an interview with two witnesses (Steve Lockert and a confidential source) in January 1984. However, before perfecting the allegation, it will be necessary for Mr. Devine to further review and confirm the discrepancies. The questioned transcript and GAP's transcript are currently in California and thus not available at this time. Should the review verify in Mr. Devine's mind that a valid allegation exists, he will forward the supporting evidence to this office promptly.

As stated in his 2.206 petitions of April 12 and May 3, Mr. Devine also believes that OIA should investigate the "causes of the QA breakdown within the NRC staff responsible for Diablo Canyon." In addition to the specific allegations addressed above, he expressed concern about the methodology of NRC fact finding in regard to Diablo Canyon, e.g., refusing to conduct timely interviews and/or followup meetings with witnesses; turning over witness affidavits and evidence to the utility, thereby compromising the confidentiality of anonymous sources and the integrity of the Office of Investigations cases; relying on unchecked licensee responses as a basis to resolve and/or reclassify the safety significance of allegations; assigning staff members with a conflict of interest to resolve allegations, the confirmation of which would directly challenge the adequacy of the same individuals' prior inspection efforts; and, applying inconsistent actions to analogous alleged quality assurance violations at Diablo Canyon, compared with previous NRC enforcement actions at the Zimmer, Midland, TMI and Waterford facilities. THESE ACTIONS MAY NOT CONSTITUTE FALSE OR MISLEADING STATEMENTS, BUT THEY CAN CREATE APPEARANCES OF ACTIONS PRESCRIBED UNDER 10 CFR 0.735-49 (a) WHICH COULD "affect ADVERSELY THE CONFIDENCE OF THE PUBLIC IN THE INTEGRITY OF THE NRC." FURTHER, SEE

Investigator Note: It was explained to Mr. Devine that the investigative staff is limited to looking at specific allegations of misconduct, i.e, items 1-14 above, and not "programmatic issues," as addressed in the last paragraph above, unless otherwise directed to do so.

Attachments:
As stated

TO ②/

(CON,) THESE PRACTICES VIOLATE CONTRACTUAL NRC CONFIDENTIALITY AGREEMENTS ~~WITH~~ TO BETWEEN THE NRC AND WITNESSES, AS WELL AS STATED NRC POLICIES. SEE E6. NUREG-0675 SSER 22 AT E-3, ON THE STAFFS POLICY TO ATTEMPT FOLLOWUP INTERVIEWS WHERE PRACTICAL. HERE THE STAFF ENGAGED IN ~~ONLY~~ TO ONLY ONE TO ATTEMPTS AT FOLLOWUP INTERVIEWS UNTIL AFTER THE LOW POWER LICENSING DECISION AND REFUSED THE INITIATIVES FROM ALL BUT TWO ALLEGERS, WITH RESPECT TO ALLEGERS REPRESENTED BY GAP.

I have reviewed the above Report of Interview prepared by Ronald M. Smith, Senior Investigator, OIA, have made changes, if any, as indicated by my initials, and hereby find that it is a true statement and accordingly adopt it as my own WITH THE ADDITIONS DESCRIBED AND INITIALED BELOW ON THIS PAGE AND THE ENSUING SUPPLEMENTARY PAGES.

Thomas Devine

Thomas Devine

TD I wish to formalize allegation #14, to read as follows:

14. That a person or persons unknown on the NRC staff, or Region V inspector Dennis Kirsch, engaged in a false and/or misleading statement by omission through failure to include in the NRC staff transcript of a January 5, 1984 interview with two witnesses, those portions of the interview where Mr. Russ Nolle was identified as a management official who obstructed inspectors from performing quality assurance functions. This omission removed from the record information that was relevant to assess whether site management possessed the necessary character and competence to qualify for a low-power operating license. Even if the omissions were not material, they represent activities prescribed under 10 CFR 0.735-49a, which could "affect adversely the confidence of the public in the integrity of the government." 10 CFR 0.735-49a(f).

    GAP's draft transcript of the interview is insufficient to perfect the allegation. However, attorney John Clewett and the two employee witnesses, who all participated in the January 5 interview, have requested to be interviewed by Mr. Smith about the inaccuracies in the staff transcript and how the inaccuracies affected their confidence in the integrity of the NRC staff. Further, one of the employee witnesses has his copy of the tape recording from which the staff's transcript was drawn.

To avoid further cluttering the typed text of Mr. Smith's interview report, reference is hereby made to three documents which are relevant to specific allegations and were attached to the interview report -- 1) typed copy of March 27, 1984 GAP telegram to the Commission, relevant to allegations 1 and 2; 2) March 22, 1984 affidavit of John Clewett, relevant to allegations 1 and 2; and 3) typed copy of March 26, 1984 statement by Isa Yin to the Commission, relevant to allegation 5. As a witness with first hand knowledge of the staff's response to allegations from employees, Mr. Clewett has requested to be interviewed by Mr. Smith as part of the OIA investigation. TD

TO SENT TO NRC TD

The necessary facts for the following two allegations had not occurred at the time of the June 25-27 interview. At Mr. Smith's instructions for this type of contingency, they are summarized below as the most complete statement which is possible at this time.

15. That a person or persons unknown on the NRC staff, made false and/or misleading statements by omission through failure to provide sufficiently accurate, complete notice to the Atomic Safety and Licensing Appeal Board of an issue material to the license -- the use of A307 bolts with the heads removed as studs welded to the containment liner. On May 31, 1984 the Quality Assurance manager for the licensee's contractor Pullman Power Products informed personnel that the use of these bolts was "NOT acceptable." (emphasis in original). On June 12 the joint intervenors filed a copy of the memorandum with the Appeal Board, which reserved judgment on Diablo Canyon's commercial license with respect to this issue and ordered a response from the licensee. Over six months earlier, in a January 5, 1984 interview, two witnesses had notified Region V inspectors Dennis Kirsch and Gonzalo Hernandez of the same unacceptable practice. In NUREG-0675, SSER 22, the staff reported that numerous challenged materials, including those covered by the January 5 allegations, were approved, suitable and acceptable for use. As a result, the incomplete record on this issue conflicts both with the allegers and site management. This creates at least the "appearance of" actions prescribed under 10 CFR 0.735-49a, which could "affect adversely the confidence of the public in the integrity of the Government." 10 CFR 0.735-49a(f).

    (References to the January 5 disclosure are found on pages 21-25 of the draft transcript to that meeting, which is attached hereto. The reference to this issue in the Appeal Board's decision is found on pages ten and eleven, footnote 21, of its June 28, 1984 Memorandum and Order, which is attached hereto. The reference to the staff's published position is found within pages A.4-103.3 through 103.6 of SSER 22. Further, Mr. Clewett and the two employee witnesses , who all participated in the January 5 interview, request to be interviewed by Mr. Smith on this allegation.)

16. That on Thursday, July 5, Richard Vollmer, NRR, violated prior staff agreements with witnesses by announcing that NRC inspector Isa Yin no longer would be permitted to conduct interviews with Diablo Canyon witnesses. This announcement violated a December 1983 NRC staff agreement with Mr. Charles Stokes, whose allegations later were confirmed by Mr. Yin. This also violated an agreement by the NRC staff at a May 22, 1984 meeting,

TO for Mr. Yin to interview additional whistleblowers to receive evidence of specific safety problems due to the Quick Fix program in Unit 1. Mr. Vollmer's subsequent refusal to permit Mr. Yin's participation in employee interviews occurred during a July 5 telephone conversation with myself. Mr. Vollmer made this decision, despite his knowledge that due to a previous loss of confidence by relevant Diablo Canyon whistleblowers in the integrity of the NRC, they would only disclose their evidence to Mr. Yin as a channel to receive a good faith review.

Mr. Vollmer knowingly took action that will contribute to the staff's failure to receive evidence material for the upcoming decision on a commercial license, since the Quick Fix program is one of the action items that must be resolved prior to licensing. The evidence is even more significant to test the accuracy of the licensee's claim that a complete review of the Quick Fix program confirmed the absence of any significant problems. Mr. Vollmers's action also further erodes "confidence in the integrity of the Government," in violation of 10 CFR 0.736-a(f).

(As support for this allegation, Mr. Stokes and I both request to be interviewed by Mr. Smigth. I also am seeking to confirm whether any NRC officials have obstructed Mr. Yin from performing any other duties. If such further misconduct is confirmed, the evidence will be forwarded promptly to OIA. Evidence of notice to Mr. Vollmer of the whistleblower's loss of confidence in the NRC staff other than Mr. Yin can be found in Mr. Stokes' comments at a July 2, 1984 public meeting. The transcript of the meeting has not yet been released by the NRC staff.)

With respect to the allegations of false and/or misleading statements, the intent of each charge is not to point the finger at particular individuals and assess their personal guilt or innocence as adequate resolution of the allegation. Rather, part of the intent of the allegations is to establish TO TO that in each instance the record was deficient with respect to information material for a licensing decision. Specific officials were targeted as responsible for each act of misconduct, in order to comply with the format for OIA interview reports. It may be necessary to insure that the effort to identify responsible parties does not substitute for the underlying point of each allegation -- to challenge the adequacy of the licensing record as presented by the staff. Therefore, the reference to specific individuals in each allegation should be supplemented with the following phrase -- "a person or persons unknown in the NRC staff, or /the identified target/." TO

All of the above charges, including the alleged false and/or misleading statements, also represent activities prescribed under 10 CFR 0.735a, which could "affect adversely the confidence of the public in the integrity of the Government." 10 CFR0.735a(f). More specifically, it is alleged that the staff's actions caused a significant loss of confidence in the NRC among two relevant public groups -- 1) citizens in communities surrounded by Diablo Canyon; and 2) whistleblowers who risked their careers to disclose their concerns to the staff about illegal construction and engineering practices. Certain examples of affected whistleblowers already have been listed with respect to specific allegations. The same point applies to Mr. Hudson, the alleger who attempted to work with the staff on issues relevant for allegations 3 and 6-9. Therefore, I request that the OIA investigation also include interviews with these allegers and the public to determine whether their confidence has been eroded in the integrity of the NRC.

Mr. Smith also has informed me that he is not permitted to make findings of fact, but rather is limited to preparing a record from the various interviews and submitting it to a factfinder. This restriction violates a basic premise of legal factfinding: the government official or forum closest to the facts is responsible to make findings of fact. Thus, the inspector who looks at evidence first-hand also authors the findings in the ensuing inspection report. Analogously, the trial court prepares findings of fact, rather than an appellate court removed from direct observation of the witnesses. If OIA policy normally is contrary to this premise, I formally request that for this case Mr. Smith be granted the organizational freedom to draw conclusions as a result of his investigation.

Thomas Devine

Thomas Devine

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GAP TELEGRAM ABOUT NRC STAFF MISREPRESENTATIONS TO NRC COMMISSIONERS

In response to published reports of the NRC staff's presentation to the NRC Commissioners on Monday, March 26, GAP Legal Director Thomas Devine has sent the following telegram to the Commissioners:

> The staff dealt with Diablo Canyon whistleblowers the same as it did Mr. Yin -- it refused to talk at all with two key witnesses from first 170 allegations. Staff only conducted follow up interviews with two GAP clients. No interviews at all for last 346 allegations. Staff has not spoken at all to a dozen GAP witnesses. From published reports and available information, staff deliberately misinformed Commission. I will testify to above under oath.
>
> Thomas Devine
> Counsel for Mothers for Peace

A F F I D A V I T

(3) jc

My name is John Clewett. I am an attorney working with the Government Accountability Project. I am making this statement to document conversations I have had in the past two weeks.

On Monday, March 19, 1984 I spoke with who is a Quality-Control Inspector for Pullman Power Products Corporation at Diablo Canyon, concerning faulty welding on the Component Cooling Water (CCW) system. Based upon what he told me, I read him the following statement, which he authorized me to convey to the Nuclear Regulatory Commission as his statement:

> "My name is
> I am a Level II Quality Control Inspector, who is currently working for Pullman Power Products Corporation, and who has done magnetic-particle testing (MT) and liquid-penetrant testing (PT) at Diablo Canyon.
>
> "I have read Pacific Gas and Electric's (PG&E) March 8, 1984 statement to the Nuclear Regulatory Commission, DCL-84-097, concerning welding on Component Cooling Water (CCW) piping while it was filled with water. PG&E makes a number of material false statements in that letter, that seriously affect the ultimate conclusion about the likelihood of cracking in the component cooling water lines.
>
> "In particular, PG&E says that the fact that the sections welded were thin 'eliminates the possibility of cracking.' This is absurd. First of all, welding with water in the line means that as soon as a weld pass is made, the weld is 'quenched' by the water, which acts as a heat sink. Because of the rapid cooling of the thin

material, it increases the possibility of cracking rather than eliminating it.

"Not only is there a possibility of cracking, but cracking of these welds is probably occurring in the field. I was told within the past week by two welders who were working on a CCW line that their weld bead actually froze on contact. This means that the rate of quenching is so high as to increase the likelihood that cracking or a lack of fusion will occur.

"In order to tell if these welds are cracked, Non-Destructive Examination (NDE) should be conducted. However, Pullman does not require any NDE for this welding, and none is done.

"In addition to this, I have personally observed problems with porosity and cracking at the start and termination of the bead on these welds. If cracking is occurring on the surface, it raises the likelihood that there is porosity or cracking in the root pass, and in subsequent weld passes.

"Because of these factors, I think that PG&E's statement is false when it says that cracking is unlikely in the welding done to the component cooling water system piping while it was filled with water. In fact, it is impossible to tell the extent of the cracking in the welding to these lines, and it should be thoroughly examined to determine the extent of cracking."

On Sunday, March 18, 1984, and Monday, March 19, 1984, I spoke with a Pullman QC Inspector named [redacted] and based upon what he told me, I read him the following statement, which he authorized me to convey to the Nuclear Regulatory Commission as his statement:

"My name is
I am a Level II Quality-Control Inspector for the Pullman Power Products Corporation at Diablo Canyon.

"On March 13, 1984, there was a meeting between the Pullman leadmen and Pullman supervision, after which the leadmen told the Quality Control (QC) inspectors that starting immediately, for both Units 1 and 2, QC inspectors were not to write any Discrepancy Reports (DR's, which go to PG&E to be dispositioned) and were only allowed to write Deficient Condition Notices (DCN's), a Pullman in-house form.

"They said that even if it should be a DR, to only write it on a DCN form, that Pullman's Quality Assurance (QA) department would review them to see if there were any conditions that required a DR, and that if so the QA department would write them up.

"When inspectors asked questions about this, the QC supervisors told them that this new procedure was ordered by Bill Kimmel, the head of the QA department, and that Kimmel would issue a memo shortly.

"Kimmel is the QA supervisor, and QA has no direct authority over the day-to-day actions of QC personnel. In addition to this, I am concerned that this new procedure violates 10 CFR Part 21, 10 CFR 50.55(e), and 10 CFR Part 50 Appendix B."

Although both Tom Devine and I attempted to convey to the Nuclear Regulatory Commission staff for Region V the fact that many workers were making statements such as the above, which showed that PG&E was making false statements to the NRC, and trying to intimidate workers from exercising their rights

under the law by reporting conditions adverse to safety to the appropriate levels of management at Diablo Canyon, we were both met with a stonewall and a refusal to honor previous commitments.

In particular, I spoke with Lewis Shollenberger, Regional Counsel for Region V, on March 8, 1984, to inquire about what plans Region V had for meeting again with the whistleblowers who had initially raised the safety and quality issues that Region V was purportedly investigating. In Region V's SSER-21 (NUREG-0675, Supp. 21, p. E-3), Region V takes credit for a policy of re-contacting the people who originally brought forth safety and quality questions, to insure that the Region V analysis is correct and that concerns have been fully addressed.

In response to this, Mr. Shollenberger said that he did not know what the specific plans were, and that he would check with the other individuals involved and get back to me promptly.

On March 12, 1984, having heard nothing from Mr. Shollenberger, I called him again. Mr. Shollenberger again said that he did not know what the specific plans were, and that he would get back to me in the "near future." I reminded Mr. Shollenberger of the Region V policy, and specifically asked him if the Region planned to honor that policy, and he assured me that they did not plan to repudiate the policy.

Two days later, on March 14, 1984, still having heard nothing from Mr. Shollenberger, I called him again. Mr. Shollenberger told me that the Region V personnel were very busy drafting SSER-22, which they wanted to do a good job on. When I pressed him on the question whether they were going to repudiate their stated policy of re-interviewing the original allegers, Mr. Shollenberger said they would meet with two of the witnesses if we would bring them up to Region V's Walnut Creek offices during the afternoon of the next day, March 15. I told Mr. Shollenberger that that was impossible because of the fact that the two witnesses Region V was willing to meet with both worked during the day, and because of the expense. I urged Mr. Shollenberger that the Region should meet with the witnesses as they had the first time, in the San Luis Obispo area, and he categorically refused.

The next day, March 15, 1984, I again called Mr. Shollenberger to tell him that I had confirmed with the two witnesses Region V wanted us to bring up to Walnut Creek that they both actually did have to work that day. Mr. Shollenberger said that it only took four and a half hours to drive to Walnut Creek, and that we could bring them up "somewhat later" in the day. I told him that that was a practical impossibility, to which he responded that we should be "flexible" about this. I told him that his actions amounted to a constructive refusal to honor the policy that Region V claims credit for. He said

in response that instead of a meeting maybe we could have a conference call. I told him that that idea was impractical because neither side could show documents to the other, or review documents of the other side. He again said that we should just drive the two witnesses up to Walnut Creek after work that day. I declined because even if we started promptly when the two witnesses got home, between 5:30 and 6:00 p.m., we would not be able to get to Walnut Creek before 10:00 to 10:30 p.m., and because it was abundantly clear by that point that Mr. Shollenberger had not the slightest desire to actually discover what any of the whistleblowers thought about Region V's purported investigation, and that the quality of a meeting that began at 10:00 or 10:30 p.m. with hostile NRC inspectors would be very low, and unlikely to provide an adequate forum to rebut the material false statements offerred to the NRC by ~~the staff~~ PG&E.

Later in the day on March 15, 1984, I received a call from Mr. Thomas Bishop of Region V who said he had heard that I had personal knowledge of material false statements being made by PG&E. I said that it was not I, but the original whistleblowers that Region V was refusing to meet with, who had personal knowledge of PG&E's material false statements. Mr. Bishop thanked me and said goodbye. The following Monday, March 19, 1984, the Region V staff announced the results of its SSER-22, which purported to thoroughly debunk the allegations of the whistleblowers. Contrary to reported claims, they had not re-contacted the original witnesses. From talking with the witnesses themselves, I know that PG&E's responses are cluttered with material false statements

and statements designed to mislead the NRC into concluding that there are no problems with Diablo Canyon serious enough to delay an operating license for the plant. I believe that the NRC, or the Department of Justice, should thoroughly investigate the full extent of PG&E's mendacity before granting a license, and should insure that the plant is in full compliance with applicable laws and regulations before a license is granted.

I have read the above 7-page statement and it is true, complete and correct to the best of my knowledge and belief.

John Clewett

STATE OF CALIFORNIA

COUNTY OF SAN LUIS OBISPO

On March 22, 1984, before me, the undersigned, a Notary Public in and for said State, personally appeared JOHN CLEWETT known to me, or proved to me on the basis of satisfactory evidence, to be the person whose name is subscribed to the within Instrument, and acknowledged to me that he executed the same.

WITNESS my hand and official seal.

Notary Public

SUSAN HAWKINS
NOTARY PUBLIC-CALIFORNIA
PRINCIPAL OFFICE IN
SAN LUIS OBISPO COUNTY
My Commission Expires Jan. 25, 1985

My name is Isa Yin. I am presently working in Region III, Division of Engineering as a Senior Mechanical Engineer. Relative to the Diablo Canyon Nuclear Power Plant (DCNPP) team investigation effort, I was assigned the responsibility of following up on some of the allegations made by Mr. Charles Stokes. The specific investigation areas were restricted to the site small bore (S/B) piping suspension system design control. However, due to hardware deficiencies observed during plant walkdown, the licensee design control measures for large bore (L/B) piping system had also been included as a part of the overview inspection and evaluation.

As a result of the investigation and inspection findings, it is my professional opinion that the Unit 1 reactor should not be permitted to go critical at this time. The reasons for such determination are as follow:

1. Almost all of the Stokes allegations assigned to me for followup had been substantiated. Based on the many assessed violations against the 10CFR50 Appendix B criteria resulting from followup on these allegations and the independent overview inspections, it was concluded that there had been apparent QA program breakdown in the areas of S/B and L/B piping design control.

2. Piping systems cannot be subjected to true functionability tests until after severe transient conditions, such as an earthquake, had occurred. The ensurance of system operability relies principally on analytical methods. In spite of this dependence on theory and analysis, the lack of licensee L/B and S/B piping system design control that had resulted in an alarmingly large number of calculation errors and deficiencies that had slipped through various review and checking stages, is indicative of the failure of the Corrective Action Program conducted by the Diablo Canyon Project (DCP) group in the past two years.

3. Issues raised in responding to the staff's initial concerns were discussed during a meeting held with DCP personnel at NRC-NRR office on December 15, 1983. Discussions included onsite design personnel training, document control, audits, design verification, thermal loading release within the rigid restraint gaps, and snubber/rigid restraint interaction. At the time of the meeting, none of the issues was considered to be a problem by DCP. However, during followup inspections, all the above items had resulted in staff assessment of violation items. The event

reflected DCP's lack of concern for establishment and implementation of a sound design control QA program.

4. Hardware problems involving snubber and rigid restraint interaction that could make the snubber inoperable under design conditions were identified in La Salle Unit 1 just before the NRC operation license hearing, and had resulted in licensee filing of a 10CFR50.55(e) report, and removal and replacement of hundreds of large and small size mechanical snubbers. The DCP's position in regarding the same situations identified at DCNPP to be not a problem requires in-depth review and evaluation by the staff.

5. At the present, with fuel loaded in the Unit 1 reactor, the access control including complicated security system, and the poor air quality resulted from system hot functional testings, makes inspection inside the containment difficult and intolerable. With the ~~expection~~ expectation that there will be: (a) substantial amount of staff and licensee reinspection activities, and (b) some system hardware modification and re-work, to allow reactor low power testing before resolving the existing problems could discourage additional inspection effort and could hinder any required corrective actions.

I. Yin 3/26/84

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AFFIDAVIT

My name is Harold Hudson. I am submitting this affidavit freely and voluntarily, without any threats, inducements or coercion, to Mr. Thomas Devine, who has identified himself to me as the legal director of the Government Accountability Project. This statement supplements my FEBURARY (HOH) , 1984 affidavit, because I am deeply concerned about two major problems at Diablo Canyon that the Nuclear Regulatory Commission (NRC) staff overlooked in its recent recommendation to permit low-power operations: 1) Large portions of the plant were not built or inspected to 10 CFR 50, Appendix B, the NRC's legal quality assurance (QA) regulations. 2) The NRC based its recommendation for low power operations on false statements in Pullman's file or in February 1983 Pacific Gas and Electric (PG&E) letters to the NRC. This abuse was especially prevalent for Pullman's responses to the 1977 Nuclear Services Corporation (NSC) audit findings of a severe quality assurance breakdown. I know, because as Pullman's internal auditor for 2.5 years until late 1982, I became intimately familiar with the quality-related documentation.

I am deeply disappointed that the NRC did not discuss with me the contents of report 83-37, the staff evaluation of the 1977 NSC audit. The eventual report represents an attempt to rewrite history. I do not know if the NRC was duped or is part of a coverup. But I could have easily set them straight.

I tried to take the initiative, by submitting three reports to the NRC between November 1983 ~~and January 1983~~ HOH 3-22-83 and January 1984. Further, during January 1984 I met with the NRC on three occasions to ~~disclose~~

Devine Exhibit 4

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quality assurance (QA) violations. These violations complemented the issues in the NSC audit, but were not identical to those being researched by the staff for Report 83-37. I did not even know the staff was working on Report 83-37. I did, however, inform the staff that as Pullman's internal auditor I had thoroughly researched the NSC audit. I also told the staff that NSC was right. I also told the staff that I had tried to implement corrective action. I also told the staff that management refused to permit necessary corrective action. Finally, I explained to the staff how management harassed and retaliated against me so much that in MAY HOH 1983 I resigned my job and returned to Diablo Canyon as a pipefitter. In case there is any question about what I told the NRC, I have tapes of the meetings.

Under the circumstances, I cannot conceive of any good faith explanation that the NRC failed to discuss the NSC (or Pullman) audit with me or tell me that they were working on the issue. There is no excuse for the gross inaccuracies in the NRC's findings. It is as if my knowledge were threatening, or might get in the way of something they had already decided.

I also want to emphasize that the NRC staff never had any followup meetings with me to clarify the issues I raised, or to test whether PG&E's defenses were bluffs. That is odd, since I disclosed over 80 pages of my own ~~single~~ SINGLE HOH spaced reports and affidavits to summarize over a thousand pages of documentation. I only learned of SOME OF HOH PG&E's answers, because GAP xeroxed them and gave me copies. The NRC staff complimented highly the analysis in my reports, but they never got back to me. I

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disclosed Approx 80 HCH allegations to the NRC, out of the 170 in a January 31 legal petition. Any statement that the NRC staff followed up with me personally after I first raised my charges would be totally false. I have no idea what the NRC staff did to resolve my allegations, other than to have PG&E respond to some in letters.

After I received some of HCH PG&E's letters from GAP, I studied my files and saw that some of the responses represented false statements. After GAP provided me with a copy of Report 83-37, I saw that it relied on false statements and missed the most significant issues. If the NRC had chosen to speak with me, I would have discussed in detail the issues and evidence introduced for the record below. If the NRC ever convinces me that it will look seriously at the general issues below, then I will write up specific allegations with detailed analysis.

1) I am particularly concerned that until at least 1982 Pullman's program for pipe supports and pipe rupture restraints did not comply with 10 CFR 50, Appendix B. I cannot understand why the NRC would not have covered this issue in Report 83-37, since that is what the NRC is all about. Presumably there should be some effect if the NRC's recommendations are not part of the picture. In a previous affidavit I recalled how on several occasions Mr. Karner told me that we didn't have to comply with 10 CFR 50, Appendix B.

Mr. Karner was thoroughly familiar with company policy. The official excuse was that Pullman's program complied with Section Three of the American Society of Mechanical Engineers (ASME) 1971 code requirements, which are consistent with 10 CFR 50, Appendix B. (See June 13, 1978

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audit, enclosed as Exhibit 1, at p 2.) The problem is that the ASME code did not cover pipe supports and rupture restraints. That left us on our own.

While PG&E paid general lip service to Appendix B, it did not enforce that policy on us through contract requirements. An October 13, 1977 Pullman memo on the NSC audit (Exhibit 2 at p. 2) explained, "We have not been required by ~~Pullman~~ PG&E to update to Appendix B." An unsigned, undated draft report on the NSC audit (Exhibit 3) explained further: ~~"Pullman Power Products, 1973"~~ "No attempt, however, was made to totally revise the program to incorporate specifics of 10 CFR 50, Appendix B." (Id., at p. 4.) On page 9 of the draft, the author implies NRC approval for failing "to update the program to match Appendix B...." (Id., at p. 9.)

2) After conceding the problem of not meeting 10 CFR 50, Appendix B, Pullman chose to perpetuate it. A November 3, 1978 program description (Exhibit 4) did not make any references to 10 CFR 50 in the charts and attachments for PIPE SUPPORTS AND pipe rupture restraints. The ESD's, or installation procedures, are the only guide for the QA program. (Id., Chart #3 and Attachment 3-1.)

3) Actually the problem was worse. In effect there was no formal QA program for PIPE SUPPORTS AND pipe rupture restraints. The problem first was identified in a November 1973 audit (Exhibit 5) which conceded that the QA Manual skipped PIPE SUPPORTS AND pipe restraints. Instead there was only ESD-223, the installation procedure which the auditor called "in essence, an 'alternate QA program' approved by the RESIDENT MECHANICAL ENGINEER ~~construction manager~~, instead of the DIRECTOR OF QA ~~manager~~ as required. (Id.)

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4) Although Pullman identified many deficiencies of ESD 223 in 1973, the company did not learn its lesson. The NSC audit repeated similar findings in 1977. [redacted] HDN

5) A January 10, 1977 memo from Pullman QA manager J. Runyan explained another major point: The pre-December 1973 pipe supports were installed "prior to implementing the inspection program" (Exhibit 6).

6) A November 13, 1978 memorandum from Pullman's Senior QA Engineer R. J. Manning (Exhibit 7) conceded that "in the past" Pullman "did not conduct audits or practices to ASME or 10 CFR 50, but I feel it very essential to do so now." As demonstrated by my own personal experience, the author's advice was ignored. From my own reviews, I know that the early audits which existed were well-intentioned, but crude, uncontrolled and informal. They were too sloppy to constitute a minimal program. For example, a 1973 audit referenced conclusions about pipe rupture restraints to the contract for pipe supports, which didn't apply to the work in question. (Exhibits, Supra.)

7) Until at least November 1978, some parts of the QA program had never been audited. As revealed by Mr. Manning, "The Diablo Canyon program has been audited extensively only in hardware areas. The entire program has not been evaluated." (Exhibit 7)

8) In Report 83-37 the NRC accepted uncritically PG&E and Pullman's position that Nondestructive Examination (NDE) personnel have met the American National Standards Institute (ANSI) N45.2.6 requirements since

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1973 or 1974. That is false. Management has recognized a problem since 1973, but as of July 1982, they had not upgraded the program to comply with ANSI N45.2.6. In the meantime, various managers recommended commitments to honor ANSI, but it simply did not happen. For a December 1974 example of the recommendations, see enclosed Exhibit 8. The Pullman QA manager's July 1982 refusal to honor ANSI N45.2.6, is enclosed as Exhibit 9. Don't forget again, even ASME compliance would not cover the entire QA program, since ASME ~~skips~~ DOES NOT ADDRESS pipe supports and rupture restraints. ~~See~~ HOH HOH

9) The reason Pullman didn't meet the ANSI requirements is that it was not willing to pay for the experienced personnel required under the professional code. As Pullman's QA manager explained in a May 13, 1975 memo (Exhibit 10), "[I]t is virtually impossible to comply totally to N45.2.6 because of experience requirements. We cannot hire personnel that meet the experience requirements for the salary scale we offer."

10) In its Report 83-37 the NRC agreed with Pullman and PG&E that the personnel files demonstrate adequate records for welder and NDE certification. As a result, the staff decided that NSC was wrong. That is false. A September 15, 1977 memo (signed September 22), from Pullman's ~~corporate vice president~~ DIRECTOR OF QUALITY ASSURANCE to the site QA manager, (Exhibit 11), "Generic NDE and Inspection Records", including -- "lack of evidence showing the necessary records" to support the certifications; lack of any certifications; certifications dated "as much as a year" after the inspectors began work; and "lack of evidence supporting previous work experience and Level I and Level II qualifications at a previous employer", among many other deficiencies. The corporate conclusions of

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generic deficiencies were based on a review of 95 files. The NRC looked at the same files and found nothing wrong. What happened?

11) I decided to thoroughly research one of the 95 deficient files. I chose Pullman's NDE supervisor Don Geske, who certainly should have had adequate qualification records. Reviewing Mr. Geske's file revealed the magnitude of the inaccuracy. His records say he passed the three Magnetic Particle exams with flying colors -- a score of 98%. But records on the three specific exams record the following results for the supervisor: "____, ____, [and] ____." There are no grades recorded for his performance on individual tests. The records are attached as Exhibit 12.

12) On September 25, 1980 an internal Pullman audit (Exhibit 13) admitted that two NDE technicians were certified for advanced (Level II") responsibilities, despite "letters in their personnel files stating they are not qualified to perform Level II functions...." Pullman's "solution" was for Mr. Geske to backdate letters to July 24, 1980 (Exhibit 14) that said the opposite -- that the two men were qualified. I do not believe that rewriting history is any way to solve quality problems.

13) I also challenge the accuracy of QA Manager Harold Karner's NDE qualifications records. In 1979 when he was originally certified AT DIABLO, Mr. Karner's certification did not cover NDE. (Exhibit 15) But on July 27, 1981, when Mr. Karner was recertified after the required two years, he was certified as Level II for Magnetic Particle Testing (MP); Radiography (RT); and Liquid Penetrant Testing (LPT), as well as

(EXHIBIT 16). HOH 3.22.84

Level I for Ultrasonic Testing (UT). From my own experience, as the internal auditor with Mr. Karner during that general time frame, I know he could not possibly have obtained the 600 hours of required practical experience even for MT -- let alone the other two disciplines.

14) In 1976 Pullman reported that Mr. Geske allayed concerns about 1200 suspect weld attachments by reinspecting 314 with magnetic particle tests in ~~five~~ HOH FOUR days. (The attachments had been in question due to noncompliance with preheat requirements.) GESKE EXAMED ~~314~~ 145 WELDS ONE DAY 95 ON ~~THE~~ A SECOND DAY AND THE REMAINING WELDS OVER THE NEXT TWO DAYS. HOH ~~They~~ They all passed. Unfortunately, the maximum possible number of magnetic particle exams that an inspector can perform in a day is around 50. The 1976 inspection findings are enclosed as Exhibit 17.

PIPE RUPTURE RESTRAINTS HOH

15) The signatures on weld process sheets -- which insure the work was not done in an ad hoc manner -- were phoney. A blank sheet was signed and then xeroxed. This is evident from a review of multiple weld process sheets -- the signatures are too perfectly identical. I also confirmed this practice with engineers from the early years. Examples are enclosed as Exhibit 18.

16) In Report 83-37 the NRC made the following finding on page 18: "The inspector examined the 90 day welder's log and found that no void existed between 8/72 and 12/72." This was the basis for NRC findings. I don't know who is responsible, but that statement is false. ~~An~~ THE HOH RESPONSE TO THE NSC AUDIT April 1978 ~~internal~~ Pullman ~~memorandum~~ (Exhibit 19, at p. 25.) concluded the opposite: "There is a void in the 90 day weld log from August, 1972 to December, 1972." Any excuse based on a purported reconstruction of the log cannot wash. The NRC should know, because my November 1983 report to Commissioner Gilinsky should have been

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reviewed by the NRC staff months before Report 83-37 was issued at the end of February 1984. IN THE LAST SECTION OF MY REPORT ~~(Appendix 12)~~, I challenged the reconstruction as not being reliable, due to inconsistencies and omissions that rendered impossible any confidence in the results. HOH

17) During the early years of construction QA/QC personnel intermingled responsibilities with production personnel. Because of this phenomenon, the quality of early audits was sacrificed beyond repair. For example, part of the reason for the informal, unprofessional nature of 1971 and 1972 audits (Exhibits 20,21) is that they were performed by individuals identified in the signature log (Exhibit 22) as the shop and field engineers. It appears that the shop engineer even audited the shop. Due to their unreliable nature these audits could not reasonably substitute for required audits, such as for the welding program. ANOTHER EXAMPLE OF INTERMINGLED RESPONSIBILITIES WAS THE FIRST QA/QC MANAGER ON JOBSITE ALSO PERFORMED THE DUTIES OF THE CHIEF FIELD ENGINEER (EXHIBIT 22A). HOH

18) The practice of intermingling QA/production duties continued into 1976, as a QC weld inspector named Art Mullis inspected the same drawings he had prepared as a field engineer, (assigning field weld numbers and weld symbols). (Exhibit 23)

19) Contrary to Pullman's assertions, in response to the NSC audit, the quality of QA/QC suffered due to these conflicts-of-interest. To illustrate, Mr. Mullis accepted his own practice of having one process sheet for five weld joints. HOH ~~(illegible)~~ His was also the xeroxed signature for numberous blank weld process sheets (Exhibit 18, supra.)

20) Management's refusal to back me against harassment from production made it more difficult to do my job properly. To illustrate,

on August 13, 1982 I attempted to report harassment -- such as rifling my desk and taking an audit notebook. Mr. Karner refused to let the memo be sent, and threw it out. I kept a copy, which is enclosed as Exhibit 24.

21) The PG&E response to my report on minimum valve wall thicknesses is so incomplete and internally contradictory that it could be the basis for numberous allegations. I will list a few of the highlights here. PG&E asserted that procedure qualifications tests were not necessary because the inspectors calibrated their tools. But that is a totally uncontrolled response, and one which the inspector should take anyway. Additionally, my January 1984 affidavit to the NRC and my January 1984 report on minimum valve wall thicknesses also demonstrated the unreliability of calibration data for the equipment. In many instances, there was no calibration data. Obviously, this was no substitute for procedures whose reliability is proven by tests -- the normal QA foundation -- especially for valves with key safety functions. I wonder if the NRC has considered this issue in connection with PG&E's request to waive previous licesning commitments in the FSAR.

22) PG&E's response on the inability of valve thickness test equipment to catch specific eccentricities were accounted for through a CRT screen. Unfortunately, the test procedure doesn't use a CRT screen. Instead, it uses pulse echo digital readout equipment.

23) PG&E's responses to welding allegations suffers from a gross omission. It fails to demonstrate that the procedures used to

verify the quality of the welds were the same as those specified by Code 7/8 to install the welds in the first place. From the sketchy information provided by PG&E, I know there are significant differences.

24) PG&E's February 17, 1984 letter to the NRC takes credit for having prepared the final approved drawings (original and revisions), without exception. That is false. A September 18, 1973 PULLMAN Hall audit revealed, "PG&E is not approving the design of any 2" and under Hangers." (Exhibit 25)

I have read the above 11 page affidavit, and it is true, accurate and complete to the best of my knowledge and belief.

Harold Hudson

Harold Hudson

SUBSCRIBED AND SWORN TO BEFORE ME ON MARCH 22, 1984

JOHN M. CARSEL
NOTARY PUBLIC

OFFICIAL SEAL
JOHN M. CARSEL
NOTARY PUBLIC - CALIFORNIA
SAN LUIS OBISPO COUNTY
My Comm. Expires Dec 26, 1987

AFFIDAVIT

My name is Harold Hudson. I am submitting this affidavit freely and voluntarily without any threats, inducements, or coercion, to Mr. Thomas Devine, who has identified himself to me as the Legal Director of the Government Accountability Project of the Institute for Policy Studies. I am submitting this statement to evidence my concern over a comprehensive quality assurance (QA) breakdown for the work of Pullman Power Products at the Diablo Canyon Nuclear Power Plant. There is no possible justification for allowing this nuclear power plant to go critical until the Nuclear Regulatory Commission (NRC) confirms the full scope of QA breakdown; identifies the causes; and monitors completion of a corrective action program, including a full reinspection of safety-related work at the plant. In many instances, the reinspection may be the first legitimate quality control coverage the hardware has had.

I base this conclusion on my four and a half years experience at Diablo Canyon in Pullman's quality assurance/quality control (QC) program, including two and a half years, through 1982, during which I was the Internal Auditor. The basic lesson I learned is that the conclusions of a Nuclear Service Corporation audit of Pullman are more true today than when first published in 1977--the program does not meet the requirements of 10C.F.R. 50, Appendix B; and it does not have an operative corrective action system. The latter has been demonstrated by the further deterioration in corrective action from 1979-1983. While before, the system was merely failing to identify and solve problems, now it is actively covering them up. This has been especially true with respect to welding, non-destructive examination procedures (NDE), and hydrostatic tests--all of which I learned were consistently uncontrolled, and that some of the procedures for the first two items were not qualified by a testing process which proves the procedures actually work as claimed.

The system also broke down for vendor quality assurance, where Pacific Gas and Electric (PG&E) management ordered Pullman inspectors to stop reporting cracked welds found in structural steel restraints supplied by vendors such as Boston Bergen and American Bridge.

As an auditor trying to work within the Pullman site and corporate QA system, I learned the cause of the QA breakdown and why it has not been corrected. Pullman QA Management does not want to know about QA/QC violations. Management's corrective action has been to harass, threaten, and intimidate QA/QC personnel who identify problems, and to dismiss those who persist. Although I exhaustively reported deficiencies, the major effect of my disclosures was to prompt orders from the QA manager to only look where I was told, and his angry threats to "get rid of me!"During one such exchange,he exclaimed Pullman's bottom line: we're not committed to building this plant to 10 C.F.R. 50, Appendix B. In that case, I do not see any legal basis for the NRC to allow this plant to operate.

I am not opposed to nuclear power. Rather, I believe in the technology enough to insist that it receive the proper respect. I began working in the nuclear power industry in 1974 at the Trojan Plant and have worked at the Humboldt Bay Plant.With the exception of two months in 1979, I worked at Diablo Canyon for Pullman from September, 1978 until Friday the 13th, 1984, when I was laid off. The layoff occurred the day after I finished a two-month series of disclosures to the NRC.

For my first three to four months on site, I was a documents reviewer. For nineteen months I worked as a weld inspector in the pipe rupture restraint program. In August, 1980, I was promoted to QA Internal Auditor.

My responsibility was to evaluate and monitor the entire QA/QC program for compliance with our legal obligations. This is how I learned that Pullman does not consider 10 C.F.R. 50 a legal obligation for work at Diablo Canyon.

In January, 1983, I was removed as internal auditor, but remained in the QA program to help close out Discrepancy Reports (DR) and Deficient Condition Notices (DCN), as well as to complete my pending audits. QA Manager, Harold Karner, restricted me to carrying out his specific assignments. The harassment was so intense that in mid-May, I resigned. Through my union, the next day I return to Diablo Canyon as a pipefitter. There simply had been too many headaches attempting to work within the corporate system. On my own time, at home, I finished organizing and summarizing my evidence of QA violations. In November, I completed an initial report. On November 28, I sent it to NRC Commissioner, Victor Gilinsky. On December 6, 1983, his office wrote that I would be contacted by the Office of Investigations (OI). Although OI never called, on January 6, 9, and 12, I was interviewed extensively by a series of NRC inspectors from Region V. On January 13, I was laid off.

This statement will summarize the information and list the allegations in three written reports already disclosed to the NRC. My affidavit also is to submit a written record for allegations which I have only described to the NRC in interviews and identify allegations not yet described to the NRC.

I. QUALITY ASSURANCE BREAKDOWN FOR WELDING

With a few exceptions, from the onset of construction, the welding program for structural steel essentially has been uncontrolled--in violation of legal requirements, as well as contract and design specifications. The techniques to circumvent quality assurance included unqualified welders;

unqualified welding procedures; use of welding procedures so irrelevant for the assigned work that, in effect, safety-related welding was widely conducted without procedures; reliance upon unqualified inspection procedures to check the quality of the welds; informal changes of contract specifications without the required administrative review or distribution; falsification of records; and harassment and intimidation of QA personnel who identified and attempted to obtain corrective action against the violations. The abuses occurred both during original construction, and during the current modifications due to the Bechtel/PG&E seismic design review program.

The list below represents a more detailed summary of the allegations and evidence that form the basis for the above conclusions. The list is drawn primarily from my November 28, 1983, disclosure and attachments to Commissioner Gilinsky, which are enclosed as Exhibit 1.

1. Weld procedure Code 7/8 for piping and plates has been used improperly to weld numerous forms of structural steel on pipe supports. What happened is that Pullman substituted American Society of Mechanical Engineers (ASME) pipe welding procedures for the American Welding Society (AWS) structural steel procedures, as implemented. This practice exceeded the legally-approved limitations for use of the procedure. The limits were logical, since the two types of jobs have little in common. Pipe welding involves working around a circumference. In structural steel welding the axis of the weld is on a straight plane (Exhibit 1, at 2).

2. Code 7/8 has been used improperly to weld tube steel on pipe supports. Tube steel involves a different type of metal than the P-1 material covered by ASME procedures. This is significant, because the NRC has identified

use of the same metals as a precondition to use ASME procedures for AWS work. In fact, tube steel welding is so unique that the AWS Code has a special section for it (Id., at 2-3).

3. Code 7/8 was improperly used to weld threaded weld studs which bolt plates to civil steel on Class I safety-related pipe supports. The type of welding used for these studs is not listed within Code 7/8, and it bears almost no resemblance to the work legally covered by Code 7/8 (Id., at 2).

4. The welding for threaded studs did not even honor the requirements of Code 7/8, which calls for the use of a backing bar. Instead, process sheets operated by the construction department imposed backgrinding, which is a totally different operation (Id.).

5. Code 7/8 has been used to weld at least eight pipe support joint configurations, including flare bevel groove welds, and double bevel groove welds, not covered by Code 7/8. Each of these configurations represents a unique welding task and legally must have its own approved weld procedure specification detailing the joint configuration (Id., at 3).

6. Process sheets that guide quality control coverage did not consistently call for inspection to verify the fitup of flare bevel groove welds; one of the joint configurations not covered by the 7/8 procedure in the first place. That leaves the quality of the ensuing welds doubly unreliable. This uncontrolled work has been occurring as part of the current design modification construction work (Id.). I have read a PG&E memorandum asserting that QC fitup inspections are not required for flare bevel welds. That memorandum is not sufficient to overrule engineering

specification ESD 264, which requires inspections of groove welds and full penetration welds.

7. Code 7/8 has been improperly used on pipe rupture restraints to weld five types of metal different from the ASME approved P-1 material. These restraints prevent a pipe ruptured during an earthquake from whipping back and forth, which could damage the rest of the equipment (Id., at 4).

8. Code 7/8 was improperly used to weld two structural steel shapes on pipe rupture restraints that are not covered by the procedure--W shapes and tube steel (Id.).

9. Code 7/8 was improperly used for at least 11 joint configurations not covered by the procedure itself. These joint configurations were not generically prequalified per the AWS Code and were without Procedure Qualification Records and/or were not detailed on the Weld Procedure Specification (Id., at 4-5).

10. The result of the procedural breakdown was uncontrolled welding. To illustrate, in one example, pipe rupture restraint square groove welds were conducted without any established or documented procedure that applied to the work in question. In some instances, welds had been completely removed without any QC record of their disappearance. The records reflected QC accepted welds where none existed. For documented repairs, there was only erratic QC coverage due to unexplained procedural changes that deleted the requirement for nondestructive examinations (Id., Attachment 2).

11. Pullman has recognized the error of applying ASME welding procedures to AWS work in an uncontrolled manner and issued Welding Technique Specification No. AWS 1-1, in an attempt to clarify the proper use of Code 7/8 on AWS work. But the scope of corrective action was inadequate. It only covered the work in a weld crack repair program on pipe rupture restraints (Id., at 5-6). The misuse of Code 7/8 far exceeds the use of AWS 1.1. The crack repair program only covered about one-fourth of the pipe rupture restraints, and none of the pipe supports.

12. AWS 1-1 failed to fully correct the improper use of Code 7/8 for welding in the weld crack repair program. The procedure uses a steel not contained in the list of acceptable AWS base metals, without evidence that it had been individually qualified to prove its reliability (Id., at 6).

13. The above violation was approved on December 20, 1979, by V. J. Casey, who signed off as Cognizant Welding Engineer. Sixteen days earlier, however, he had been appointed Pullman's Assistant QA/QC manager, according to an interoffice memorandum. To my knowledge, Mr. Casey has never been listed on the Pullman organizational chart as a Cognizant Welding Engineer. The only way his approval would not represent a false statement is if he were simultaneously a construction and QA official. That would be a violation of the NRC's requirement for a QA program independent of construction (Id., at 6-7).

14. I also have serious reservations about Mr. Casey's qualifications, based on his judgment in the field. In 1978, Mr. Casey was my supervisor when I began as a welding inspector. He instructed me to measure fillet welds by the throat, when the AWS Code requires the measurements from

the leg of the weld. For approximately two months, I inspected welds to the wrong standard, because Mr. Casey gave me a makeshift gauge not designed to measure fillet welds. Other inspectors informed me that Mr. Casey has changed the rules on the spot for equipment anchor modifications in the containment. They stated his instructions were to work to a "relaxed" engineering specification ESD 243.

15. Through loopholes in its Engineering Specification ESD 223, Pullman improperly exempted itself from AWS design, fabrication, and erection requirements for all structural steel pipe support welding. Writing off the rules in this fashion violated the PG&E contract specifications. To my knowledge, there is no documented authorization from PG&E to deviate from the Code requirement, which is still in the contract (Id., at 7-9).

16. PG&E contract specifications on welder qualifications were changed without required review and authorized approval. The rules were changed through a cryptic, unexplained note. The changes involved the qualifications standard for all rupture restraint welders before July 10, 1979. The use of ASME qualification standards for welders doing unrelated AWS work mirrors the breakdown in welding procedures. Again, however, the 1979 corrective action only applied to rupture restraints (Id., at 9-12).

17. The PG&E contract requirement for Charpy, or notch impact strength tests, was waived for Code 7/8 and other welding procedures. Charpy tests are necessary to be sure the welds installed under the procedure can meet relevant design and professional code requirements for strength. Deleting this requirement was a serious step, which should have gone through the Contract Specification Change Notice process to assure proper engineering review and approval. Instead, in January, 1974, a PG&E piping superintendent

removed this significant QA check with a one-word penciled response, "No", when Pullman asked in a letter if weld procedures for rupture restraints required Charpy impact tests (Id., at 12-13).

18. In violation of still unrevised contract specifications, specific corrective action commitments on relevant Nonconformance Reports (NCR), and relevant procedures for the weld crack repair program, none of the full penetration welds less than 9/16 in. thick among rupture restraints were ultrasonically tested. This means that the welds in rupture restraints since July, 1979, were not fully covered by quality control tests in a significant number of cases. PG&E engineers accepted the loopholes to Pullman's program in July, 1979, again without the required review and approval, and without revising the relevant contract specification that was being ignored (Id., at 13-15).

19. Another weld procedure, Code 88/89 for carbon steel piping, has been used to weld pipe support structural steel shapes and plates during both original construction and repair work in the current design modifications. Structural steel shapes and plates are not covered by Code 88/89 (Id.,at 16).

20. In violation of the contract specification, Code 88/89 has been used to weld carbon steel plates and structural steel shapes to rupture restraints with two welding processes, Shielded Metal Arc Welding (SMAW) and Gas Tungsten Arc Welding (GTAW). GTAW is not covered by the relevant AWS Code (Id.)

21. In August, 1979, PG&E issued Welding Technique Specification No. AWS 1-3 to clarify the use of Code 88/89 for AWS welding. Unfortunately, the "solution" again repeated the problem. AWS 1-3 covers a welding process, (GTAW) and a base metal (A-515) not covered by the relevant AWS code provision (Id., at 16-18).

22. Pullman also substituted welding procedure Code 92/93 for pipe rupture restraints when the process sheets specified that the work would be done to Code 7/8. The Pullman Assistant QA manager accepted the switch in an August 15, 1978, memorandum without changing the process sheets--which left a record of work to a different procedure than was actually used. (Id., at 18). The only records accurately reflecting the weld procedure used were the weld rod requisition forms (Id., at 21-22).

23. The informal approval of the welding procedure switch was based on a false premise--that both procedures were qualified to unlimited thickness and were technically equivalent. In fact, they only bear a passing resemblance. For example, Code 7/8 does not include a type of welding in Code 92/93 that is only universally approved by the AWS for welds up to 1/4 in. thickness. Nor did Code 92/93 have its own procedure qualification test to verify its reliability on the welds greater than 1/4 in. thick. In effect, that welding was uncontrolled and its quality is legally indeterminate. The two welding procedures are also different with respect to joint configurations, joint details, tacking the joints, weld processes to be used, backing bar requirements, and welding techniques, such as the allowable heat input from AMPS and maximum volts. The controls for clearly distinct special processes cannot be legally intermingled through a memorandum (Id., at 18-21).

24. Contrary to contract specifications, welders qualified to ASME-based Code 92/93 were used for structural steel welding without being properly qualified to the AWS Code. The switch was accepted on August 15, 1978, Interoffice Correspondence, rather than through an accountable procedure with review, authorized approval and a Contract Specification Change Notice (Id., at 20-21).

25. An April 14, 1983, Discrepancy Report on 1972 welding in the Spray Ring Piping System for the Unit No. 1 containment dome, DR #4713, failed to identify an organizational breakdown far more significant than the issue it disclosed (variations between the SMAW weld process used and the process reported in the process sheets). DR #4713 also revealed that the process sheets and rod requisition forms referenced different weld rods than had, in fact, been used. The response of the QA/QC manager was to accept the violation as is. The DR did not mention one of the most significant violations: the production department substituted an unauthorized, unapproved procedure and process for the procedure which had been properly selected and approved by the QA system and the third party authorized inspector from the State of California. This was done in order to avoid delays when QA issued the wrong weld rod for Weld Procedure 128. Production could not wait to correct the weld rods, so the foreman just changed the procedure. In other words, the production department's "solution" was to achieve compatibility by making the procedure as wrong as the weld rod. DR #4713 endorsed the procedure switch (Id., at 23-25). If production can overrule the QA system so easily on such casual grounds, it means that controlled welding procedures occurred only when tolerated by the construction department. Under the circumstances there can be no basis for confidence that the quality of the welding was controlled. Most significant, in April, 1983 Diablo Canyon management was still satisfied with this result.

26. DR #4713 missed another equally significant violation: QC inspectors had approved all the welds after visual examination, although the GTAW and SMAW welding procedures do not look the same. The 1972 failure raises serious questions about the reliability of QC inspections at the

time. The failure of DR #4713 to even note the QC inspection failure demonstrates that 11 years later, the acceptance standards have not yet become realistic. Significantly, before it was issued, this DR was reviewed three times by Bechtel and PG&E management, which must assume responsibility for a QA report that failed to disclose, at all, the most significant QA violations (Id., at 25-28).

27. The breakdown in records for the weld rod and weld process sheets render it impossible to verify the qualifications of early welders by reconstructing weld rod and process records, as asserted by Pullman in response to 1977 Nuclear Services Corporation findings that the qualifications could not be established for welders in late 1972. I demonstrated this effect of DR #4713 by applying its findings to a case study on a welder whose qualifications were challenged in the original NSC audit (Id., at 28-30).

28. My attempts to perform my audit duties on welding led to sustained management hostility, including restrictions on my organizational freedom, harassment and intimidation, and retaliation through personnel actions. On January 28, 1983, the harassment reached a climax. I had already been removed as internal auditor on pretextual grounds (infra, at 23-4) and was doing research for pending audit reports that I had issued, in this case Unscheduled Internal Audit #35 on pipe rupture restraings. I was at my desk revjewing the records on three full penetration welds that had been tested to the wrong nondestructive examination process. Mr. Karner approached and wanted to know what I was doing. When I told him, he asked if I had been directed to identify those problems. Because I was completing a pending audit of which Mr. Karner disapproved, I accurately answered, "No." He then shouted at me that I was no longer the internal auditor and could no longer identify

discrepancies unless he specifically ordered me to. At the time, I was still a quality assurance employee, helping to close out DCN's and DR's. Mr. Karner's orders to restrict my inquiries violated the requirement for organizational freedom in 10 C.F.R. 50, Appendix B.

29. During the January 28, 1983, confrontation, Mr. Karner also threatened that if I repeated this type of behavior, he would "get rid of me." From his demeanor, I was unsure whether he was referring to my presence on the job, or my presence--period. Mr. Karner's threats eventually convinced me to resign and to take a pipefitting job. The pervasive atmosphere of intimidation was too counter-productive for an employee to successfully uphold required QA/QC standards within Pullman's quality assurance program.

30. Although Pullman has gotten rid of me, the company has kept the problem of unqualified welding procedures. When I left in January, 1984, we were still working to the same welding procedures I had audited. Nothing has changed except that after all the notice, it is clear that Pullman and PG&E's violations are deliberate. There can be no excuse of ignorance. Corrective action has been nonexistent or ineffective. There were discussions on-site of attempting to qualify Code 7/8 after the fact, which would have been ineffective anyway since it was the sponsoring procedure for considerable work that it did not describe. As of my departure, however, even that halfway step had not occurred.

II. QUALITY ASSURANCE BREAKDOWN IN NONDESTRUCTIVE EXAMINATIONS

Nondestructive examinations to test the welds and other hardware were as unreliable as the procedures to conduct the welding in the first place. The indeterminate quality of the testing process leaves the quality of the

hardware in the same status--indeterminate, at best. In some cases, NDE results were compromised due to simple manipulation at management direction. This phenomenan allegedly occurred when Bechtel and PG&E had the NDE personnel do certain ultrasonic tests (UT) over with a different approach, after the tests had identified a large number of rejectable welds.

A good illustration of the quality assurance breakdown involves 1972 tests used to measure Seismic Class I valves on the reactor coolant pressure boundary for minimum wall thickness in response to an Atomic Energy Commission (AEC) directive. The UT procedure was not qualified by tests to determine its reliability, which was questionable anyway, because the procedure did not measure the entire surface of the valves. There is serious question whether all relevant valves were examined, in part due to conflicting information in the records. Not all the equipment used to measure the valves was traceable and calibrated. The former violation invalidates usage of the equipment. The latter affects the accuracy of UT results by up to 48 percent, when the AEC required 98 percent accuracy. Informal changes of contract specifications, without the required review and approval, again facilitated the QA violations. To my knowledge, corrective action has not occurred.

The unreliability of valve measurements was representative of a general QA breakdown for nondestructive examinations. In Internal Audit 101, I checked 21 such procedures--seven were deficient, representing three forms of nondestructive exams To date, the most significant problem remain. The basic flaw was that records were not available to demonstrate that test procedures were qualified. After I traced the use of one procedure back to the steam generator feedwater nozzle, the QA manager ordered me not to find out where a related test procedure was used. The response to my disclosure of these problems was to sit on them for over a year. In some instances, there still

has not been effective corrective action. QA management reneged on solutions to which we had agreed. The situation became so frustrating, that I conducted an audit on corrective action and sent the results to Pullman corporate headquarters. The response was to reprimand me for breaking ranks, while the QA violations continued to be ignored. Below is a more detailed listing of related allegations.

31. In some instances, the unreliability of nondestructive examinations is due to manipulation of the test results in order to mask deficiencies. This allegedly occurred in 1982, with respect to tests involving around 230 Unit I full penetration welds--some in the containment--where UT examinations revealed large numbers of rejectable conditions. Witnesses described the defects to me as voids, slag, and lack of fusion in the roots of the welds--which raise questions about weld bonding. I was also informed that Bechtel and PG&E management responded by manipulating the UT procedure in a manner that would lower the number of rejected indications. The welds were then "accept(ed) as is" (Id., at 15).

In other instances, the QA violations are more deeply rooted. The case of Engineering Specification ESD 234 for ultrasonic measurement of valves on the reactor coolant pressure boundary is a microcosm of the breakdown. On January 18, 1982, I initially reported QA violations through Internal Audit #101. I tried again in November, with unscheduled Internal Audit #34. On January 2, 1984, I finished a report to Commissioner Gilinsky on this still uncorrected problem, which I have since forwarded to the NRC inspectors at Diablo Canyon. It is enclosed as Exhibit 2.

32. There is no evidence that the ultrasonic thickness measurement

procedure was qualified through tests to demonstrate the 98 percent level of accuracy required by the AEC. The valve measurements were conducted with an uncontrolled procedure, and therefore cannot be accepted as the basis for conclusions about the quality of the valves. In my audit, I could neither find evidence of a Procedure Qualification Record (PQR), nor a Procedure Qualification Test (PQT) (Exhibit 2, at 2-3).

33. There is no evidence of "procedure verification tests," required by ESD 236 for the transducers, that take into account the curves, ridges, and irregularities that exist on every valve and significantly affect the measurements (Id., at 3).

34. Management appears to have conducted the measurements without any qualification test, despite prior warning that the procedure was too unreliable to support its findings. An April 17, 1973, "Interoffice Correspondence" had disclosed:

> 3. The transducers available are adequate for flat smooth surfaces. There are no adapters, shoes or wedges available should they become necessary.
>
> 4. At this time, it appears the transducers supplied may not be the correct type for thickness readings. If this is true, we will have to order new transducers.
>
> 5. The effect of surface contour and roughness must be tested prior to making any reportable results.
>
> 6. There is no available equipment on the U.T. equipment for review.
>
> It is doubtful that any meaningful results can be obtained at this time and it is definite that none can be reported until the above-mentioned problems are solved.

(Id., and related attachments)

35. Pullman QA manager Harold Karner improperly refused to take corrective action in January, 1982, when I disclosed the lack of procedure qualification records or tests for ESD 236 and ESD 244, the UT Thickness Gauge Procedure. The problem remains uncorrected. His excuse was that these procedures were only nondestructive measurements rather than nondestructive tests, and therefore did not represent "special processes" whose quality must be controlled (Id., at 4).

That semantic distinction is irrelevant. The reason to require reliable, controlled procedures is to assure the quality of sensitive, safety-related hardware. Indeed, in 10 C.F.R. 50, Appendix B, Criterion X, the terms "examinations, measurements, or tests" are used interchangeably. The safety-related purpose for qualified NDE procedures is magnified for ESD 236. ESD 236 was instituted in response to an AEC directive to the nuclear industry after discovery of valve problems at a series of plants.

36. Mr. Karner's manipulation of definitions is wrong. UT measurements constitute a special process which must be qualified. They are a special process because they are uniquely created to perform a specific quality-related function. Further, PG&E contract specifications and 10 C.F.R. 50, Appendix B, Criteria IX, "Control of Special Processes," identify nondestructive testing as an example of special processes, not as the boundary of the concept.

37. UIA #34 of 254 Valve Wall Thickness Data Reports demonstrated that the Data Reports are incomplete and, therefore, are not traceable, as required. For example, none listed the size, shape, or manufacturer's designation for the transducers that performed the wall thickness. The ESD

236 Documentation Packages do not provide any information on the testing equipment beyond the serial numbers. In some cases, there were not even serial numbers for the UT machines and the micrometers used as a mechanical backup measuring device (Id., at 5-6).

38. The Data Reports offered unreliable, inconsistent information. For instance, 19 reports listed two different UT machines as having conducted the same valve measurement. Serial numbers for UT thickness equipment and micrometers could not be verified independently. Ten percent of the valves checked physically had serial numbers different from those listed in the Data Reports. In many Data Reports, original information had been whited-out and altered without signature or explanation (Id., at 6).

39. Necessary records to demonstrate calibration of the measuring equipment were not consistently available. To demonstrate the potential effects, on three UT measurements whose accuracy was tested, the pre- and post-calibration checks showed variations of 10 percent, 48 percent, and 2.6 percent (Id., UIA #34, Attachment 5). The maximum error permitted by the AEC was 2 percent.

40. The AEC acceptance standards were violated when valve measurements from equipment that failed minimum reliability standards (#39, supra) were used to accept the valves as sufficiently thick (Id.).

41. Forty-two Data Reports disclosed that the valves were below the minimum thickness, but on the paperwork they were marked as "accepted" without explanation (Id.).

42. In 11 cases, the measurements were incomplete. The records simply skip results for required areas of the valve, such as the flat pad at the bottom (Id.).

43. In 14 valve locations, there was no documented evidence that the valves had been examined at all (Id.).

44. There was no documentation to indicate that weld repairs on the valves were controlled, as required by the AEC. To illustrate the absence of verifiable controls, the Data Reports do not have a requirement to list whether valves were weld-repaired, or the weld procedure used (Id., at 7).

45. During my research for UIA #34, I discovered that none of the valves meet AEC and PG&E design requirements. Westinghouse, the manufacturer, had explicitly declared that they "were not designed to meet the minimum wall thickness requirements of ANSI B16.5"--one of the relevant professional codes listed by the AEC in 1972. By comparing Westinghouse's communication with PG&E contract specifications, I learned that the valves also do not meet the design requirements in the contract (Id.).

46. To my knowledge, there still has not been any corrective action on this problem. If there had been good faith attempts, I should have been contacted as the originator of the audit. I remain available to help follow through.

47. Similar to UT thickness measurement procedures, nondestructive test procedures lacked documentation of Procedure Qualification Records or Tests. In IA #101, I found this flaw in seven procedures out of 21 examined. Beyond the UT thickness procedures, there were five cases where no evidence existed that NDE procedures had been qualified. As a result, the quality of work examined under those procedures remains indeterminate. These included: 1) ESD 234, for UT Inspection of Groove Welds on pipe rupture restraints prior to 1979; ESD 241, for UT examination of Safety Yoke Rods on Safety

Valves; ESD 246, for Magnetic Particle testing, with unknown use; ESD 247, for Magnetic Particle examination of welds in the crack repair program on Unit #1 Steam Generator Feedwater Nozzles; and ESD 270, for Liquid Penetrant examinations, with unknown use. On January 12, 1984, I completed and delivered to NRC inspectors, a draft report to Commissioner Gilinsky on IA 101. It is enclosed as Exhibit 3.

48. The corrective action for procedure ESD 234, consisted of unreliable, "after-the-fact" Procedure Qualification Tests, whose use was not controlled and accomplished using qualified procedures. Ironically, this is the same flaw the late PQT were supposed to correct. Further, there is no evidence that management reviewed and approved the procedures for the PQT (Id., at 2-3).

49. QA Manager Harold Karner improperly prevented any corrective action for the lack of procedure qualification records on ESD 270. Instead, he directed that the Procedure Qualification Records for a similar procedure, ESD 210, should be used for ESD 270. That is unacceptable. If the two procedures have separate numbers, there are at least some dissimilarities. Those unique features of ESD 270 inherently will not have a proven demonstration of their ability to identify defects. This QA violation remains ignored.

50. No investigation was performed to determine where ESD 270 was used. Instead, the QA manager told me to just write up what I had learned already as an audit finding.

51. ESD 241 for UT of the safety valve yoke rods involves the most significant violations. In addition to the lack of a PQR, the hardware was tested from December 17-20, 1973, before the UT procedure itself was even issued on December 26, 1973, and prior to approval of the UT procedure

by PG&E on February 12, 1974. The testing was totally uncontrolled for the yoke rods on these valves, which I believe control the release of radiation from the containment (Id., 8 at 4).

52. ESD 241 was deficient because it violated instructions from Dresser, the vendor for bolts and studs. The Dresser instructions required the rods to be examined prior to threading. At Diablo Canyon, the UT's were conducted after the threading. Further, ESD 241 did not use the Dresser instructions to determine the reference point for sensitivity and the criteria to report questionable items (Id., at 4-5).

53. The existing documentation for the tests fails to meet the standards both of ESD 241 and the Dresser Instructions. Required information on the testing surface and instrument calibration was not included (Id., at 5).

54. Both ESD 241 and the UT inspection records failed to reflect compliance with a PG&E-imposed requirement for backup inspection "with the liquid dye penetrant technique to check the yoke rod ends for indications of cracking that might extend into the threaded area of the yoke ends" (Id., at 5-6).

55. No DR was issued to PG&E on ESD 241, although this corrective action had been agreed to both by Mr. Karner and the NDE supervisor. Mr. Karner improperly reneged on the basis of a memorandum from John Guyler, my successor as internal auditor. Mr. Guyler dismissed the detailed, documented DR which I had proposed with the following assertion: "PPP has accomplished this per instruction from PG&E. It is evident that a nonconformance does not exist and a DR is not necessary" (Id., at 3-4). Mr. Guyler's response was inadequate. First, the procedure violated PG&E instructions (see #54, supra). Second,

even PG&E does not have the authority to validly instruct Pullman to violate 10 C.F.R. 50, Appendix B, Criterion IX--"Special Processes." Third, Mr. Guyler did not document his asserted conclusion.

56. Overall, Pullman violated NRC reporting requirements and PG&E contract specifications by only reporting the deficiencies for two out of the seven nondestructive procedures to PG&E on Discrepancy Reports (Id., at 6).

57. PG&E dispositioned the DR for ESD 246 "accept as is", although there is no information indicating where the nondestructive test was conducted. Since the identity of the affected hardware could also impact on the evaluation criteria, PG&E's acceptance was premature (Id., at 7).

58. The reason the location of work tested under ESD 246 could not be identified is that Mr. Karner improperly prevented me from looking. After I learned that ESD 247 was used for welds in the crack repair program on feedwater nozzles in the Unit I Steam Generator, he ordered me not to check where ESD 246 had been used (Id., at 6).

59. PG&E improperly dispositioned the DR on ESD 247 "accept as is", although the Magnetic Tests in the procedure were referenced to ANSI standards, rather than the relevant ASME Code Section I; and although the qualifications of the MT personnel conducting the test cannot be verified from the records available (Id.).

60. The corrective action for ESD 246 and 247 involved procedure qualifications after-the-fact (Id., at 7). After-the-fact procedure qualifications should not excuse PG&E from accountability under NRC rules. At best, it means that the damage has been minimized. But it also inherently means that

10 C.F.R. 50, Appendix B, was violated, because special processes were conducted under uncontrolled conditions.

61. Even if it is acceptable to conduct procedure qualification tests after the fact, the tardy test must be performed under controlled circumstances. In this case, PQT's were conducted with different equipment than had been used originally (Id.). No documentation was supplied to support the asserted Corrective Action Response that the new equipment made the results more conservative.

62. QA Manager Karner was responsible for the deliberate failure to provide reasonably prompt corrective action for IA 101. On January 18, 1982, I initially disclosed IA 101; on March 23, 1982, it was finalized after I provided Mr. Karner with additional information which he had requested. On April 6, 1982, corrective action for the first finding in the audit on lack of procedure qualification tests was approved. Before implementation, however, he changed his mind. Although the official time limit for corrective action is ten days, the audit was not closed out for over another year, despite my repeated memoranda and attempts to formally notify Mr. Karner of his obligation to address the issue of unqualified NDE procedures (Id., at 8-11).

63. Pullman corporate QA Director A. Eck was notified of the failure to take corrective action and improperly refused to help. Instead, he reprimanded me for bringing the matter to his attention. On June 14, 1982, I notified Mr. Eck, through an Interoffice Correspondence, of the overdue corrective action. He did not respond. On July 6, 1982, I performed and submitted Unscheduled Internal Audit #31 to Mr. Eck on the lack of corrective action required by ESD 263 within 10 days. This time I received a response. Both Mr. Eck and Mr. Karner reprimanded me for submitting the audit to Mr. Eck directly, rather than letting it proceed through the chain of command.

This violated ESD 263, they explained. My audit was voided. Both individuals neglected to mention the violation of ESD that I had raised - the QA violations were not getting fixed (Id., at 9-10).

64. In January 1983, I was further punished for Mr. Karner's improprieties. I was removed as internal auditor because only 5 instead of the required 18 audits had been closed out. Part of the problem was due to circumstances beyond my control. Mr. Karner or supervisors were sitting on some of my audits beyond the required deadline. Mr. Karner also was loading me down with ancillary assignments and unscheduled audits were not counted.

65. On January 28, 1983, during the meeting in which Mr. Karner threatened to get rid of me for looking at quality -related issues without being assigned (Supra, Nos. 27-28), I informed Mr. Karner that he had violated 10 C.F.R. 50, Appendix B. He responded twice that we are not committed to 10 C.F.R. 50, Appendix B, and that it was "O.K." for him to violate the Code of Federal Regulations and related contract specifications.

III. BREAKDOWN IN QUALITY ASSURANCE FOR HYDROSTATIC TESTS.

Hydrostatic testing at Diablo Canyon from 1975 to 1978 does not have the necessary QA documentation to prove the reliability of the tests. In hydrostatic tests, water is run through the plant at higher pressures than normal to see if the piping is reliable.

In February 1981, I conducted Internal Audit 86, in which I learned that nearly all hydrostatic piping tests for a year, during 1980 and 1981 were conducted without required QC documentation. In April 1982 NRC inspection identified that documentation problems identified

in Internal Audit 86 were not properly corrected. I became convinced that serious problems may exist with the hydrostatic tests. In March 1983 I completed Internal Audit 106, which examined the records for 79 original hydrostatic tests and 118 retests conducted from 1975 onward. I learned that the test documentation did not have evidence of required QC oversight, QA records, consistent procedures, or controlled test conditions. In short, there has been a generic breakdown in the QA requirements for hydrostatic tests. They must be redone. Internal Audit 106 is enclosed as Exhibit 4. My specific allegations follow.

66. The procedures for hydrostatic tests conducted before January 27, 1975 are fundamentally inadequate, due to their failure to include documentation requirements, and due to lost pages, the inability to even entirely reconstruct the procedure requirement.

67. Almost all hydrostatic tests and retests from 1975 onward lack required QA documentation. The most significant omission involves QC coverage documented on a piping system closeout - F98 Department Release. This activity is necessary to assure that departments performing the test comply with procedure checklists. Unfortunately, departments only complied sporadically with the requirement to complete and maintain the form which demonstrates compliance with the test procedure. In other cases, there is not necessary backup documentation to verify the conclusions in the release. (Exhibit 4, AAR #1).

68. From December 1977 - April 1978, in 28 cases Pullman test requirement forms did not have information necessary under the

procedure ESD 229. Fundamental data, such as the type of fluid, pressure and temperature, simply is missing (Id., AAR #2).

69. In 28 cases, Pullman's HT procedure data form does not match PG&E requirements. This form is the guide used to conduct the test, so the distinctions translated into different test conditions that disqualify the results from Pullman's hydrostatic test. To illustrate, in one test Pullman's procedure only had a pressure of 2485 PSIG, when PG&E's acceptable minimum was 2812 PSIG.

70. The absence of backup documentation continued after 1978. From March 1978 to April 1980, there were 14 hydrostatic retests without a signed QC field pipe release, dispite the conclusion by Quality Engineering in the test records that QC had verified the results (Id. AAR #3).

71. The problems with hydrostatic tests offer another example of management harassment of QA personnel. During the May 1982 NRC inspection, I spoke extensively with NRC representatives. After the interview Mr. Karner expressed anger at the length of the meeting. At a later meeting, during this general time frame, he threaten to get rid of me.

IV. BREAKDOWN IN VENDOR QUALITY ASSURANCE.

Although I was not as actively involved with vendor QA as with special process and hydrostatic test procedures, I observed the symptoms of a generic QA breakdown after becoming familiar with two examples of QA violations involving vendors. One case involved a vendor that calibrates micrometers, a precision measuring device for Pullman tools and the impact of weld repairs, among other functions. Although the vendor had a clean bill of health and was on the Approved Vendors

List (AVL) until my October 1981 audit, there was virtually no quality assurance program. Unfortunately, corrective action was solely prospective - to remove the firm from the AVL. The damage that already has been done will remain.

The second case involves 1980 and 1982 orders by PG&E for Pullman inspectors to stop reporting the large number of cracked shops welds found in Boston Bergen and American Bridge.workIhese hardware defects should have been reported on DR's, but instead were ordered to be ignored because they came from a vendor. Specific allegations follow.

72. The reliability of Pullman's Approved Vendors List is indeterminate, due to the inclusion of Microsurface Engineering. This firm only had a token quality assurance program, yet had been approved and passed previous vendor audits. My audit demonstrated that Microsurface did not conduct audits, did not have a written procedure for calibration, conducted uncontrolled inspections, lacked traceability for use on Pullman tools, failed to disclose laboratory standards for calibration, and did not have required documentation for training of laboratory personnel. The violations were so ingrained and pervasive that it is not credible to conclude they only sprang up since the vendor passed an audit the previous year.

73. Corrective action for the Miscrosurface QA violation improperly was restricted to the prospective step of removing the firm from the AVL This was inadequate, because the accuracy of measurements made with Microsurface tools is indeterminate. The effects of previous violations will remain undisturbed.

74. In July 1979 Pullman inspectors began finding significant quantities of cracks in welds received from two vendors, Boston Bergen and American Bridge. Until 1980 Pullman inspectors wrote 19 Discrepancy Reports on the welds, which displayed a consistent pattern of linear indication. The DR's are enclosed as Exhibits 5-~~24~~ 23. On April 3, 1980, however, Mr. Marvin Leppke of PG&E issued a memorandum directing Pullman to stop issuing Discrepancy Reports on these "shop" welds. The memorandum is enclosed as Exhibit ~~25~~ 24.

75. In 1982 PG&E repeated the improper restrictions on QA enforcement against the same shop welds. This time PG&E instructed Pullman to delete shop welds from the formal walkdown program that represents a final visual check on quality. Relevant supporting documentation is enclosed as Exhibit ~~26~~ 25.

V. RECORDS FALSIFICATION

Beyond instances of contradictory and impossible information in the records, in some cases I am sufficiently familiar with the circumstances of false records to state that they were intentionally falsified. Examples involve the qualifications tests for QC inspectors. As a prospective welding inspector I failed one of my initial test and was then given a copy of the test to study to assure passing on the second attempt. Another inspector was certified after taking a test which upon review months later he was found to have failed. He was retested at that time and passed with the assistance of coaching. The test was backdated to the original test date to cover work performed during the intermin period. The latter example occured in 1980.

VI. CAUSES OF THE QUALITY ASSURANCE BREAKDOWN.

77. The most significant cause for the QA breakdown is the environment of repression and the predictable retaliation against QA personnel who diligently try to identify and correct QA violations. The problem goes well beyond the loss of organizational freedom. Upholding the Atomic Energy Act at Diablo Canyon can represent professional suicide. Most significant, the sacrifice is for nothing. The violations remain, uncorrected. My own experience is a case study. Mr. Karner threatened to "get rid of" me on three occassions when I persisted in attempts to obtain corrective action. Mr Karner restricted my freedom as an inspector until I could only look at specific problems assigned by him. I was reprimanded, verbally and in writing, for communicating with corporate QA management about such a fundamental violation as the failure to take corrective action against unqualified NDE procedures on safety related work. To add insult to injury, in January 1983 I was demoted for not finishing enough assignments. The demotion was due in part to Mr. Karner's refusal to act on my audits, which made it impossible in some cases for me to finish my assignments.

78. The final act of reprisal against me occurred on January 13, 1984. I was laid off from my job as a pipefitter, the day after making my third disclosure to the Nuclear Regulatory Commission. NRC inspectors already had told me that site management had a copy of my first report on welding procedures, and that Bechtel was studying it. On Friday, 50 pipefitters were laid off, supposedly due to a lack of parking space. The usual practice for these layoffs is to let workers from the local union stay until last. In this instance 46 out of the 50 employees laid off were "travel cards"

from out -of-town unions. Although more travelers were available, four employees from the local were swept out with the travelers. One of the four was having conflicts with his supervisor and one had an absenteeism problem. The other two were my partner and myself. My foreman protested to the supervisor not to lay off my partner and me, and asked for permission to pick someone else. The supervisor referred him to the resident construction manager, who refused the request and told the job steward that we had to be the ones laid off. My foreman and the job steward recounted these events to me on the day of the layoff. That day the job steward also informed me of the perception of site that my layoff was due to "politics" and was decided "higher up". On January 25, 1984, the day after retaliation was widely discussed at Congressional hearings, management called me back to work but not my partner. The pattern represented by my case illustrates why a significant number QA violations have gone unreported, and why the quality of Diablo Canyon is indeterminate. Those who persist in reporting the violations are dismissed, or harassed relentlessly until they resign, or give up and stop trying.

79. Another cause for the QA breakdown is subordination of PG&E's and Pullman's QA department to construction. Until recently, PG&E site QC did not review Pullman Discrepancy Reports. PG&E's Resident Mechanical Engineer, a construction offical, reviewed and approved corrective action to discrepancies. As of May 1983, Pullman Internal Audits were not submitted to PG&E site QC for review but instead submitted to the Resident Mechanical Engineer.

80. Another cause for the QA violations was lack of resources. To illustrate, from August 1980 to September 1982, Mr. Karner was the only permanent employee in the QA/QC site management. He did not have an assistant QA Manager, and the QC Supervisor was a temporary employee.

81. The QA breakdown was not due to PG&E ignorance. On

repeated occasions, I identified many of the issues in this affidavit to a variety of officials within the PG&E supervisory and management staff. Although some officials listened and expressed agreement and/or sympathy, none of the violations were corrected. I believe that PG&E and Pullman have been gambling that the NRC will not enforce the QA laws, even if they are caught. For the sake of the public's health and safety, I hope that the NRC calls their bluff.

I have read the above 31 page affidavit, and it is true, accurate and complete to the best of my knowledge and belief.

Harold Hudson

SUBSCRIBED AND SWORN this 17 day of January, 1984, in _____, California.

NOTARY PUBLIC
My Commission Expires:

40143

INTEROFFICE CORRESPONDENCE

THE M. W. KELLOGG COMPANY

File

TO Distribution List

DATE December 12, 1974

FROM E. F. Gerwin

SUBJECT ANSI-N45.2.6 Qualification of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants

List:
J. Bowes
E. Curcio
S. Handler
W. Wills
Pedro Elorza
W. J. Mitchell
D. Cockrane
J. Townsend
P. Runyan
R. Walters

Earlier this year I sent out a memo to all of you indicating that the Atomic Energy Commission had begun to require qualification of inspection and testing personnel in addition to non-destructive examination personnel all in accordance with ANSI-N45.2.6.

To accomodate this requirement, the Williamsport QA Manual was revised on 3/19/74, Field Installation Manual on 4/1/74 and Dave Cockrane was notified to change the Paramount Manual accordingly during that same period of time. The M. W. Kellogg Company's standards policies regarding qualification, certification and training of both non-destructive examination and inspection and testing personnel are all outlined in Quality Assurance Procedures QAP-1 through QAP-4 all dated May 1, 1974.

Apparently my suggestion was not taken too seriously and now we have the AEC breathing down our necks in one or two places.

I would strongly recommend that the respective QA Managers implement the Inspection and Testing Personnel Qualification and Training Programs outlined in QAP 3 and 4 immediately.

EFG:mlc

CC: T. D. Landale

EdG

Devine Exhibit 6

INTEROFFICE CORRESPONDENCE

DATE July 30, 1982

TO H. Karner, QA/QC Manager

FROM H. Hudson, Internal Auditor

SUBJECT Exit Conference with PG&E Auditors concerning Program Audit #20705, "Quality Assurance Program".

The Exit Conference with PG&E Auditors was held on 7-29-82 and audit findings were discussed. It was stated that the scope of the audit was a Supplier and Program audit. The main concern was the implementation of the administration of Quality Assurance. See the attached list for conference attendees. The following items were discussed:

1. Previous audit findings were looked at. Noted that the Internal Audit schedule was very effective. Noted that Management audits were okay and that QA interface was okay.

2. Internal Audits were adequate. Stated that the last two years, a good audit program was in effect. Two recommendations:

   A. Cases where Inspectors or others did not follow procedures, the Steps to Prevent Recurrence were to reindoctrinate but there was no documentation to back this up. Recommended Pullman provide form to document reindoctrination as well as use Internal Auditor letters reminding of procedure requirements. RECORDS OF ON THE JOB TRAINING ARE BEING MAINTAINED AND ACCOUNTED IN EACH INDIVIDUALS FILE UNDER OJT. THIS WAS IDENTIFIED TO AUDITORS. WE NEED TO BE SURE AND TAKE CREDIT FOR IT. HHL 8/2/82

   B. Internal Auditor qualification appears to be to ANSI Standard but no statement that it is. Recommends Pullman state Internal Auditor is qualified to ANSI Standard. N 45.2.23 HHL

3. Training of NDE Inspectors to SNT-TC-1A was adequate. But other Inspectors should be qualified to ANSI N45.2.6 standards. There is no evidence that they are. This will be an open item to re-audit at a later date. P.G.E. HAS NOT STATED IN WRITING THAT PULLMAN MUST COMPLY WITH ANSI N45.2.6. (REF: 8711) WE ARE NOT IN VIOLATION OF PGE SPEC OR OUR PROCEDURES ESD 235 + 237. HHL 8/2/82

4. Organization was okay.

5. Discrepancy Reports were okay except Steps to Prevent Recurrence needs back up documentation when a person has received reindoctrination. A recommendation was made about the use of tape over penciled in circles which PG&E used to mark the recommended disposition they wanted implemented on a Discrepancy Report. The tape was used to preserve the pencil marks from wear. The auditor called this system "hokey".

SEE 2.A ABOVE HHL. 8/2/82

Devine Exhibit 7

TO: H. Karner, QA/QC Manager DATE July 30, 1982

SUBJECT: Exist Conference with PG&E Auditors concerning Program Audit #20705, "Quality Assurance Program".

5. Continued I HAVE ADDED A STATEMENT TO EACH D.R. INDICATED APP. BY CIRCLING THE APPROPRIATE "RECOMMENDED DISPOSITION". HK 8/2/82
He recommended that a formatized method be implemented for PG&E to indicate their preference in Discrepancy Report Dispositions. The auditor also made an observation about the number of open Discrepancy Reports going back to 1978. Pullman responded that these open Discrepancy Reports were Unit #II work still in progress. A REGULAR REPORT IS ISSUED LISTING ALL OPEN D.R.'S AS TOLD TO AUDITOR

6. Purchase Orders were being let before the QA/QC Manager sign off. HK 8/2/82
Need to establish management control. The receiving of purchased material was under control. Need to comply with procedure requirements. This would remain as an open item to be reaudited at a later date. An observation was made about Site Approved Vendor's List. There was no approval by PG&E of the list but approval was done on an individual bases by purchase order. ← HANGERS & RUPTURE RESTRAINT MATERIAL.

7. Design Control was adequately implemented. HK 8/2/82

8. Drawing Control was adequately implemented.

9. Document Control had an observation made about Isometric packages. Iso packages were complete but documentation not properly arranged into categories per QA Instructions. Stated related documents such as Inspection Check Off Lists were the same way. All information was available but located in different places. Concerned about only one person knowing where documents are located. If he dies, control may be compromised.

Iso packages audited were 1-14-86A, 1-14-85A, 1-14-78A and 1-21-3B.

10. Monthly Maintenance Surveillance Reports were audited and only two reports available for July. Pullman response was reports are not turned in until the end of the month.

11. Control of Measuring and Test Equipment had no problems.

12. Control of Inspection and Test Status had an observation concerning piping process sheets. The last two steps on the process sheet were blank due to NDE findings. Recommended that process steps not used have a statement explaining why. THE STEPS WERE CLEARLY NOT REQUIRED DUE TO PREVIOUS COMPLETION OF REQUIREMENTS, ADDITIONAL STEPS SHOULD BE

13. Special Processes of NDE, Welding, Welder Qualification and Welding Material were adequate. N/A HK 8/2/82

Harold Hudson

Harold Hudson
Internal Auditor
Diablo Canyon Nuclear Plant

HH/dd
Att.

Pullman Power Products
Program Layout Audit

EXIT INTERVIEW 7-29-82

	Name	Position
1.	J. Dyer	QA Engr., PG&E
2.	G.M. Leonard	" "
3.	J.I. Wilhelmy	" "
4.	Harold Hudson	PPP Civil Engr. Inspector
5.	J.A. Ammon	Asst. Mech. Eng. P.G.&E.
6.	K.J. Bracher	PPP
7.	[illegible] Watson	PPP QC Lead Man
8.	[illegible] Myers	PPP
9.	PETER C. DAELLENBACH	BECHTEL - MECH CONST COORD.
10.	Jim Bratton	Lead QC Engineer PG&E
11.	Harold D. Turner	PPP QA/QC Manager
12.	Bob Sanderson	HSB ANI
13.	RON KING	PPP Chiefield Eng.

RP

Exhibit 2

My name is Richard D. Parks. I am submitting this affadavit to document the discrepant conditions identified, and corresponding violations of the applicable codes as a result of the plant tour conducted on April 11, 1984 with D. Kirsch and G. Hernandez of Region V, United States Nuclear Regulatory Commission (NRC) at the Diablo Canyon Nuclear Power Plant. I and three witnesses accompanied the NRC to provide "hands-on" examples of non-compliance with regulations, specifications and codes that form the basic cornerstone of a comprehensive Quality Assurance/Quality Control program.

Each example identified to the NRC was subsequently "tagged" for identification and a "report sheet" was filled out by the NRC. The "problem description" is a quote from the report sheet. The examples identified that violated applicable codes are discussed as follows:

ITEM #1, Tag #2: Elevation 116, Unit 1 Reactor Building. Line Designation NO.S2-254-10, in the area of Pressurizer and Reactor Coolant Pump 1-2.

Problem Description: Weld attaching Safety Injection Accumulator line to nozzle of the cold leg line (NO.S2-254-10). On the side facing Reactor Coolant Pump (RCP) is a grinding gouge in the pipe at the pipe-weld interface approximately 3/8 inches long, 1/8 inch at

widest point and 1/16 inch deep (dimensions as visually determined by NRC Inspector - no measurements taken). Additionally, there appears to be a slight amount of undercut at two locations. The undercut is approximately 5/8 inches on the weld side facing the RCP and approximately 1 inch at 120° from the side away from the RCP.

Code Violation: American Society of Mechanical Engineers (ASME) Section III, "Rules for Construction of Nuclear Power Plant Components - 1977 edition, Division I General Requirements, Subsection NB, "Class 1 Components", para NB-4424 "Surfaces of Welds".

"As-welded surfaces are permitted, and for piping the appropriate stress indices given in Table NB-3683.2-1 shall be applied. However, the surface of welds shall be sufficiently free from coarse ripples, grooves, overlaps, and abrupt ridges and valleys to meet (a) through (f) below:

(a)...

(b)...

(c)Undercuts shall not exceed 1/32 inch (0.8mm) and shall not encroach on the required section thickness.

(d)...

(e)...

(f)If the surface of the weld requires grinding to meet the above criteria, care shall be taken to avoid reducing the weld or base metal below the required thickness."

The discrepant condition identified by the witness violates the code requirements with respect to being "free from coarse ripples, grooves, overlaps, and abrupt ridges and valleys to meet (c) and (f)."

ITEM #2, Tag #4: Unit 2 Reactor Building, Elevation 115, Support 97-3R in vicinity of RCP 2-3.

Problem Description: "Excessive overweld has caused excessive shrinkage of SS line. This was supposed to be a full penetration weld with fillet cap and is as specified. The overwelding can damage the pipe because calculations don't account for residual stresses caused by such overwelding."

Code Violation: United States of America Standard (USAS) B31.7-1969 "Code for Pressure Piping - Nuclear Power Piping" (note: this standard now is known as ANSI-B31.7), foreword "FABRICATION REQUIREMENTS AND THEIR CORRELATION WITH DESIGN", page XVI paragraph 5. "Even hanger attachment details are covered. For Class 1 piping, complete penetration welds are required. The designer must consider all stresses in the attachment as well as their effect on the pressure

retaining part."

The welds in question do not conform to the stated intent of the "Nuclear Power Piping" code with respect to the residual stresses induced by the overwelding. It is the concern of this particular anonymous witness that these residual stresses should have been but were not a factor in the design calculations.

ITEM #3, Tag #5: Unit 2 Reactor Building, large restraint wall attachment (around surge line), beneath Unit 2 Pressurizer.

Problem Description: "Shopwelding is supposed to conform to AWS D1.1 standards. The inner welds are excessively rough and of such a profile that they would not conform to AWS D1.1. The welds are ragged."

Code Violation: American Welding Society (AWS) Structural Welding Code - Steel, paragraph 8.15 "Quality of Welds", subparagraph 8.15.1 "Visual Inspection". "All welds shall be visually inspected. A weld shall be acceptable by visual inspection if it shows that

8.15.1.1 -The weld has no cracks

* 8.15.1.2 Thorough fusion exists between adjacent layers of weld metal and between weld metal and base metal

8.15.1.3 All craters are filled to the full cross section of the weld

* 8.15.1.4 Weld profiles are in accordance with (para.) 3.6 [weld profile]"

The weld in question does not conform to the requirements specified in paragraph 3.6 [weld profiles] or the evident thorough fusion requirements as stated in 8.15.1.2.

ITEM #4, Tag #6: Unit 2 Auxiliary Building, area GW, elevation 115, line No. 2-S2-265-8 (Containment Spray Discharge Pipe - 4 lug attachments between S and T line.)

Item Description: "Lug attachments are called out to be 1/2 inch fillet welds on three sides. Actual size is 7/16 inch fillet or less."

Problem Description: "Actual size is alleged to be less than or equal to 7/16 inch which is 1/16 inch less than required. The excessive welding used in the design of the lugs attachment welds, when welded to Schedule 10 stainless thin wall pipe, has caused excessive shrinkage. The excessive shrinkage causes residual stresses in the pipe which has not been accounted for in the design or stress analysis. The position of the clamp is such that there is a torsional force applied to

the lugs, because the clamp cannot contact the wall of the pipe due to the shrinkage. This torsional force is not accounted for in the design and compromises the pipe integrity."

Code Violation: Refer to "Code Violation" discussion in "ITEM #2, Tag #4".

The welds in question do not conform to the stated intent of the "Nuclear Power Piping" code with respect to the residual stresses induced by the welding or the torsional force applied to the lugs due to excessive shrinkage. It is the concern of this particular anonymous witness that these stresses should have been but were not a factor in the design calculations.

ITEM #5, Tag #7: Unit 2, Auxiliary Building, Area 2H, support 413-131R around CCW line.

Problem Description: "Eight lug attachment welds are required to be full penetration welds on three sides. Actual weld is not a full penetration weld, but is, instead a fillet weld, contrary to the design."

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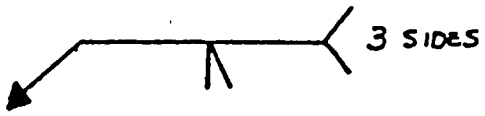

Symbol provided on "Detail" for weld(s) in question.

PG and E has stated in their letter, DCL-84-040, "The weld symbols used at Diablo Canyon are consistent with the standards specified in AWS..." and in an Interoffice Memorandum (file no. 930, 146.20, CA2) dated October 25, 1983 that "all pipe support as-builts issued by General Construction after October 15, 1983 should have all weld symbols in conformance with AWS A2.4."

The welds in question were incorrectly performed because of lack of proper interpretation of the weld symbol utilized on the design drawing. It is the concern of this particular anonymous witness that this discrepancy provided an example of code compliance violation due to a lack of intimate knowledge with AWS A2.4. These particular welds had been inspected and accepted by Pullman Quality Control and PG and E Quality Control prior to the discrepancy being identified by a Pre-Inspection Engineer.

I have read the above eight page statement. I have based the information contained therein either on personal knowledge or by reviewing the relevant information with the particular witness involved. This statement is true, correct and complete to the best of my knowledge and belief.

I declare under penalty of perjury that the foregoing is true and correct, and that the same was executed this 17th day of April, 1984 at San Luis Obispo, California.

Richard D. Parks

RICHARD D. PARKS, Declarant

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN LUIS OBISPO)

On April 17, 1984, before me, the undersigned, a Notary Public in for said State, personally appeared RICHARD D. PARKS, personally known to me and proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument, and that he executed the same.

WITNESS my hand and official seal.

OFFICIAL SEAL
LISA R. WENTER
NOTARY PUBLIC - CALIFORNIA
SAN LUIS OBISPO COUNTY
My Comm. Expires May 9, 1986

Lisa R. Wenter

Notary Public in and for
said County and State

EXHIBIT 5

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RP

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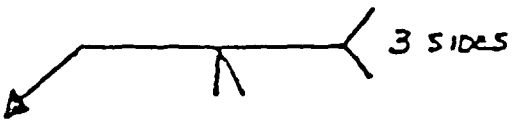

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The welds in question were incorrectly performed because of lack of proper interpretation of the weld symbol utilized on the design drawing. It is the concern of this particular anonymous witness that this discrepancy provided an example of code compliance violation due to a lack of intimate knowledge with AWS A2.4. These particular welds had been inspected and accepted by Pullman Quality Control and PG and E Quality Control prior to the discrepancy being identified by a Pre-Inspection Engineer.

I have read the above eight page statement. I have based the information contained therein either on personal knowledge or by reviewing the relevant information with the particular witness involved. This statement is true, correct and complete to the best of my knowledge and belief.

I declare under penalty of perjury that the foregoing is true and correct, and that the same was executed this 17th day of April, 1984 at San Luis Obispo, California.

Richard D. Parks

RICHARD D. PARKS, Declarant

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN LUIS OBISPO)

On April 17, 1984, before me, the undersigned, a Notary Public in for said State, personally appeared RICHARD D. PARKS, personally known to me and proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument, and that he executed the same.

WITNESS my hand and official seal.

OFFICIAL SEAL
LISA R. WENTER
NOTARY PUBLIC - CALIFORNIA
SAN LUIS OBISPO COUNTY
My Comm Expires May 9, 1986

Lisa R. Wenter

Notary Public in and for
said County and State

AFFIDAVIT

My name is Harold Hudson. I have worked for 5½ years at Diablo Canyon, as a Pullman Power Products pipefitter, QA/QC inspector, QA program Internal Auditor and Lead Auditor. I am about to resign my job, in large part because of my family's fears about the safety of the plant if it begins commercial operation. I am providing this statement to answer a myth -- that quality assurance at Diablo Canyon was acceptable because problems were identified -- through a case study -- pipe ~~support~~ rupture restraints. Problems indeed were identified, which is one of the three steps necessary for a good audit or QA program. But it is not sufficient. The problems kept recurring. That is because the QA program failed in its second and third responsibilities -- identifying any similar deficiencies that exist; and identifying and addressing the cause of the problem, to prevent recurrence.

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Repetitive cases of previously identified violations represent a deliberate quality assurance breakdown, not a success. The history of the pipe rupture restraint program is a series of repetitive violations.

A History of the Pullman Power Products (M.W. Kellogg) Pipe Rupture Restraint Construction Program at the Diablo Canyon Nuclear Plant, California.
Prepared by Harold Hudson 5/26/84

Pullman Power Products (M.W. Kellogg Co.) was contracted by the Pacific Gas and Electric Company to install piping, pipe supports

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and pipe rupture restraints at the Diablo Canyon Nuclear Plant. Pipe Rupture Restraints are used to insure that if a pipe filled with steam or pressurized water rupture, surrounding equipment would be protected by restraining the pipe at critical points. If not restrained, the steam or pressurized water flowing from a broken pipe would cause the pipe to whip back and forth damaging surrounding equipment. Pipe Rupture Restraints take on special importance at the Diablo Canyon Plant due to the close proximity of the Hosgri Earthquake Fault and the effect an earthquake would have in piping systems at the plant.

In May 1970, M.W. Kellogg (PPP) would sign PG&E Contract Specification #8711 for erecting Main Systems Piping and furnishing, fabricating, and erecting the balance of power plant piping. C.S. #8711 covered piping, valves, hangers and pipe supports. Actual on site construction would begin in 1971. In 1971 PG&E would issue Contract Specification #8833XR to furnish and erect structural steel for Units 1 and 2. M.W. Kellogg's (PPP) original work under this contract was to erect containment structure pipe rupture restraints for Units 1 and 2 and the reactor coolant loop, cross over pipe restraints for Units 1 and 2.

The C.S.#8833XR construction schedule called for Unit #1 Pipe Rupture Restraint erection to start on 7-8-72 and Unit #2 erection to start 3-8-73. The framing for Pipe Rupture Restraints would be subject to a Quality Assurance Program in accordance with section 3 of the contract. In addition all Pipe Rupture Restraint welding procedures were to be prepared and

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qualified in accordance with the American Welding Society (AWS) D1.0-69 or D1.1-72 Codes. PG&E would designate Pipe Rupture Restraints as Design Class I work requiring full Quality Assurance compliance. But it should be noted that neither C.S. #8833XR or C.S.#8711 made any reference to or made any commitment to comply with 10 CFRCO Appendix B, the Code of Federal Regulations concerning Quality Assurance requirements.

M.W. Kellogg (Pullman) would erect Pipe Rupture Restraints with little attention to Quality Assurance. On 9-19-73, the PG&E Project Superintendent sent to Kellogg a letter concerning Kellogg's Quality Assurance Program. This Letter stated that past audits conducted both by the Atomic Energy Commission and PG&E Quality Assurance Dept. had disclosed numerous QA deficiencies. These deficiencies usually fell into two categories.

1. Failure to follow existing Quality Assurance procedures.
2. Failure to upgrade Quality Assurance procedures.

PG&E requested Kellogg to place more emphasis on their QA audit program to eliminate most deficiencies before the next AEC and PG&E audits.

On 10-24-73 Kellogg reported the results of their first audit of the Rupture Restraint QA Program. One of the areas audited was "Adherence to Correct Installation Procedures." Per the report all aspects of Rupture Restraint installation were checked to insure compliance to a letter (unavailable for review) approved by PG&E's A.G. Walters on 10-19-72. The audit report stated that "it appears that Spec 8833XR and 8711 as stated in the body of the letter are being complied with completely

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but, it would seem to be beneficial if all the references stated in the letter were condensed into a single procedure to be used as this complex." The initial Rupture Restraint construction did not have an approved Engineering Specification to direct the work but merely a letter referencing requirements for erection and Quality Assurance.

But PG&E would come to a different conclusion about Kellogg's Pipe Rupture Restraint QA program.

During October and November 1973, PG&E conducted an audit to verify that Pipe Hangers and Pipe Rupture Restraints were fabricated, furnished and erected in accordance with Spec 8711, PG&E and Kellogg QA manuals. It should be noted that PG&E did not audit Restraints against the correct Contract Specification, Spec. 8833XR but against Spec 8711 which covered Pipe Supports and not Pipe Rupture Restraints. The same mistake was made in the Kellogg audit of 10-24-73. Why PG&E did not include Spec 8833XR which had placed Rupture Restraints under specific QA requirements is unknown. This would be a reocurring problem in the early years of construction. Rupture Restraint and Pipe Supports would often be confused as one and the same. They would be audited with the same Spec, and share the same construction and QA requirements.

The audit disclosed that Kellogg (Pullman) and PG&E's General Construction Dept. departed significantly from the requirements of the Specification and PG&E's Quality Assurance Manual. Kellogg's(Pullman) Quality Assurance program did not comply with Section 4 of Spec 8711 and PG&E's Procedure PRP-4. It also disclosed that the PG&E Mechanical Department's surveillance

program did not comply with Procedure PRC-7.

As a result, PG&E's Project Superintendent stopped work on the installation of the pipe hangers and rupture restraints and directed that corrective action be initiated to resolve all deficiencies and preclude recurrence.

The audit reviewed Kellogg's (Pullman) Quality Assurance Manual, with respect to the pipe hangers and restraints, for adequacy and compliance to Spec 8711 and QA Procedure PRP-4.

Section 4 of Spec 8711 set forth the requirements of the standard "Supplementary Specifications for Contractor's Quality Assurance Program" included in Procedure PRP-4.

Kellogg's (Pullman) QA Manual complied with Section 4 of the Specifications but the Manual did not specifically address itself to, nor completely apply to the control of pipe hangers and restraints. Because of this Kellogg (Pullman) had written an "Engineering Specification", ESD223, establishing a QA program applicable to the control of hangers and restraints. The intent of ESD223 was to set forth procedures and instructions to the field QA inspectors, engineers and foreman implementing the policy stated in the QA Manual. The audit revealed that ESD223 established QA policy instead of providing instructions on how to implement the policy stated in the Manual.

ESD223 did not meet all the requirements of Section 4 of the Spec. Deficiencies were noted in the areas of document review and control, qualification of special processes and personnel, work procurement control, receipt inspection of material identification control and status of material, nonconforming material control, inspection and test records and inspection and test plans. The hanger and restraint QA program was found to be in

violation of Procedure PRP-4.

A separate QA Manual/QA Program was established for Pipe Supports and Rupture Restraints. This program was based on Contract Spec 8711 QA Requirements. Again C.S.#8833XR was ignored. Rupture Restraint QA requirements were referenced in CS #8833XR, not C.S. #8711. No commitment was made to 10CFR50 Appendix B and/or ANSI N45.2 QA Requirements. ANSI N45.2 had recently come into being to provide QA coverage for areas that fell outside ASME code QA requirements which Pipe Supports and Rupture Restraints did. Also, Discrepancy Reports identifying and dispositioning the discrepant item existing in work completed were to be initiated, and steps to preclude recurrence implemented.

Another item audited was the receipt, storage and installation of pipe hangers and rupture restraints.

The audit revealed:

1. Kellogg's (Pullman) receipt inspections were only checks for road damage and completeness of material only. Kellogg did perform surveillance inspections of stored assemblies.
2. PG&E Civil Dept. provided the inspection and documentation to assure that procurement requirements had been met. Several receiving inspection forms which noted contingencies had not been completed. These items had not been placed on "hold" or withheld from installation. The Resident's Instructions did not require identification and segregation of non-conforming items. Additionally, receiving reports for all restrainst could not be located.
3. Kellogg (Pullman) had not determined or received a written release from PG&E stating that the procurement requirements had been met.
4. Except for ultrasonic inspection, Kellogg documented their inspections on "marked-up" erection drawings. The method of recording inspections and acceptance criteria were not set forth in an instruction, and the auditor had difficulty determining the inspection status. The auditor found that not all in-process inspection of workmanship and technique required by the AWS Code were being performed.
5. Some welders were welding materials of greater thickness than they were qualified.
6. Welding was not in complete accordance with the assigned weld procedures. Several of the non-essential variables had been altered or were not being complied with.

7. Provisions for the installation and inspection of high strength steel bolts were not in accordance with the AISC Code.

The recommended corrective action for these findings was the same as for Audit Item No. I. stated as above.

Another item audited was PG&E's Resident Mechanical Engineers surveillance system of the fabricating, furnishing and installing of pipe hangers and rupture restraints.

The audit revealed that surveillance of the receipt and installation of pipe hangers and rupture restraints were performed by Power Plant Piping Group. The Resident's written instructions to this group were set forth in MFI-2. But MFI-2 instructions did not specifically address surveillance of pipe hangers and restraints.

Corrective action was to issue written instructions for surveillance of pipe hangers and restraints. Thus this audit revealed that containment rupture restraint erection was in noncompliance to Spec 8711 and presumably Spec 8833XR, which had similar QA requirements.

It was during this same time frame that other problems were identified in the Kellogg's QA Program. A Kellogg Internal Audit dated 9-6-73 revealed that the N.D.E. Personnel Qualification Program was not included in the engineering specifications, thereby making it part of the Kellogg QA Program and thus requiring PG&E approval of each page and each revision.. As a result of this audit NDE Personnel Qualifications Requirements were incorporated into ESD 235 and ESD 237, making these requirements part of the QA Program and subject to PG&E review and approval.

In 1973 the American National Standards Institute (ANSI) would issue ANSI N45.2.6, which defined an acceptable method

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for implementing 10CFR50 Appendix B requirements for "Qualification of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants". Kellogg's Corporate QA Manual would be revised in 3-19-74 and its Corporate Field Installation Manual would be revised on 4-1-74 to implement ANSI N45.2.6. A 12-12-74 Kellogg Interoffice Correspondence from the Corporate Director of QA, E.F. Gerwin, would only suggest/recommend to the Diablo Canyon site QA/QC Manager that he implement ANSI N45.2.6 requirements. A subsequent Interoffice Correspondence from the Kellogg Corporate QA Dept., dated 12-17-74, would direct the site QA/QC Manager to put into effect ANSI N45.2.6 "at your earliest possible convenience".

A Kellogg Corporate Management Audit of the Diablo Canyon job site on April 3,4, and 5, 1975, revealed nonconformities in the area of "updating of Certificate of Qualification Records" and recommended complete review of personnel records by the Field QA/QC Manager. Field QA/QC Manager J.P. Runyan responded to the Corporate Audit on an I.O.C. dated 5-13-75, stating, "Personnel records review has been performed and updated. We have also updated our records in an attempt to comply with ANSI N45.2..6". Runyan, on 6-15-75 would revise the ESD 237 Certificate of Qualification card for Quality Assurance Technicians and Inspectors to read "qualified in accordance with SNT-TC-1A and/or ANSI N45.2.6." As a result, I believe that Field QA/QC manager J.P. Runyan deliberiately falsified QA Personnel Certification Records to give the appearance of compliance to

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ANSI N45.2.6 requirements when no such compliance was implemented. Runyan, in his 5-13-75 response to the Corporate Audit stated: "It should be noted that it is virtually impossible to comply totally to N45.2.6 because of experience requirements. We cannot hire personnel that meet the experience requirements for the salary scale we offer. Even if the money was available, it would be difficult to find qualified people. We are taking the approach of qualification based on performance in a specific job." This was a nonconformance to ESD235 and ESD 237 QA/QC personnel qualification requirements, both ANSI N45.2.6 and SNT-TC-IA qualification requirements and the intent of 10CFR50 App. B. Criteria II, IX and IVII. As a result, the Kellogg attempt to upgrade its QA Program was a dismal failure resulting in falsified records. It should be noted that Kellogg did not revise its QA Manual to reflect the attempted ANSI N45.2.6 compliance and that PG&E did not revise C.S. #8711 or C.S. #8833XR to direct compliance to ANSI N45.2.6.

In August 1973, the U.S. Atomic Energy Commission issued Regulatory Guide 1.29, which indicated that "nuclear power plant structures, systems, and components important to safety be designed to withstand the effects of earthquakes without loss of capability to perform their safety functions". It also indicated that pertinent requirements of Appendix B to 10CFR50 (Quality Assurance Criteria for Design, Construction and Operation of Nuclear Power Plants) would apply to all activities affecting the safety related functions of the identified structures, systems, and components, including their foundations and supports. The discovery of the Hosgri earthquake fault off the coast

of the Diablo Canyon Plant placed the power plant within the Seismic Design classification established by the U.S. AEC in its Regulatory Guide 1.29 and made 10CFR50 Appendix B QA Criteria a necessary part of PG&E's design and construction program. But PG&E did not revise its C.S. #8711 or C.S. #8833XR to require Kellogg's construction program to comply with the QA requirements of 10CFRSO, Appendix B. PG&E and Pullman have contended that the Piping construction program which was based on ASME Section III Code requirements meet the intent of 10CFR50, App. B. But the Pipe Support and Pipe Rupture Restraint construction programs were not based on ASME SEction III, and were not required by Contract Spec to meet 10CFR50, App. B. The result was that pipe support and rupture restraint QA programs were not based on nor did they comply with the QA requirements of 10CFR50, Appendix B.

The seismic analysis and reanalysis to withstand a major earthquake resulted in redesign and additional construction of hangers, supports, and rupture restraints in an ongoing process. With the confirmation of the Hosgri Fault in 1973/1974, there was an upgrading program instituted to beef up existing hangers and rupture restraints. This program was called the "Hosgri Rework Program." The reanalysis and subsequent work granted to Kellogg, including the Hosgri Program was performed by Kellogg/Pullman in 1975, 1976 and 1977. The erection of Pipe Rupture Restraints expanded to piping systems in all areas of the power plant.

In 1974, PG&E contracted Nuclear Services Corporation to design the additional pipe Rupture Restraints which were required to withstand a 7.5 ~~X~~ 6 earthquake and contracted

146k Bostrom ~~Barbron~~ Bergen Metal Products to fabricate the restraints. Kellogg/Pullman would perform the erection of these Pipe Rupture Restraints.

On 1-14-74, Engineering Specification Diablo (ESD) 243, Pipe Rupture Restraints, was issued by Kellogg and on 2-1-74 a revision to the ESD was approved and published. Most of the ESD requirements were copied from PG&E Spec 8833XR and the AWS Code D1.0-69. The 2-1-74 revision to ESD 243 required all Rupture Restraint welds to be made with weld procedure Code 7/8, preheat of 50 F minimum with welder verification only, no preheat check by QA other than periodic monitoring during welder audits, and no documentation of preheat or interpass temperature. Visual inspection of fit up and final inspection with ultrasonic examination of all full penetration welds was required. For over a year these were the only QA/QC requirements for welding on Rupture Restraints.

A problem which arose in these years was QA/QC directing production work. The Kellogg (Pullman) QA/QC Manager issued an Interoffice Correspondence on 1-31-74 stating that superintendents had complained of QA Inspectors talking to and giving work instructions to foremen and pipefitters. He stated that 104 "from now on, no support or rupture restraint QA Inspector shall discuss any rework, defective support problem or engineering spec. requirements with foremen, general foremen, or pipefitters.

It was necessary on 6-17-74 for the QA/QC Supervisor to issue an Interoffice Correspondence further clarifying the role of QA. He stated that QA is not an engineering service

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and then went on to state what functions QA would perform.

QA/QC was not to direct production work or to provide engineering services at the Diablo Canyon Plant. It is questioned just how much of this type work QA/QC did. What functions QA/QC would perform would develop as the Rupture Restraint erection program progressed.

On 3-27-74 a Kellogg (Pullman) internal audit of the pipe support documentation of completed supports ~~(attachment 3A)~~ HOH revealed several deficiencies. The corrective action for one of these deficiencies would later play a role in a rupture restraint documentation problem. The audit revealed that some process sheets did not have the proper amount of inspection points checked off. The audit's corrective action directed that "any inspection points that do not apply to a particular support shall be noted with a "N/A"." Thus inspectors were given the authority on pipe support process sheets to check N/A "not applicable" for inspection hold points that they felt did not apply. The problem of N/Aing inspection hold points would arise in rupture restraints in the future.

A problem in the rupture restraint weld documentation program would be revealed in a Kellogg (Pullman) internal audit of pipe rupture restraints on 5-13-74. The audit revealed inspector's "Daily inspection Log" which showed field welds in rupture restraints. Their status was in compliance with HOH ESD 24~~A~~3. But the actual field weld process sheet used to document the individual weld did not show a date when the welding operation was completed nor whether a final visual inspection was performed. The audit also revealed that most RR field welds in

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the Unit 1 Auxiliary Building showed poor workmanship. The conclusions of the audit were that "if possible, a date should be shown on the process sheet when an operation is completed" and that "field welds on the Unit 1 Rupture Restraints in the Auxiliary Building should be reinspected, and a modified Process Sheet should be made up to show 100% or final inspection of these welds." No mention was made of the condition of Restraints in other parts of the plant. It would not be until May 1975 that these conclusions concerning weld process sheet documentation would be incorporated into the requirements of ESD 243. Rupture Restraints erection would continue with only cursory QA/QC participation.

On 12-24-74 Discrepancy Report #2654 was written on RR 1031-5RT, Unit 1, GW area. "Cracks" were reported in base material 6" long at FW2C and FW2F. Ultrasonic examination revealed indentations to be laminar in nature, 1" below the flange face. Indentations were ground to remove and new weld metal was added. This was the ~~final~~ FIRST indication that a cracking problem was developing in rupture restraints. Many more similar situations would arise.

In February 1975, PG&E would perform Audit No. 75-2 on Kellogg (Pullman) to verify that piping supports and rupture restraints were installed per PG&E and Kellogg QA Manuals, Specs 8711 and 8833XR and the FSAR. The audit discovered departure from prescribed quality procedures in the areas of drawing control, weld electrode control, ultrasonic equipment calibration, and PG&E surveillance inspection documentation. The audit stated, "individually, the departures were not of

major significance; however, collectively the departures indicate the need for a more comprehensive internal audit system."

Since the beginning of construction in 1972, Kellogg (Pullman) had performed only two internal audits on rupture restraints. This was in October 1973 and March 1974. Kellogg had been performing internal audits but mainly on the erection of piping with occasional audits on hanger supports. Because of this PG&E audit, Kellog would begin to audit rupture restraint work more often.

As a result of a Kellogg Internal Audit of drawing control for rupture restraints on 3-24-75, which discovered out of revision drawing being used for erection, the QA/QC supervisor issued an Interoffice Correspondence dated 4-3-75 directing all R.R. drawing to be audited once a month by QA inspectors; that the Pipe Support Dept. (rupture restraints were included in this department) be added to the Chief Field Engineer's drawing distribution list for R.R. revision update; and that out-of-revision drawings discovered be updated by the inspectors responsible. Thus it became the Inspector's responsibility to control drawing for rupture restraints.

By the spring of 1975, it was becoming apparent to Kellogg (Pullman) QA management that a lack of preheat for welding was becoming a problem.

On 4-25-75, the Kellogg (Pullman) QA/QC Manager issued an Interoffice Correspondence to all support inspectors stating that the A.W.S. Code required preheat when welding structural members if the material thickness exceeded 3/4". He stated that weld procedure 206 indicated preheat requirements for different material thicknesses and that these requirements applied to all HON

welding processes. Thus in many cases two welding procedures would have to be used to make a weld. He added that the temperature should be maintained during the welding process; and that inspectors should note on the process sheet that preheat was checked and give the approximate temperature.

Revision #5 to ESD 243, dated 5-6-75, added authorization to use weld code 205 or 206 for vertical butt welds, 45° angle gusset plates, 30° groove welds with backing, and 45° groove welds with backing. This revision also clarified and expanded welding inspection and documentation requirements to include seven sequential steps with six QC hold points (production could not proceed until the hold point was signed by QC) as follows:

1. Verify material, clean and fit up. (H.P.)
2. Preheat temperature (H.P.)
3. ~~Route Pass~~ ROOT PASS (H.P.)
4. 10% inspect multiple pass fillets (H.P.)
5. Weld complete
6. Final visual (H.P.)
7. N.D.E. completed weld (H.P.)

With revision #5 to ESD 243, verification of preheats became a QC function instead of a production function. Process sheets would now be issued detailing the operation sequences for each weld and specifying where QC Inspections were required. But this revision would not be fully implemented. Process sheets for rupture restraint #148, would have welding performed as late as April 1976 which did not comply with the requirements of revision #5 to ESD 243.

Another problem that arose was the fact that the process sheets listed field weld numbers but did not indicate the type of weld being made (fillet, groove, etc). This would cause problems at a later date when process sheets, field

DRAWINGS
layout and actual field conditions would not match and the QA/QC dept. would perform a restamping program to make them match.

Even with revision #5 to ESD 243, preheating of welds remained a problem. On 9-17 and 19, 1975, PG&E performed a quality control audit of the Kellogg (Pullman) company's welding on pipe rupture restraints. This audit found that QA personnel allowed welders to weld without verifying minimum preheat and interpass temperatures. As a result of this audits the Kellogg (Pullman) QA/QC Manager issued an Interoffice Correspondence, date 9-22-75, stating that welders were not preheating and that Inspectors were required to monitor preheat and interpass temperatures. He pointed out that these temperatures must be maintained during the welding process and when checked, recorded on the process sheet.

Also in response to the P&G&E audit, the QA/QC Manager sent a letter to PG&E, dated 10-6-75, stating corrective action had been taken to assure that preheat requirements were being followed and applied in compliance with established procedures. This letter also stated a meeting had been held with the Superintendent in charge of Rupture Restraints to establish production responsibilities with regard to preheating.

An official response to the PG&E audit was made by the Kellogg (Pullman) QA/QC Manager on 10-9-75, when he issued Descrepancy Report #2969 stating that rupture restraints in the field had welds completed without proper preheat. PG&E's official recommended disposition was to "accept as is based on acceptance of ultrasonic testing."

The problem of inadequate preheating of welds had now been officially recognized by both Kellogg (Pullman) and PG&E, with corrective action promised. Up to this time Kellogg (Pullman Field Engineers had been providing minimal engineering services for welding rupture restraints. These engineers had been primarily concerned with the erection of piping and pipe hanger supports. Because of the continuing problems with weld cracking in restricted joints, the QA/QC Manager on 10-23-75, issued an Interoffice Correspondence to QC Support Inspectors which in effect ordered inspectors to perform engineering duties. He stated that inspectors should take the following action in an effort to avoid the cracks:

1. Suggest to the production personnel that they use more heat, preferably 300° or more. He notes that this is not required but is highly recommended.
2. Check to assure that the temperature is maintained during the complete welding cycle.
3. Recommend a welding sequence which will induce less stress.
4. After weld is complete let it cool completely before final visual inspection then examine closely for tight cracks.
5. Make sure that there are no visible cracks before calling for N.D.T. inspection.

Suggesting to production personnel that more heat be applied to welds and recommending welding sequences should have been a designated engineering function. It was not, and as a result of this correspondence it became the QC inspector's responsibility in direct contradiction to the QA/QC Manager's directions of 1/31/74. QC Inspectors were now to assume engineering duties. This correspondence also would tentatively identify additional reasons for the cracking problem, welds in restricted joints and welding sequences.

The weld cracking problem in Rupture Restraints would continue. Beside the weld cracking problem there would also be a problem in identifying welds after they were made. PG&E during the week of Oct. 27, 1975, conducted Audit No. ~~C~~75-4 HOH to verify compliance to PRP-4, Suppliers'/Contractors' Quality Assurance Programs and ESD 243. Four items were audited with one discrepancy found. The audit disclosed that the procedures for identifying welds were not being implemented uniformly. Four rupture restraints were audited for workmanship and on two of them weld identification inconsistencies were noted. Restraint No. 1047.4R7 had three welds stamped with a welders ID letters, but the process sheets did not reflect the welder's ID letters. On one of the above welds the process sheet indicated that the ultrasonic examination had been completed, but the weld had not been stamped with the inspector's (Y) stamp per ESD 243. Restraint No. 1047-14Rt had two welds which were not stamped with the welder's ID. One weld process HOH sheet indicated XT inspection but the weld was not stamped to reflect this. The corrective action recommended by PG&E was for all welders and inspectors to be instructed on the requirements for stamping and inspecting completed welds.

This problem of weld identification and documentation was not an isolated case but effected almost all rupture restraints erected up to this time. The problem was not just failure of welders to stamp their welds and inspectors to record the information on the process sheets. On many of the restraint erections there were joint connections involving as many as 3 to 10 or more welded connections. All the welded connections in the joint were given a single identification number. Then later it was decided that each welded connection had to be identified, so the process sheets were amended to read FW number A-1 or however many joints were involved. But the process sheet did not necessarily reflect the correct welder for each welded joint. Then to compound the problem, Kellogg would initiate a stamp program as part of their corrective action to the PG&E audit.

Kellogg's (Pullman) response to the audit, dated 12-1-75 was that a field inspector had been assigned to review all

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field records against completed work to assure correlation between the two. Field records used were "Daily Inspection Logs" and process sheets. T nese records did not record what type of weld was made (fillet, groove, etc.). So the field inspector could not accurately match field records with welds and subsequently many welds were misidentified and misstamped. This problem of weld identification would resurface on several future occasions and reveal that welds were not correctly identified and stamped.

The problem of properly filling out QA documentation was a continuing problem. The QA/QC Manager issued an Interoffice Correspondence on 4/14/76 giving instructions on how to make changes to QA documents. "White out" was not to be used to correct entries. A line through the incorrect entry and a new entry for the correct information was directed. All changes had to be initialed and dated.

On 4/22/76 an Interoffice Correspondence issued to all field inspectors gave instructions concerning the proper filling out of Process sheets. It stated that process sheets will be signed and dated in each required block. Lines drawn down the column with initial and date at the top and bottom is not accepted. Any changes including N/A on the process sheet will be initialed. If a weld is cut out you will state the reason, initial and date. QA documents would be of little value if the documents were not filled out properly or the information provided did not include all data or provide accurate data. This problem would keep reoccuring.

On June 4, 1976, PG&E Engineering Research sent a letter

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to PG&E management at Diablo Canyon Plant concerning an investigation into the ~~cause~~ use of cracking adjacent to beam-to-column flange welds in Unit 1 pipe rupture restraints (DCR#3158). A failure analysis was performed on a portion of cracked welds and residual stress measurements were made on the beam the welds came from as well as in areas adjacent to where the cracks were found. The results of these investigations were:

1. The fracture is brittle in nature.
2. The fracture results from flame cutting of the welding relief hole in the weld.
3. There are high, up to yield stress level, residual stresses in the vicinity of the beam-to-column weld joints. These stresses are a result of the beam-to-column weld.
4. Higher residual stresses, and cracks, appear to be associated with wide, greater than 3/4" wide weld passes.

The letter stated that the failures appear to be the result of a number of minor materials property, fabrication details, and construction sequence details that combined to cause these cracks. The letter then gave recommendations for repair and modification of welding and manufacturing procedures to to alleviate these problems. These recommendations were:

1. Preheat before all thermal cutting operations according to the welding preheat schedule for the thickness of material being cut.

2. Remove, by grinding or other mechanical means, a minimum of 1/16 inch from all flame cut or arc gouged surfaces not to be incorporated in the weld.
3. The welding procedure should be modified to limit the weld bead width to 5/8" maximum°F or 2½" and thicker material in beam-to-column joints and other restrainted joints, the minimum preheat temperature should be raised to 300° F, and a maximum interpass temperature of 800° F should be imposed.

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4. Where possible the weld joint detail should be modified to reduce the volume of weld metal deposited. This can be accomplished by using a narrower groove, a double-V weld preparation, or both, instead of the 45 single-V weld preparation presently used.

Weld Code 7/8, a primary R.R. welding procedure, did not include in its weld procedure Specifications (WPS), joint details for a double V weld. But Code 7/8 would now be used to make double V groove welds in nonconformance to the WPS.

Revision #7 to ESD 243, dated 6-10-76 was a direct result of the PG&E investigation of a cracking problem on rupture restraint, 126, Unit 1 turbine Building. The revision added tabular data for preheat and interpass temperature requirements during welding and thermal cutting. It added a requirement to clean by ~~gunsiling~~ GRINDING a minimum of 1/16" from thermal cut surfaces which were not to be incorporated into a weld. The revision added minimal guidelines to dimension weld access relief holes.

Prior to this time a specific preheat and interpass temperature was not included in ESD 243. The weld procedure specification was the control document, however, reference to ESD 243 was not included in the weld specification until October 1976.

There were four weld procedure specifications for rupture restraints with weld Code 7/8, the main procedure. Weld code 7/8 was originally two separate procedures identified as weld Code 7 and weld Code 8. These procedures were approved on 11/25/69. Both codes were for welding carbon steel pipe using E7018 shielded metal arch welding process. On 12-10-73, the codes were combined and added carbon steel plate to the specifications. Weld code 7/8 was identified for use on

rupture restraints groove and fillet welds. Preheat requirements were changed to 50° F minimum with 175° F minimum for material that had a carbon content in excess of 0.30% and 1" thickness. Interpass temperature was indicated to be 50° F minimum. A 10-15-76 revision to weld Code 7/8 stated "See ESD 243 for AWS Welding", referring to structural steel welding (which rupture restraints was). This revision also stated that the procedure was qualified to allow welding of unlimited thickness on structural members under AWS requirements.

Weld Code 92/93 was similar to weld code 7/8 in that some of the welding techniques were the same. Code 92/93 was qualified for open butt welding but was used to weld groove welds with a backing strip. This weld code was used during peak workload periods because there was no requirement to re-qualify welding personnel. A problem would arise with process sheets referencing Code 7/8 but ~~not~~ ROD requisition referencing Code 92/93. Production and QC substituted Code 92/93 for Code 7/8 to expedite the construction process.

Weld Code 205 was developed and approved for flux cored arc welding of carbon steel to carbon steel for structural steel only.

Weld Code 206 was developed and approved for gas metal arc welding carbon steel to carbon steel for structural steel only.

Kellogg (Pullman) established ESD 219 for "weld procedure monitoring"in 1973. This procedure was originally established to monitor Class I pipe welding. Revision 5, dated 6-17-76, added rupture restraint welding as Class I welding and directed that ESD 243 would be the applicable procedure for preheat monitoring

for structural welding. ESD 219 also stated that Welders and inspectors shall monitor the interpass temperature of all Class I welds for compliance with the weld procedure. Paragraph 3.3 of ESD 219 concerning "Pre-Heat temperature" states "the minimum pre-heat temperature on this project is 50° F. If the air or metal temperature is below 50° F, pre-heating is required. Air temperature shall be monitored by wall thermometers." Pullman Internal Audit report #80, date of 12-24-80, found there were no wall thermometers evident in the powerhouse which could be used to monitor air temperature to determine if pre- heating was required. Corrective action was to order thermometers and, upon receiving them to implement ESD 219.3.3.

Nine months later on 9-22-81, Internal Audit Report #94 would report that wall thermometers were received by Pullman QC, calibrated but never issued to the field for implementation of ESD 219.3.3. It was not until November 1981 that wall thermometers were placed in the power house to monitor air temperature. It took 8 years for the requirements of ESD 219.2.2 to be implemented. It took 11 months after the noncompliance was found before corrective action was actually implemented. In my professional opinion, this was inadequate implementation of Quality Assurance requirements.

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From ~~7-23-76~~ 3-23-76 to 7-20-78, a total of twenty four discrepancy reports were generated which involved cracking in Pipe Rupture Restraints. On 7-22-76, ESD 243 was revised to authorize field modification of weld joint detail during weld repairs and/or new weld preps. This was done to reduce the volume of weld metal deposited,

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i.e. narrower grooves, double bevel grooves versus single bevel grooves, thereby helping resolve the weld cracking problem.

The continuing problem of weld cracking raised the question of when the final visual exam should take place. On 9-9-76, an IOC was issued to all rupture restraint inspectors instructing them to sign process sheet step #5 - weld complete (not a QC hold point) when welding was complete. Step #6 - Final Visual, was not to be signed until the weld had cooled to ambient temperatures and then the inspector was to check and see that the weld area was clean of slag, scale and smoke, and that it was smooth for UT exam. The inspector was then to complete his final inspection and sign the process sheet. This would help inspectors to more readily detect cracks in the welds.

On 10-7-76, DR#3295 and PG&E DR#M-3192 would report 1200 welds to "rupture restraint structure members" without the application of the required preheat. The welds involved attachments such as temporary lifting eyes, nuts and bolts, shims, rod eyes and hinges. The weld sizes ranged from single pass 1/8" fillets to 1/2" fillets. Base material thickness, which governed preheat requirements, ranged from 3/4" to 6". There were no process sheets issued to control the welding or any other QA/QC documentation. DR#3295 required that these welds be examined by magnetic particle testing to determine if they were acceptable. Three hundred fourteen welds were examined and found acceptable. Based on the acceptance of these welds, the remaining welds were accepted as is without being tested.

Up to August 1977, there are no records of Nuclear Regulatory Commission Inspectors involving themselves specifically with rupture restraints. Then on 8-2-77 an NRC inspector made an inspection of the Bent 9 rupture restraint on Unit I piperack. The inspector found what he believed to be undercut on FW40. The inspector also found documentation problems. He found on process sheets for FW40 and 41 that the final inspection was dated one day prior to the fit up of the weld joints. He also found another process sheet with the final inspection hold point "N/A" by Kellogg Inspector Mullis.

Kellogg (Pullman) issued DR#3449 to report and resolve the findings of the NRC inspector. The following corrective action was taken:

1. FW40 had weld metal added to fill the low area at the weld edge.
2. FW 40 and 41 were reinspected and the dates corrected. A review of rupture restraint process sheets was performed and a random reinspection of a minimum of 20% of all welds accepted by Inspector Lindell was performed.
3. All process sheets reviewed in #2 above which had "N/A" inserted in inspection points were reinspected and if required, repairs made. (This action infers that Lindell was more suspected of N/Aing process sheet operations than Mullis who was caught N/Aing by the NRC.)
4. Errors found in stamping of welds during reinspection were to be restamped to correspond with applicable rod requisitions and process sheet documentations. This would involve 43 welds on Bent 4.

Inspector Lindell had not been employed by Kellogg (Pullman) since 9-3-76 so no action was taken against him. Inspector Mullis had no explanation for entering "N/A" in the process sheets. Mullis was then fired for failure to comply with established procedure.

On 9-12-77, an IOC was issued by the QA/QC Manager to report on meeting with Pullman Power Products (Kellogg) field inspectors

on August 8 and 9, 1977. These meetings pointed out that field inspectors did not have the authority to N/A inspection points. They were to advise welders and fitters of the hold point requirements and to perform required inspections as soon as possible after notification. Also discussed was the termination of Inspector Mullis, the reason for that termination and the work required to correct the situation.

By this Pullman (Kellogg) showed the NRC that the company had implemented corrective action for QC inspector's failures to comply with procedures. Inspector Mullis was a scapegoat to cover up bigger problems.

Inspector Mullis cannot be excused for N/Aing a final inspection point, but what about extenuating circumstances? Inspector Mullis was doing more than just QC inspection work. In the Unit #1 6E, 6W and piperack areas, Inspector Mullis was performing engineering and drafting work with the approval of Pullman (Kellogg) QA/QC Management and Production Management.

An Interoffice Correspondence dated 10-23-75 from the QA/QC Manager had directed QC inspectors to assume engineering duties of telling production personnel to use more heat than required to make welds and to tell production personnel how to make their welds by recommending welding sequences which would induce less stress in the welds. Inspector Mullis assumed the engineering duties. This instruction was in direct contradiction to earlier QA/QC correspondence dated 1-31-74 which stated inspectors were not to give work instructions to foremen and pipefitters, and to correspondence dated 6-17-74 which stated Quality Assurance was not an engineering service. Why was it

necessary for QC inspectors to perform engineering duties? There were field engineers on the jobsite, but their main concern was the erection of piping and hangers. They gave little if any engineering direction to the erection of rupture restraints. Rupture restraints had low engineering priority because Pullman (Kellogg) management had instructed inspectors like Mullis to provide the engineering services needed. After the NRC incident engineering would take a more active role.

In addition to performing QC and engineering duties, Inspector Mullis did As-Built drawings of the rupture restraints he worked on. These drawings showed the as-built field conditions of the rupture restraint as well as numbers assigned to each welded connection for documentation identification purposes. Inspector Mullis drew many of these as-built drawings and they are the basis for the current rupture restraint documentation packages field layout drawings.

Inspector Mullis was fired for NAing an inspection point, yet QA/QC Management on two occasions stated it was okay for an inspector to do so. Interoffice Correspondence dated 3-27-74 (attachment 3A) stated "any inspection points that do not apply to a particular support shall be noted with a "N/A"." Interoffice Correspondence dated 4-22-76 (~~attachment 12D~~ 40H) stated "any changes including N/A on the process sheet will be initialed..." NAing inspection points on process sheets was an accepted practice on supports which inspector Mullis decided to implement in rupture restraints.

So the first NRC audit of rupture restraints revealed documentation problems and field welding problems but failed to recognize a major breakdown in the QA program, quality control inspectors 40H

doing engineering and drafting work.

Inspector Mullis assumed duties and responsibilities outside his assigned QC functions. Pullman (Kellogg) management knew and approved of it until Mullis was caught by the NRC. Maybe the reason Inspector Mullis NAed the inspection point was that he was so busy doing engineering and drafting that he didn't have time for quality control.

It should be noted that on 5-17-77 an interoffice correspondence issued by the QA/QC Manager stated that Inspector Mullis "through daily demonstrations meets the requirements of SNT-TC-IA..., ESD 235, ESD 237 and KFP6 "Evidence of Continuing Satisfactory Performance"." Two and a half months later he was fired for failure to comply with established procedures.

ESD 243 was revised on 1-19-78 to add the requirements for the Field Engineer to review all drawings and initiate all Field Process sheets. It added a requirement for QA review of process sheets prior to issue for work and revised the field process sheet to include the weld symbol, thickness of material and QA review entries.

On 7-20-78, DR#3683 reported a lamellar tear which opened during repair of a weld in the Unit #1 piperack. Subsequent NDE and metallurgical studies by PG&E revealed a generic problem associated with highly restrained joints. On 10-3-78, PG&E issued non-conformance report #DC1-78-RM-008 which identified that welds for pipe rupture restraints in materials greater than 1½" thick had developed cracks.

On 3-23-79, PG&E issued non-conformance report #DC1-79-RM-006,

which identified numerous welds that developed cracks after completion of welding and final examination. On 5-7-79, NCR# DC1-79-RM-007 was issued, which identified that further investigation had found rejectable linear indications in other rupture restraint weld joints. On 6-6-79 PG&E issued NCR #. DC1-79-RM-010, which identified that nondestructive and destructive testing had found the existance of rejectable defects in field welds. This NCR resulted in an extensive program of investigation, evaluation and repair of rupture restraint welds. On 6-21-79 PG&E issued NCR # DC2-79-RM-011 which identified welds in Unit #1 with rejectable defects, and that the same or similar conditions may exist in Unit II.

The major problems causing rupture restraint weld cracking as determined by PG&E and Pullman were:

1. Joint Design
   A. Massive weldments, 5" deep x 4-5/8" wide with 45° single bevel grooves that would shrink unrestrained about ½" in a transverse direction, instead were totally restrained by high columns and beams. All potential shrinkage is transformed into residual stress and/or cracks.
   b. Highly restrained joints with heavy sections attached to relatively thin sections. Lateral reinforcement stiffers, 2" to 3" gusset plates, were welded exactly opposite, both pulling on ½" to 3/4" thick webs and flanges.
   c. PG&E Department of Engineering Research would develop their investigation around four additional welded connection joints classified by degree of restraint.

2. Base Material
   a. Almost all cracks originated as lamellar tears in A441 and A588 steels used in highly restrained joints.
   b. Some materials had excessive rolled laminations.
   c. PG&E supplied base material that was inadequately identified prior to implementation of QA verification of base material.
   d. Low melting point alloys formed with copper (in A441) and sulfides triggering tears.

3. Indiscriminate Material Removal
   a. Large destructive test samples were removed.
   b. Some sections were essentially destroyed chasing cracks.
   c. No consideration was given to how removal stresses affect

other joints in the same structure.

4. Inadequate Preheat and Interpass Temperature Control
   a. Material type being welded was not included as an element of planning for rupture restraint work. As a result, sufficient controls were not established for preheat and interpass temperatures.
   b. Ambiguous terms and phrases were copied from PG&E specifications, with inadequate implementation of AWS code requirements regarding preheat and interpass temperatures.

A major crack repair program would be initiated in both Units of the power plant in March of 1979. The Pullman Field QA/QC Manager stated in an IOC dated 8-28-79 that an estimated 40,000 man hours had been expended to date and that only approximately 50% of the work in Unit I was completed. Rework would continue in Unit I & II until 1981/1982.

The rupture restraint crack repair program would result in major changes in the Pullman ~~instruction~~ CONSTRUCTION program. In May 1979, Pullman would issue a special welding procedure to make the weld repairs. Welding technique Specification #AWS1-1 was formulated to clarify the technique for application of weld code 7/8 procedure as applied to AWS welding only. AWS1-1 and other similar techniques were based on PG&E recommended procedures ~~with~~ BASED ON their analysis of the cracking problems. The technique gave very detailed parameters for making the crack repair welds. But these techniques were not applied to the general rupture restraint construction program. Weld Code 7/8 would continue to be the primary welding procedure for general RR construction. Prior to 1979 rupture restraint welders had been qualified to the ACME Section IX code. As a result of the crack repair program welders would now be required to qualify ~~for~~ TO the AWS Code requirements.

A number of changes were made concerning the NDE requirements for rupture restraints. C.S. #8833XR was revised to require that all completed full penetration and partial penetration welds and fillet weld ½" and larger shall be magnetic particle inspected. Pullman would prepare a QA Instruction #143 to implement these requirements which would eventually be incorporated into ESD243. When the instruction was submitted to the PG&E Resident Mechanical Engineer for his approval he would amend the instruction to read "all partial penetration welds ½" and larger" would require magnetic particle examination. Pullman would implement the PG&E revised QAI#143 and for the next two years would perform NDE which did not comply with the revised C.S. #8833XR requirements. In August 1981, PG&E recognized its error and required QAI#143 to be revised to include all partial penetration welds to be magnetic particle examined. A reinspection program was initiated to identify the welds not magnetic particle tested.

PG&E provided to Pullman the NDE procedures to be used for magnetic particle testing. However, Pullman Internal Audit #LXXVII, dated 9-25-80 identified that PG&E had provided conflicting procedures for Pullman to use. PG&E had directed that all rupture restraint magnetic particle exams were to be performed to PG&E's DER NDE procedure #3212. This procedure stated that the preferred examination was the Yoke method per PG&E DER NDE procedure #3204. But PG&E had provided Pullman with a DER NDE procedure #3205 which was a prod. method. PG&E had stated one method was to be used but had provided a procedure for a different method. As a result of the Internal Audit, PG&E would direct Pullman to use the Prod. method.

PG&E would direct Pullman to use a PG&E ultrasonic proce-

dure #3523 to examine only full penetration welds 9/16" and greater effective throughout. This would not comply with C.S. #8833XR requirements to ultrasonically inspect all connections utilizing full penetrations welds. This conflict between C.S. #8833XR requirements and PG&E UT procedure would be identified in Pullman's Unscheduled Internal Audit #29, dated July 1982, but both Pullman and PG&E refused to address the non-conformance to Contract Specification requirements. Not until 1984 when allegations of non-conformance to contract UT requirements were made to the Nuclear Regulatory Commission would PG&E revise C.S. #8833XR.

In 1982 I identified in Pullman's Internal Audit #101 that ESD234 Ultrasonic procedure had not been properly qualified. ESD234 had been used prior to 1979 to examine all full penetration Rupture Restraint welds. IA#101 identified that ESD234 did not have Procedure Qualification Records documenting a Procedure Qualification Test. C.S.8833XR required all procedures (including NDE) to have qualification records. This problem may have contributed to the weld cracking problems.

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The Rupture Restraint ~~Tank~~ crack Repair Program was not the only major problem with Pipe Rupture Restraints. There would be a significant Quality Assurance breakdown identified in the Rupture Restraint Construction Program. By 1977 PG&E was concerned that Pullman was experiencing difficulties in performing work, that was constantly changing per requirements at the direction of PG&E, to qualify standards that would allow PG&E to enter into the later hearings with the NRC with complete confidence that Units I and II would be acceptable for licensing. PG&E requested Pullman to have an independent audit performed of its QA Program. Pullman contracted Nuclear Services Corporation of Campbell, Calif. to perform this audit.

From August 22 to September 20, 1977, Nuclear Services Corp. audited the Pullman Construction Program at the Diablo Canyon job site. The basic conclusion reached by NSC was that the Pullman QA Program did not meet 10CFR50 Appendix Requirements. NSC summarizes Pullman's problems as follows:

1. Prior to early 1974, there is little evidence available to verify the adequacy of the work performed. The available evidence indicates that only a rudimentary quality control program existed and that control over the production organization was minimal. NSC concluded that there was no confidence that welding done prior to early 1974 was performed in accordance with welding specification requirements.

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2.From early 1974 to late 1974, there is evidence available to verify the adequacy of the work performed. The available evidence indicates that control was achieved of the materials control program and the welding control program.

3. From late 1974 to the present, an increasing amount of documentation and records has been generated to verify the adequacy of the work performed. The available evidence demonstrated that an increasingly more stringent quality program has been placed into effect and increasing greater control of the work effort has been achieved. However, the present program and controls still do not meet 10CFR50 Appendix B requirements.

As a result of the 1977 Nuclear Service Corp. audit, PG&E's QA Department would perform Audit #80422, issued 6-13-78. PG&E's conclusion was that the QA Program implemented by Pullman essentially fulfilled contract requirements and meets requirements of the ASME Boiler and Pressure Vessel Code, 1971 edition. PG&E stated that the 1971 code was consistent with the requirements of 10CFR50 Appendix B. What PG&E and Pullman failed to recognize was that only Pullman's Piping Construction program was based on the ASME Code QA requirements. The Pipe Support and Pipe Rupture Restraint QA programs were not based on a NATIONAL ~~material~~ code or standard and there was no commitment to 10CFR50, Appendix B for these programs.

One of PG&E's audit findings was that Pullman audits performed to verify Unit II hardware items in early 1978 did not effectively evaluate the quality of their work. Pullman had audited 122 hangers, restraints, and snubbers and 77 isometric drawing packages and found no discrepencies. Yet when PG&E re-audited half of the items inspected by Pullman, several discrepencies were noted. The result was that PG&E ordered Pullman's corporate staff to perfrom another audit in the summer of1978.

The PG&E Audit #80422 would generate two Non-conformance Reports. NCR#DC-78-RM-004 identified that Pullman's QA Program was not adequately defined. There were procedures which implemented QA requirements of the contract but are not identified as part of the program and revisions are not controlled by the program. PG&E found that it was not clear which manuals and procedures were applicable to specific activities. The corrective action was to write a program discription that would clearly identify the documents to be considered part of the total quality assurance program and establish the heirarchy of the documents.

The second part of the NCR addressed Pullman's inadequate corporate and Internal Audit Program. The scope of both types of audits had not been established, and there was no detailed schedule developed to show that all aspects of the program had been audited. Audit records indicated that all aspects of the program had not been audited. No management audits had been performed on pipe supports and rupture restraints. An unofficial, unapproved internal audit schedule existed, but it had not been followed consistantly and few ESD's appeared ~~with~~ on the schedule.

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A second NCR #DC-78-RM-005 was also issued. P.G.&E's review of prodedures and work in progress indicated that Quality Control inspections independence from scheduling and production pressures was not ~~assumed~~ assured by the program as written. Procedures did not clearly indicate that it was the Productions Department's responsibility to read and use the process sheet insuring that steps were performed in the required sequence and that hold points were observed.

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Four Minor Variation Reports would be issued to deal with specific discrepancies. It should be noted that P.G. & E. identified some Pullman inspectors who were not qualified to ANSI N452.6 and recommended that the Pullman inspector certification card should be amended to eliminate the claims that inspectors are qualified to ANSI N45.2.6, or inspectors should be qualified in accordance with its requirements.

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In November 1978 an IOC from Pullman's Corporate Senior QA Engineer to the Director of QA confirmed P.G.&E.'s audit findings concerning Pullman's Corporate audit program. The IOC stated that the "Diablo Canyon Project has been audited extensively only in hardware areas. The entire program has not been evaluated." The IOC would also state, "In the past, Pullman Power Products did not conduct audits or practices to ASME or 10 CFR 50, Appendix B."

Also in November 1978 Pullman implemented corrective action to NCR#DC-78-RM-004 by issuing a QA Program Description. Pullman deleted the Pipe Support/Pipe Rupture Restraint QA Manual from its QA Program. In its place there would only be one QA Manual. The QA Program Description stated, "The basic document for the QA program is the Pullman Power Products QA Manual. This manual was written to conform to the requirements of ASME Section III 1971 for piping fabrication and installation. Many of the requirements of the piping manual such as: Organization, NDE, Calibration, Weld Rod Control, ~~Part~~ Post Weld heat treatment, Welders qualification and audits are applicable to other work. Not all the requirements of the piping manual are applicable to the full scope of work. Where these exceptions exist they are indicated by subtier documents such as separate QA plans, ESD's or QA instruction."

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The QA Program Description listed a number of subtier documents as applicable to Pipe Supports and Pipe Rupture Restraints. But nowhere in the QA Program Discription is there a specific list of the piping manual requirements which are applicable to Supports and Restraints. The Discription states that many of the requirements of the piping manual are applicable to other work but it fails to specify which requirement for which work. Also there is no committment in the QA Program Description to 10 CFR 50 Appendix B for the other work areas which fall outside the scope of the ASME Section III QA Manual. The result is that to this day Pipe Rupture Restraints still do not have an adequately defined QA Program which is based on 10 CFR 50, Appendix B OR ANY OTHER NATIONAL CODE OR STANDARD

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As a result of the P.G.& E. QA Department Audit #80422, dated 6/13/78, which found that Pullman's Corporate audit performed in early 1978 "did not effectively evaluate the quality of their work", Pullman was required by P.G. & E. to send additional staff to the site to perform "an overall assessment of the situation"

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to determine whether additional reinspection should be performed and the scope thereof. Pullman's Corporate Management performed the site audit from 7/10 to 7/20/78. The purpose of Audit #7177-3-78 was to verify and evaluate field initiated corrective action that resulted from the Nuclear Service Corporation Audit of Pullman, to verify the adequacy of the Quality Assurance Program implemented and the quality of hardware installed, primarily in Unit 1.

Pullman's Audit #7177-3-78 would result in 43 Audit Action Requests requiring corrective action to improve the adequacy of the QA Program. Criterion I of the audit would verify 24 of the Nuclear Service Corporation Audit findings that had been or would require corrective action. There findings included:

1. Description of individual ~~participation~~ position responsibilities are inadequate.
2. Hydrostatic testing interface between P.G.&E. and PPP lacks adequate control.
3. Interface between PPP Corporate Organization and Field Organization is not described with respect to Field Purchases and Corporate QA Auditing of these suppliers.
4. Indoctrination and training program requirements for personnel involved in quality related activities are inadequate.
5. QA Document Control Procedure does not have provisions for training and familiarity in the implementation of procedures.
6. Activities affecting quality are not described in procedures.
7. No control exercised over ESD procedures
8. No procedure for control of QA instructions.
9. Procedure detailing review of Hangers and Pipe Supports is lacking.
10. No procedure exists prohibiting the changing or alteration of key documents.
11. No procedure specifying who is responsible for 90 Day Welders Log.
12. Random sampling of welding in process not documented.
13. There is no procedure for preheating of weld joints.

14. ESD 231 does not provide enough information for HOT and COLD bending small bore pipe.

15. Lack of identity of Hydrostatic and heat-treated guages with applicable inspection reports.

16. ESD 213 does not contain provisions for reporting pre and post calibration values.

17. Hydrostatic Test Procedures did not cross reference each other.

18. No procedure for filing, storing and protection of records.

19. No procedure or checklist to define scope of field conducted internal audits.

Criterion II of Audit 7177-3-78 reported a significant problem in the evaluation of the Piping Isos. Information referenced on the Field Installation Instruction (Drawings) did not agree with information published on the Process Sheets.

Criterion III of Audit 7177-3-78 reported numerous individual descrepancies of Hanger assemblies but did not report any program deficiencies.

Criterion IV dealt with Rupture Restraints. Of the 43 Audit Action Request generated by Audit 7177-3-78, 20 were written against Rupture Restraints. A significant QA Program deficiency was identified in the Rupture Restraint construction program. The corporate auditor concluded:

> "The rupture restraints documentation package cannot be used for an adequate audit. It was pointed out that additional drawings are available. The only way some of these restraints could have been installed is by the referenced design drawings, however we were informed by site personnel that other drawings exist that could effect the final installation. These additional drawings are not referenced within the RR package. It is obvious, and site personnel agree, that this is a definite problem in regards to drawing referencing. QA site personnel also have problems getting documentation to properly match final erection due to lack of "as built" drawings. It was pointed out that there is a lack of proper interface between P.G. & E. and site PPQA."

Criteria V of Audit 7177-3-78 was Hanger Drawing Control and ~~A~~ Building Program, and the audit concluded there is evidence that adequate control is being exercised.

Criterian VI of the audit was a review of Non-Conformance Reports and concluded that there was evidence that the recommended ~~disposition~~ disposition of the DR"S were "generally" followed with the necessary documentation developed to support the nature of the work performed.

Criterian VII concerned Management Audits and found that audits were not performed in accordance with the QA Program requirements of every six months.

Audit 7177-3-78 concluded that the area of main concern was associated with Rupture Restraint. It was recommended that a Field Inspection Program be initiated in the area of Rupture Restraints for both Unit I and II. A.A. Eck, who was the head auditor for this audit, concluded that the "Quality Assurance Program as implemented basically meets the ASME ~~Boiler~~ Boiler and Pressure Vessel Code Requirements, 1971 edition."

Although significant QA problems were identified in the Rupture Restraint Construction Program, Pullman Management claimed the QA Program as implemented basically meets the ASME code requirements. A possible reason for this could have been the fact that piping, which was based on the ASME code QA requirements, had no significant problems identified. Yet rupture restraints, which were not based on the ASME code, or 10 CFR 50 Appendix B or ANSI N45.2 QA requirement, had significant QA problems. It was their absence of committment to the federal code and national standards which resulted in a deficient QA program for Rupture Restraint.

P.G. & E. now was acutely aware that Pullman's pipe rupture restraint program had been out of control. On 10/26/78, P. G. & E. issued Nonconformance Report #DCl-78-RM-009. This NCR was concerned withPullman's documentation for the erection and inspection of rupture restraints inside Containment I. The NCR would identify: "1. Documentation shows work complete, correct and inspected. Work is not correct. 2. There is physical evidence of work but inspection records are incomplete or nonexistent."

But P.G. & E. would find that the problem extended far beyond Containment I and documentation problems. NCR#DCI-78-RM-009

was cancelled and in its place P.G. & E. issued NCR# DCI-79-RM-003 on 1/24/79 for all Unit I Rupture Restraint work, and NCR# DC2-80-RM-002 on 11/19/80 for all Unit II Rupture Restraint Work. Both NCR's #DCI-79-RM-003 and #DC2-80-RM-002 would identify:

"1.a. Documentation shows acceptable bolted connections. However, there are cases of out of tolerance gaps existing under base plates, nuts not bearing against splice plates properly and nut not engaged per requirements.

b. Documentation shows acceptable welded connections. However, there are cases of materials and welds not conforming to the specifications.

c. There are bolts that have "torque seal" which indicates tensioning and inspection, however, inspection records do not exist."

PG&E would identify the cause of the Nonconformances to be the fact that "Pullman Power Products Rupture Restraint Program has had inadequate design change control, inspection performance and control." Another cause not identified by PG&E was the fact tnat Pullman's Rupture Restraint construction program was not committed to the QA requirements of the ASME, 10CFR50 Appendix B or ANSI ~~N45.2~~ N45.2 codes, NOH the result being a totally inadequate Quality Assurance Program for the erection and inspection of Rupture Restraints.

The corrective action required by PG&E was that "Pullman shall perform a documented inspection of all bolted and welded connections and applicable documentation, required by the Specification, as set forth in approved contractors ESD's, in order to:

1. Identify connections which do not conform to specification requirements and
2. identify connections which do ~~not~~ HAVE require documentation."

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Identified deficient conditions would be resolved per the NCR's. It should be noted that PG&E did not report these NCR's to the Nuclear Regulatory Commision as a ~~10~~ CFR Part 21 Reportable item. NOH NOH

Pullman would issue on 2/16/79, ESD 273 "QA Final Walkdown and Documentation Review-Rupture Restraints" as the procedure to direct the reinspection of Rupture Restraint work. The final walkdown

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inspection and documentation review commenced shortly thereafter in Unit I and continued into the summer of 1980.

Unit I Final Walkdown Inspections were performed in non-compliance to ESD 273 and other procedure requirements. Pullman Deficient Condition Notice (DCN's) #476-027 (4/1/80), #476-028 (4/21/80) and #476-029 (5/1/80) identified that Final QA Walkdown Inspections did not conform to QA instructions #137 and #148, which stated that ESD 268 and ESD 273 would be used to identify and document dificiencies discovered during final ~~Landware~~ HARD walkdown. The following ESD 273 and ESD 268 procedure requirements were not implemented during the Unit I Final Walkdown inspections.

1. QC Inspectors did not initiate Deficient Condition Notices during the walkdown process but merely noted dificiencies on a QC/Engineering Walkdown Sheet, (ESD 273).
2. A D.C.N. was not initiated for each dificient condition detected. Deficient conditions were taken from the QC/Engineering Walkdown sheet and listed on a punch list and then assigned a single DCN number. Representative Punch list DCN#381-215 for construction induced defects, had 98 separate deficient conditions listed. This did not conform to ESD 273 procedure requiring a DCN for each dificient condition noted.
3. ESD 273 required that "documentation of all deficient conditions noted shall be in accordance with ESD268". The following ESD 268 procedures were not implemented during Final Walkdown Inspections of Unit I Rupture Restraints.

   A. Field QC Inspectors did not generate DCN's as required by ESD 268. Instead QC Inspectors noted deficiencies on QC/Eng. Walkdown Sheets.

   B. ESD 268 required that "each DCN shall be assigned a number by the Field QC Inspector concerned." This was not done. Engineering reviewed the QC/Eng. Walkdown sheet and then requested a DCN number from the QC Inspector Supervisor, not ~~an~~ the Field QC Inspector noting the deficient condition. The orginator was squeezed out of the picture.

C. Field QC Inspectors did not "affix a hold tag to all discrepant items reported on a DCN". During the Final Walkdown Inspection Program for Rupture Restraints no hold tags were affixed when a deficient condition was identified and then listed on the QC/Eng. Walkdown sheet. Deficient (discrepant) conditions were identified on paper but were not identified in the field by having a hold tag affixed. These deviations from ESD 273 and ESD 268 were carried out by Field QC Inspectors and Engineers based on verbal instruction from QA/QC and Engineering Management.

Additional noncompliancies to ESD 273 were identified on DCN#476-030 (5/16/80):

1. Field QC Inspectors did not reference assembly drawings for their examinations of the U Bolt. Verbal instructions on QA/QC Management to Field QC instectors was to only assure U Bolts were in place and not perform detailed examinations to the drawings as required by ESD 273.
2. Field QC Inspectors did not check pipe ~~tolerances~~ clearances (cold gaps) as required by ESD 273. Not
3. Field QC Inspectors did not examine assembly drawings component descriptions against installed assemblies to insure all components had been installed. Verbal instructions from QA/QC Management were to only assume that U Bolts were in place and not to perform detailed examinations to the drawings. Not

ESD 273 would be revised by Pullman implementing the verbal instructions used to perform all Unit I Final Inspections after the whole Unit I Walkdown program was completed. PG&E would approve this revision in late May/early June 1980.

The Unit I Final Walkdown Inspection Program would ~~have~~ identified significant numbers of discrepancies and resulted in major rework. Pullman DR#4259 is representative of the type of discrepancies identified. DR#4259 identified that connections on Rupture Restraint 126, modified in March 1976, were not to specification. The following discrepancies were identified: Not Not

1. A plate added was not documented on a material requisition or marked to identify source.
2. FW 32, designed as a full penetration weld on three sides of the added plate, was 1/16" below flush and the weld had not been ultrasonically examined and was now inaccessable.
3. Original eight bolt holes in the receiver plate were plug welded without documentation. The technique used did not comply with AWS DI.0-69 code.
4. The four new lower bolts were drilled through FW 32 and its backing strap. The backing strap was not trimmed to facilitate full seating at the bolt head and the strap had a maximum gap of 1/4".
5. Design required eight 5/8" A 325 bolts but eight 3/4" A490 bolts were installed. Washers were installed under the turned element but not under the bolt head. Bolts were not documented on a material requisition or marked to identify source.
6. The top south bolt had received air arc damage resulting in fusion of the nut and bolt.
7. The bottom north bolt did not have full engagement.
8. All bolts have been tensioned, evidenced by torque seal, however, process sheets were not documented.
9. Splice plate had been installed with a 1/16" gap at top and 1/8" gap at the bottom without shims.

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The Unit #II Final Walkdown Inspection began in June 1982. To expedite the Walkdown process ESD 273 was revised to delete from the Walkdown process all bolted and welded connections installed after 1/24/79. The basis for this delection was PG&E's NCR # ~~Del-~~ DCI-79-RM-003, dated 1/24/79, which stated under Corrective Action to Prevent Recurence that "Pullman Power Products has developed and implemented a program which assures adequate control of design changes. Training and indoctrination programs have been developed and implemented which assures adequate performance of inspection personnel."

As Internal Auditor, in a July 7, 1982 Pullman Interoffice Correspondence to the QA/QC Manager, I requested a reconsideration of the deletion of Final QC Walkdown Inspection of Bolted and Welded Connections installed after 1/24/79: "There is documented evidence available which raises questions about the "adequate performance of inspection personnel". Since January 1979, there have been approximately one hundred (100) findings concerning discrepancies or noncompliances to procedures, committed by Field QC Inspectors or committed by others but not identified and/or corrected by QC Inspectors. These findings are documented on Pullman Internal Audit Reports and PG&E Minor Variation Reports. Most of these findings involve Unit #2 work. The areas of discrepancies or noncompliances identified were Quality Control Inspections, Process Sheet Discrepancies, Discrepancies with Installed Material Removed and To be Reinstalled, Discrepancies with Material Storage and Traceability and Discrepancies with Field Warehouse Requisition and Material.

But Pullman QA/QC Management would not reconsider and Unit #II Final Walkdowns were not performed on post 1/24/79 rupture restraint work. The Unit II Final Walkdown Inspections would also result in major rework of rupture restraint. Subsequently, Pullman Field Engineers wrote several Discrepancy Reports on post 1/24/79 work when the work was inadequately VERTENTLY reviewed by Engineering. Also Deficient Condition Notices would be written identifying documentation problems missed in pre-1979 work.

In 1982 serious problems were identified in the calibration process for torque wrenches used in the rupture restraint bolting program. The problem extended beyond rupture restraints to calibrated equipment used on ANSI B31.7 and ASME code work. PG&E's General Construction Department had been providing calibration services to Pullman at the Diablo Canyon site since at least 1974. PG&E calibrated a variety of tools including: torque wrenches, hydrogages, thermometers, heat temperature recorders, hygrometers and trip-volt-ohm meters. As a result of Pullman Vendor Audits in PG&E's General Construction I was notified that some tools were being forwarded to PG&E's Nuclear Plant Operations for calibration. PG&E's NPO calibration service had never been subjected to a QA program audit by Pullman as required. Pullman, through myself, performed a vendor audit of PG&E's NPO Department in October 1982 and identified the following deficiencies:

1. There were no documented instructions for the calibration of Pullman torque wrenches and subsequent documentation.
2. The traceability of calibration operation for their torque wrenches and subsequent certification could not be assured because:
   a. The identification of the torque wrench on related documentation was not consistent.
   b. The certification documentation was confusing and inadequate.
   c. Documentation necessary for maintaining traceability and certification proving traceability was not generated.
3. The calibration documentation for NPO Standards had deficiencies:
   a. There were no documented calibration frequencies for a standard used in a calibration process.
   b. Calibration information labels attached to NPO equipment did not provide positive identification of the devices for which the information was intended.

As a result of the audits in PG&E's General Construction and NPO Departments, Pullman removed PG&E from its Approved Vendor's ~~hire~~ list until such a time as corrective action measures and measures to preclude recurrence were completed and approved.

Subsequently PG&E would write a Minor Variation Report #M-4406 against Pullman. The discrepancy would identify that Pullman had procured calibration services from PG&E General Construction Department without written contract or specification which delineated Quality and Technical requirements. This calibration service had been going on as far back as 1974 without Quality and Technical requirements.

Also in 1982, significant Program deficiencies were identified in the application of Weld Procedure Code 7/8 to Rupture Restraint Welding. In August, through Pullman Unscheduled Internal Audit #32 I identified in both Units of the plant a large number of square groove welds made in one inch thick material using Code 7/8. These type welds were not a prequalified joint detail of the AWS Welding Code. Weld Code 7/8 did not have Procedure Qualification Records for the Type Weld as required by the AWS when joint details differed from those prescribed by the code. PG&E and Bechtel responded on 1/24/83 to a Pullman letter concerning this problem by stating that the square groove welds would not be allowed. In addition, the PG&E and Bechtel letter stated :"Weld procedure specification code 7/8 has been approved for the process and joint configuration itemized on the WPS. There itemized parameters are considered prequalified by AWS or are supported by tests and procedure qualitication records. If Pullman wishes to use WPS Code 7/8 for processes or joint configurations not itemized a new WPS and PQR's are required."

Based on this PG&E and Bechtel letter, my Pullman Unscheduled Internal Audit #35, dated 12/1/82 with a final prepared date of 3/23/83, identified in both units of the plant a number of single level groove welds in skewed T joints with special fit up requirements and fillet welds with special fit up requirements which were not prequalified AWS welds. The welds were made with Code 7/8 without establishing Procedure Qualification Records.

In addition, eight other types of joint configurations were identified as made with Code 7/8, but which were not itemized in the code 7/8 WPS. These welds did not conform to the intent

of the PG&E and Bechtel letter and were nonconformances to the Weld Procedure Code. Other Weld Procedure Code 7/8 deficiencies were also identified. Pullman spent 1983 and 1984 implementing corrective action to these Weld Code 7/8 problems. But the corrective action has not addressed all the problems. Code 7/8 was revised and new weld procedure #AWS 1-10 generated which addressed joint configurations not listed in Code 7/8. But the actual welds in the field made in nonconformance to Code 7/8 have not been addressed. The Pullman Power Products construction program for Pipe Ruptures Restraint has a long and continued listing of discrepancies and nonconformances to PG&E specification and 10 CFR 50 Appendix B Quality Assurance Requirements. There can be no assurance that all of the problems have been identified, reported and corrected. PG&E in P.S. #8833XR defines Quality Assurance as those planned and systematic actions necessary to establish confidence that material (equipment and systems) will perform satisfactory to services. PG&E defines Quality Control as those Quality Assurance actions which provide a means to control the quality of material supplied (and work performed) to predeterminded requirements. Pipe rupture restraints have had a continuing history of failure to meet basic codes and quality assurance standards. Perhaps quality assurance is all irrelevant. If QA matters, however, there is no basis for confidence that if an earthquake occurs, the piping will be sufficiently restrained to avoid damaging surrounding equipment.

HOH

I have read the above 47 page affidavit and it is true, accurate and complete to the best of my knowledge and belief.

Signed Harold O. Hudson Date 6-5-84 June

Harold Hudson

STATE OF CALIFORNIA
COUNTY OF SAN LUIS OBISPO

On June 5, 1984, before me, the undersigned, a Notary Public in and for said County, personally appeared HAROLD O. HUDSON, proved to me on the basis of satisfactory evidence to be the person whose name appears in the above instrument, and acknowledged to me that he executed same.

HH/nw WITNESS my hand and official seal.

Lisa R. Wenter
Lisa Wenter,
Notary Public

HOH

LISA R. WENTER
NOTARY PUBLIC - CALIFORNIA
SAN LUIS OBISPO COUNTY
My Comm. Expires May 9, 1986

INTERVIEW WITH NRC INVESTIGATORS

- January 5, 1984

Howard Johnson's, San Luis Obispo

Present: DENNIS KIRSCH, Chief of the Reactor Safety Branch, Region 5, Division of Reactor Safety and Projects.

GONZALO HERNANDEZ: Reactor Inspector, Region 5.

[redacted] at Diablo Canyon.

STEVE LOCKERT: Pullman QC Visual Inspector.

JOHN CLEWETT, Government Accountability Project.

KIRSCH: Steve you talked with Mark Padovan (sp) on the 23rd. Oh by the way, the time is 7:27, the date is January 5th, 1983.

84.

KIRSCH: By golly, you're right. I am running behind, My check book is going to be in terrible shape. You talked with Mark Padovan on the 23rd of December and relayed to him a number of concerns. What I would like to do is go over those concerns first of all, and try to establish basically read them into , I guess, the record, probably be the best thing to do, and establish if you have any additional information other than just these kinds of concerns, additional information that is relevant to each of these as we go through them. Ok, and then we will get to any additional ones after we go through all these. Now these are Marvin's words based on his phone conversation. His write-up of what he understood from the phone conversation with you. You indicated that in mid-September of 1983, you were reading PG&E and

KIRSCH: Pullman contracts #8711 for Pipe hangers and #8833XR for rupture restraints which define the work Pullman was to do for PG&E. The contracts indicated that Gas-tungston arc (?sp) welding equipment was to have a reostat (sp) control and be of high frequency so that no base metal and electrode contact was necessary to initiate welding. And your concern here was that the contact, of course will cause tungston inclusion (sp) to the base metal.

LOCKERT: Well my concern is #1 they are not following the procurement document document.

KIRSCH: Well we'll get to that, but the safety significance of this thing is that it would cause a tungston inclusion into the base metal from some melt of the tungston electrode on the tape machine

[redacted] The reason that tungston inclusion is a problem in base metal is because its generally a sharp indication thats not, its treated as a slag (SP) inclusion by the x-ray inspection out there, but a tungston inclusion generally is not melted into the base metal, Its a very tungston is a very hard dense material. . .

KIRSCH: I understand.

[redacted] . . and when it breaks off in a weld, what it creates is a sharp stress rays or point where stresses will concentrate in that weld, and that is the problem with tungston inclusion.

KIRSCH: We'll get to some more on this. I just want to complete reading this please. This type of equipment has not been in use at Diablo Canyon for the last five years. The reastat (sp) control permits the current to turned off and on and adjusted without the reastat control

KIRSCH: (drawing)? in or begin welding and separating the electrode from the work to stop welding causes defects. PG&E indicated to you that would change the contracts.

LOCKERT: Yea, this was at a later date. In mid-September I sought Pullman's attention.

KIRSCH: OK, who in Pullman did you call?

LOCKERT: The QA manager, Harold Carter.

KIRSCH: Harold Carter, Ok.

LOCKERT: and I notified him per memo.

KIRSCH: ok you notified him by Memo. Do you have a copy of that memo?

LOCKERT: No I don't.

KIRSCH: for me, ok, well we'll find it.

[redacted] You might mention why you don't.

LOCKERT: Oh, when I got fired I was not allowed to bring any paperwork with me when I left that included memos, personal scratch paper, anything like that.

KIRSCH: That's understandable. That's normal. OK uh I guess what I need to know what kind of tape (sp) welding equipment do they use out there.

LOCKERT: well they use a resistance type power supply. they plug into what is it called ..

[redacted] its a standard grids supply, Manpower supply, and each welder plugs a resistance box into the power supply t get his well in (?). The way they go about tig (sp) weldi

[redacted] is they usually take an electrode lead, or stinger for stick welding. they take and they'll have the fitter clip the tungston lead into the electrode lead when they want to start their arc, as they do it, sometimes you'll have fitter dialing you up to what you want to be welding at but each control box has varied steps that increase the current which is not the best way to be dealing with tig (sp) welding because you don't have the control that you normally get with reastat control. that's why you want a reastat control (unintelligible)

KIRSCH: OK, the day the shielding gas is all coming off the bottle (unintelligible)

[redacted] The bottle is right here and the flow meter may be right there at the station or it may be 3 stories up on the next floor.

KIRSCH: OK. so you use a resistance type box off the grid.

LOCKERT: right.

[redacted] DC straight polarity

KIRSCH: and this has the switched, well maybe like a reastat is very sloppy, not a good a reastat . . .

[redacted] It is a definite step control.

KIRSCH: step control yea.

LOCKERT: and only if the fitter is on the box adjusting for the welder. That's the only control he has. If the fitter is not there, the machine turns on to whatever value its set at and stays at.

KIRSCH: uhuh.

[redacted] The way I have seen most of it done out there, the welder will strike an arc, initiating an arc by touching the tungston to the face metal and it will break that loose, he'll start welding and when he gets done, depending on how much he knows about what he's doing- usually I seem 'em just take a tungston and he'll just pick it right up off the face metal which is really poor on stainless steel because you use all your gas shielding into that weld deposit (SP?).

KIRSCH: Another question -

[redacted] They have documented problems with the starts and stops as far as radiographs on stainless steele (unintelligible) that does contain it.

LOCKERT: I can read you here on my document the type of defect that occurs at the end of weld cycle. The defects occur at the end of the weld cycle when the welder tries to extinguish the arch, by pulling the tungston electrode directly out of the area over the weld pool. The weld pool is kept molten as the arc elongates, but then starts to freeze as the arch and magnetic field collapse oscillating the weld pool and as the weld freezes, this oscillation creates a whole new center of the weld pool and by taking that tungston electrode straight out of the weld pool you do not see that defect all the time, but many times you'll see that defect . . .

KIRSCH: the hole, what are you saying then that it creates porosity (sp)

[redacted] You get a it's called a crater, its due to the magnetic effect and it is also due to the fact that the puddle is shrinking there, its hot and starting to solidify, its not as bad a problem on stainless as it is on aluminum but you do get the porocity because they lift the tungston off of there

[redacted] have a real long arc that creates an area where its still being heated, but there is no shielding gas flowing over it, and when you suck nitrogen and oxygen out of the air into stainless steele, you create some definite metallurgical problems with it when you weld it .

KIRSCH: Ok uh, Were you involved in observing tungston tig (sp) welding, or inspecting tig welding?

LOCKERT: yes.

KIRSCH: What you were a visual inspector?

LOCKERT: that's right.

KIRSCH: What level?

LOCKERT: level two

KIRSCH: You were level two?

LOCKERT: right.

KIRSCH: what- In your opinion what would be the effect of this- now understand on pipe you wouldn't want this kind of a stress raiser, but what would be the effect did you see them do this on both pipe and on supports? support attachments to the stainless pipe? They don't use tig (SP) welding on carbon steele.

[redacted] They do depending on the problem I see is they don't know where to use it on different things. They'll use tig (sp) welding out on the wind on carbon steel on the pipe around

KIRSCH: Oh yea?

[redacted] I have seen them do that with regularity and I as an inspector brough it to the Engineer's attention that it is not a real good thing to be doing, but they don't seem to They have decided that this is how they're going to do it and that's the way they're going to do it.

KIRSCH: Out on the rack they'll use tig (sp) ?

[redacted] I have seen them use tig (sp) welding out on the pipe rack on windy days, on joints that would make a lot more sense to use shielded metal arc welding under the conditions and joint design.

KIRSCH: Do you see any problems with using tig (sp) welding out on the rack?

[redacted] As long as they shield the wind, but they don't shield the wind and there is no root pass inspection requirement, and as a matter of fact, the job I was on . .

KIRSCH: Where they welding pipe or were they welding structural?

[redacted] This they were welding hanger members that were carbon steel.

KIRSCH: Then they were structural?

[redacted] uhuh. But I have also seen them use it quite a bit on stainless pipe. In fact one day I walked by and a welder had his fan blowing right across his tig(sp) arc to where I could visually see that he was contaminating that weld. I asked him to stop He became very abusive. I just asked him would you please move your fan here, and the guy just basically got in my face and said I had no qualifications to be telling him how to weld, and I myself have been a

[redacted] tig(sp) welding for six years now. I have used a certified. I qualified to Military standards which are some of the tightest around for tig (sp) welding and I am about 10 units short for a bachelor of Science in Welding Engineering. Steve's got one. So.

KIRSCH: Can you tell me where that was at?

[redacted] Cal Poly.

KIRSCH: No no, I mean where you saw that fan blowing across.

[redacted] Oh, The fan was blowing across the guy was welding on 3/4" schedule 160 stainless line that a 650 PSI Nitrogen line for one of the accumulators in Unit II containment.

LOCKERT: 91 level (sp) (unintelligible) pressurizer right next to the bottom of the stairs

[redacted] its the accumulator.

LOCKERT: Oh yea the accumulator.

[redacted] I might add that I informed the guy's foreman about what he was doing, and he just and he just asked me well did the weld look bad? and the weld visibly didn't look bad, but if you were to use some NDE (sp) on it its my opinion that it would not turned out good on those passes, but because they were covered up it might have not when the final NDE (sp) was performed on it might have turned out good.

KIRSCH: That kind of a line is not required to be radiographed I think its just a liquid penetrant.

[redacted] Liquid penetrant, yea.

LOCKERT: Dennis, in reference to your question where I saw that process being used, it was on pipe welding, stud welding.

KIRSCH: In unit two?

LOCKERT: In unit two and uh

KIRSCH: How long ago, when was that?

LOCKERT: Well I'd say from September-October to December.

KIRSCH: of 83?

LOCKERT: What's that?

KIRSCH: of 83?

LOCKERT: right

HERNANDEZ: You saw that repeatedly?

LOCKERT: I didn't see gas-tungston arc welding being used every day, but on a week to week basis, I might get some gas-tungston arch welding where they use it to attach studs to the containment lyre (sp) and occasionally they use it for root passes on structural welding.

[redacted] They use it when they have to make an open root weld

LOCKERT: Is that the 88-89

[redacted] That would be the 88-89 procedure for carbon steele hanger members when they can't get . .

KIRSCH: 88-89?

LOCKERT: WPS

[redacted] Pullman welding procedure specification.

KIRSCH: Do you remember what portion of that line in the accumulator; the nitrogen line for the accumulator?

LOCKERT: I remember something about it. It was a modification of that line that occurred in what, early October?

[redacted] yea, it was being done on the floor. It wasn't in its position, and I questioned the way I calmed the guy down is I asked him for his isodiagrams (sp) so I could tell what field weld number he was making, and at first he told me he didn't have it, which is a requirement that it be there at the work station, and finally he produced it, then they realized that they really had to put up the goods. Its somewhere going right into the accumulator there, I don't know what number the accumulator is.

KIRSCH: you said the bottom of the stairs.

LOCKERT/[redacted] right.

KIRSCH: There is only one near the bottom on the stairs.

[redacted] thats true.

KIRSCH: If I remember right. We'll be able to find it I think.

HERNANDEZ: This is unit two right?

LOCKERT: Right.

[redacted] I have that documented on my daily inspection reports for that day.

LOCKERT: I was also involved in that and you can find my daily sheet you probably can get some field weld numbers for that.

KIRSCH: OK.

HERNANDEZ: What was the date on that.

LOCKERT: Early October.

HERNANDEZ: So we can check the daily's for early October and look for your file.

LOCKERT: Yea...

[redacted] Steve can't They didn't allow him to take his own personal inspection records out.

HERNANDEZ: Yea, but they should have his.

[redacted]

LOCKERT: Unintelligible

[redacted] Another instance I saw gas-tungston arc welding that I realized was not going in the way it should and I addressed this to the QC manager in the meeting we had today. Due to the lack of training I was not aware of the proper procedure I should have followed when I came across this. Its on Class E piping which requires no QC participation as far as the in-process work. It requires heat and TO and weld filler tracibility and thats about it. I as an area surveillance was looking at what was going on here watching them purge and I noticed they weren't purging their lines they were

[redacted] They were doing this down on a bench also on the floor I reached in under an elbow where I could get my hand in to feel the back side of the weld, and the stainless when it is not purged properly gets a sugary coating, and it was pretty apparent that they didn't, they fell through on it, they had a lot of garbage on the inside and it was sugared quite a bit.

KIRSCH: OK, what kind of a line was that on ?

[redacted] That was on a 4" scheduled 10 stainless line in the in the 85 foot elevation far north end of the Turbine one building.

KIRSCH: Those are class E lines?

[redacted] Class E and it has something to do with the reverse osmosis area.

KIRSCH: You are aware though that that is not a safety related system, and therefore it is outside of our regulatory bound.

[redacted] I would just like to point that out as part of the way tig (sp) welding is conducted around there, from what I've seen.

KIRSCH: OK.

CLEWETT: If I could make just one comment. I think, I mean I don't know enough about welding to know what's what on this and Ibelieve the both of you that this is not a particular safety related here. I think one thing that is of potential interest to the NRC is to the extent that these are examples of a certain philosophy towards welding and, you know, that it may be that because of the fact that there are lots of examples it means that

CLEWETT: there is a more widespread phenomenon thats going on .

KIRSCH: I agree, I agree, but my interest was that I wanted to know if it was a safety related line, I wanted to know what line and where.

CLEWETT: Absolutely.

KIRSCH: Yes the comment is well taken and it was understood (unintelligible).

KIRSCH: OK. Let's go on.You indicated that Pullman welding procedures 7/8 for rupture restraints was qualified on flat plate in accordance with the Asme (sp) code.

LOCKERT: That was qualified on pipe.

KIRSCH: That was what I rememberd, Ok so it qualified on Pipe.

LOCKERT: Uhum.

KIRSCH: Using the same qualification information obtained by Asme (sp) methods, Pullman qualified the procedure to AWS standards. So in other words they took the Asme (sp) qualification and

LOCKERT: Transferred

KIRSCH: Transferred it over to structural.

LOCKERT: to AWS.

[redacted] They're applying it on AWS work. They have not qualifid it per AWS D11 standards.

LOCKERT: the Rupture restraints.

[redacted] They're using it on restraints.

KIRSCH: Is that AWS work?

KIRSCH/LOCKERT/

[redacted] Unintelligible.

LOCKERT: definitely for the rupture restraints.

KIRSCH: For the rupture restraints only.

[redacted] I believe its Dll 79(unintelligible)

KIRSCh: You say its not correct to qualify the procedure to AWS standards using Asme(sp) methods because joint design is essential as with the AWS standard qualification where as joint design is not essential for qualification in accordance with Asme (sp).

[redacted] I might add that its not considered an essential variable, meaning if you change it you don't have to re-qualify the procedure, but Asme (sp) section 9/1977 edition says your qualified welding procedures specification will list all qualified joint designs and up until when did that GWS come out? Up until October, they did not follow that requirement of Asme (sp) they would, as in a case in point, procedure 7A is qualified, and it says in the procedure that this procedure shall utilize a backing strip on all welding meaning its not suited for open root welding. They use it with regularity on open root welding where hanger members, this is what we're discussing, where they'll back-grind the back side . .

KIRSCH: and back weld it out

[redacted] Back weld and weld from two sides. Now ASME doesn't prohibit that but they say it has to be noted on your WPS. I addressed that verbally to the QA/QC manager and was told that well we have been doing like this for 10 years and we're not going to stop now.

KIRSCH: Something confuses me though . If you back- if your using it for AWS welding, whey would you comply with the ASME requirement to note it on the WPS for back gouging?

[redacted] THE 7/8 Procedure qualification, WPs is qualified ASME section 9 for use on hangers only.

KIRSCH: OK.

[redacted] They cannot tranfer that qualification to AWS just by saying well we have this qualified procedure, now were going to do it like this.

LOCKERT: I might add, [redacted] that the tinsel (sp) and bend tests will qualify forfor either code (?)

KIRSCH: That's right.

LOCKERT: But now, when you take your ASME qualified procedure and switch, and move it over to AWS area, the only joint design that is now qualified in the AWS is an original joint design shown on the CQR

KIRSCH: unintilligible.

LOCKERT: Right, so all of a sudden, joint design becomes an essential variable over here. WPS 7/8 will only weld one joint design in rupture restraint, As far as I know.

KIRSCH: Is that how you remember 7/8?

I don't remember the correct code.

Me either.

LOCKERT: Well I can provide you fellow with some documentation here.

KIRSCH: That would be some help.

LOCKERT: There is

KIRSCH: What are we reading from here?

LOCKERT: This is my prepared document. I gave you some specifics over the phone, and this is my written response to you fellows.

KIRSCH: Now is one of those copies ours?

LOCKERT: If you'd like it.

KIRSCH: Oh good.

LOCKERT: so...

KIRSCH: That will maybe help preclude me from having to write so much.

[redacted] When you want to use a AWS procedure, the way AWS, are you familiar how the AWS structural code is set up and work with it.

KIRSCH: Somewhat.

[redacted] Well you have pre-qualified procedures saying that if you use this base metal and this process and this filler metal, you can use one of these job designs.

[redacted] that we have already estalished or qualified without going through the expense of qualifying this procedure. The 7/8 procedure is a procedure qualification, but it only applies to the materials that they use to qualify that. AWS says that what you have to do in the event that you want to qualify material that is not listed in their code is you have to go through essentially what they have done to use 7/8 as a AWS procedure. But then its only qualified for that material they did the procedure qualification on.

KIRSCH: Ok, so then they're using different materials.

[redacted] They're using it as a pre-qualified AWS procedure. But the main thing is AWS says you have to write a WPS welding procedure spec for all your qualified joint designs, and that's one thing they

for pre-qualified?

For pre-qualified joints you shall write a WPS welding procedure spec for each qualified joint design that you plan to use in production.

HERNANDEZ: You do not have to write a PQR?

[redacted] Not. You do have to have a PQR

HERNANDEZ: not for the pre-qualified

[redacted] Let me think, there is a form in there If I could look at your

HERNANDEZ: Well your utilizing the pre-qualified joint design

[redacted] Right so they would not require

HERNANDEZ: That's the point of using the

LOCKERT: That's why you use the pre-qualified. You can use something else as long as you qualify it.

[redacted] Right.

HERNANDEZ: Provided you have a welding procedure specification that tells you what your going to do .

LOCKERT: Right.

[redacted] This is an item I'd like to address later, or now, its dealing with the use of un-qualified base metals out there.

LOCKERT: This is one thing in 7/8 that I was researching now. Pages 3,4,5,6 are the PQR. This paperwork was never allowed. This paperwork, the PQR, I was never allowed to see this as an inspector out there. Pullman denied me access to this record here. I don't know whey, but what I was trying to discover was that what was the original joint design in the ASME qualification and it says here joint dimensions are in accordance with sheet 2 of 10 on this procedure qualification record, and they also have another one over here. Sheet 2 of 10 and we have six sheets in this WPS so its very confusing to try to figure out what the original joint design was. Here again, sheet 2 of 6 and so they're referring us back to here now which one was the original joint design, I don't know, I was never able to determine that so consequently I was never able to determine which joint design was actually qualified in the AWS code area.

HERNANDEZ: And again, were talking about the rupture restraints. Your talking also about some problem with the unqualified base materials.

[redacted] Yes I'd like.

KIRSCH: Let's hold on before we get into to that one. Let's wait, because I'm still confused a little bit.

LOCKERT: OK.

KIRSCH: You're saying that they Pullman uses 7/8 as a qualified AWS procedure for all kinds of joint designs?

[redacted] YES, in the rupture restraints. I don't inspect rupture. I noticed from reading the rupture restraints specification and talking with Steve when he was involved with rupture restraints. I was looking at some today...

KIRSCH: This just based on the PQR from the ASME.

[redacted] Yes/ right.
LOCKERT:

KIRSCH: What I don't know right now, but using some joint design.

[redacted] Yea, you can't determine (unintelligible) what joint design they did use. Codes are set up different ways to address different types of fabrication. You realize AWS you're dealing with structural shapes, basically hot rolled steel or ASME you can be dealing with all kinds of.

KIRSCH: But its still legal to use an AWS qualified procedure and take it back, or an ASME qualified procedure and take it back into AWS.

[redacted] You can do that provided you do it in accordance with the materials and things specified in your original qualification.

LOCKERT: That's the point I was trying to make. If they They've done that. They've used the ASME qualified for welders

HERNANDEZ: Qualified for the procedure or the welders.

LOCKERT: Well right now were talking just procedure.

HERNANDEZ: Ok the procedure. to the ASME and they have done AWS welding right? but doesn't the rupture restraints only deal then with a certain type of material, for instance, carbon steel?

LOCKERT: It has to do with a variety of carbon steel the 844] and 588,

[redacted] 516, .515, mostly A-36.

who? Hernandez?

A-36.

They list them right here.

That's one of the qualified materials.

[redacted] OK, you're talking T1 which is an ASME qualifed material, OK that does not really go right over the AWS.

HERNANDEZ: What page was that you were referring to.

LOCKERT: This will be attachment looks like 10, it will be page 1 of 3 of Pullmans AWS 11

[redacted] See ASME will let you do that. If you qualify and you group them into these P numbers, you qualify in this P number, you can use

KIRSCH: Anything in that P group.

[redacted] Yea, but they also limit that, they say you have to look at the mettalurgical and chemical and the weldability aspects, ASME pre-supposes that you have a cognisant Engineering staff that really looks at this stuff and reviews it before you put it into the field. And that's one thing that I don't see happening out there by the way they use their materials, and the way they use un-qualified materials which I will address later when we get through all of this.

KIRSCH: Are they using 7-8 to weld materials for which it wasn't qualified.

[redacted] Yes they are on safety related items, containment (unintelligible).

KIRSCH: Containment spray rings, supports?

[redacted] Supports and containment liner studs that they attach to hold up the spray ring hangers, they are using both cases of materials that they use supposedly

(Side 2 Tape A) ...on the containment spray ring, the studs to the containment liner they use A108 which is not a AWS pre-qualified material and has not been qualified with ASME procedure, its not a P1 material to the 77 edition of the ASME section 9. And they also use ASTMA 307 which is a material that comes in as a bolt They cut the head off the bolt and they put a chisel point on that bolt and they now weld that to the containment line.

HERNANDEZ: (?) I thought A307 was essentially A36 mild steel

[redacted] A307 if you look at the spec A307 comes in with no carbon limitation on the specification, right there, that takes any un-qualified weldability you may think that you can get out of that material. No carbon limitatic an upper limit of .050 on phosphorous and sulfur, those are the only chemical limitations on that specification. now that in itself coupled with the fact that it comes in on a certificate of compliance only, you have no chemistry tracibility on site of what that material is. Now the vendor may have a QA program and may have tracibility to that material, but onsite you do not know what the carbon content in that material is.

KIRSCH: They're welding these to the containment liner also?

[redacted] Containment liner studs. Um, the metallurgical aspects of that are if te carbon and phosphorous are on the high side, what you get is you get a brittlness after you welded it due to the, you get a banding effect of phosphorous and carbon in your weld heat effected zone, that reduces the overall impact strength of that weld, and section 9, I'm not sure where they get it but I know they've done Sharpe (sp) impact tests on all these weld procedures, and they don't have a qualified weld procedure to weld A307. That's the bottom line. to AWS, to ASME to any of them. This is a completely un-qualified material. I haven't address that to the Company yet. I'm in the process of doing, compiling a documentation and I'm getting ready to address it sometime this week in the form of a memo, to see. right now . . .

KIRSCH: Why don't you write a non-conformance report?

[redacted] See I've never been educated as to how that whole system works out there. That is what I'd like to also get across to you people is we have a definite lack of

[redacted] training out there.

LOCKERT: Do you, Inspectors in the field don't field don't write the non-conformance report, usually the inspectors only write deficient condition notice which is usually

KIRSCH: DR?

LOCKERT: no DCN they call it...

[redacted] but DCN is Pullman's in-house method of reporting problems. Now you submit that to the QA/QC manager he decides that this report (unintelligble) PG&E if it is, he generates a DR.

LOCKERT: In fact, they don't even want the inspectors to disposition their own DCN's. The QA/QC manager is the one who holds responsibility ultimately for dispositioning all problems that come into his hands.

KIRSCH: Containment liner. Which containment liner, unit I Unit II, both?

[redacted] Unit I and Unit II. In fact just to show you, I got

LOCKERT: Gonzalo, I think you were correct in saying that when you order SA 307 as a non-headed anchor bolt, the purchaser must specify ASTM (sp) designation A36. What Pullman's doing is taking the regular bolt and cutting the head off. You're getting . .

[redacted] (at same time as LOCKERT:) That's a warehouse requisition. . . containment liner studs for that particular. The guy hasn't put the hanger number on there. Here's a copy.

KIRSCH: (at same time) This one isn't the hanger number 532S.

LOCKERT/

HERNANDEZ: You're getting this material (unintelligble) Oh I see so they're not actually ordering that Right. they're ordering bolts and then (unintelligible)

[redacted] (at same time) That is the detailed drawing. I'm sorry that is the hanger number. Sometimes they do sometimes they don't. They really don't fill those out properly. Here is a copy of the PO that comes in on.

KIRSCH: Can I have this.

[redacted] Yea you can have those.

LOCKERT: DO you have a copy of those?

[redacted] I can get them. Ive got the number . You can see that that PO is for bolts, and then here's another one where they have A307 weld studs that are purchased as studs for that reason. Here's a copy of what they're suppose to be using there for all your welded studs are suppose to be done to AWS D11. I talked to a Foley Engineer today, that told me that they were written up on an NCR for welding A108 studs on to something. Now I don't know what that was, but thats the case from As a welding engineer I would not question the pre-qualified welding of A108. Because the studs come in on that specification with a limiting carbon on it. The carbon on that specification is limited to .20 with a tolerance on that, which is within the realm of good weldability. You can generally weld carbon contents up to about .25 and within other limits with ease. Now it doesn't get them away from the fact that it's not a pre-qualified a material. But the A307 scares me, because they, you know, that's just, that's not a good material to be welding to begin with.

KIRSCH: What is this from?

[redacted] That's from this hanger drawing right here that another inspector happened to be involved with. I just got the copy of this to show what there . .

KIRSCH But you say they have no procedure for welding of studs?

[redacted] Not A307. It's not listed. If you look in your D11 right there, it's not listed as an AWS pre-qualified material. Nor is A108. From a metallurgical stand-point, you'd have a lot less problems welding A108 due to the fact that you do have a limitation on carbon in that. Because A307 is made to be a fastener. They give the steel maker, the manufacturer, the leway there to say here use whatever carbon you need to meet these specifications. They're not anticipating being welded.

HERNANDEZ: Going back a little bit, you're talking about the DCN's and the stats for

[redacted] Deficient condition notice.

HERNANDEZ: Deficient condition.

[redacted] The way those work is you initiate one of those, you have your lead man approve it and then you have to take it over the field engineers and you have to get their approval and you have to get one of them to sign it and disposition it, if its an in-process type problem, Like say somebody passed a hole(sp) point somewhere. I came on one where they passed a hole(sp) point for backing off the bolts on the base plate prior to welding. Well you have to get the engineer to disposition that, uh, in some cases they refuse to sign them. I have had three instances now where they

[redacted] refused to sign my DCN's. And all I can do is note that and send it on through. Sometimes My supervisors will try talk me out of it, and I know its dificient, and I can show them right in our specifications where it is deficient. Don't tell me oh no that's not really a deficient condition because of this or that or whatever. And I have also had the QA/QC Manager just flat out void it out and say this is not a deficient condition. And if you want to check my DCN log book I kept logs of all of voided and non-voided.

LOCKERT: The big point is is that they're not given the chance to evaluate whether it is a non-conformance or not in many cases there not being evaluated. Not given the chance to be evaluated.

HERNANDEZ: What process does this DCN go through, if it does, if it is approved?

[redacted] If its approved its taken, ok it goes from me to field engineer, who signs it, and then it goes to Well I give my lead signature to field engineer, then it goes to the chief engineer, he reviews their disposition. It goes to a level three, who reviews the NDE(sp) requirements of any re-work or work that's going to be re-inspected, any type NDE(sp) requirements and then it goes to the QA/QC manager for a signature on that part of it. Down at the bottom, you have whats called steps to prevent recurrence so that doesn't happen again. And generally they won't accept a DCN unless you can give them a name to go point a finger at. I have written some on generic problems, like, see thats my only opportunity to inform somebody or my only means of telling them what's wrong.

KIRSCH: Do you have, maintain a DCN log out there?

[redacted] Yes I do.

KIRSCH: If I were to come through, or come out to your go down to Pullman and request your DCN log copy would you have any what that give you any heartburn?

[redacted] No, its up to date and you . .

KIRSCH: This is DCN; s written by you?

[redacted] Yes.

HERNANDEZ: Wouldn't that point a finger to you though?

[redacted] Not at all.

HERNANDEZ: No?

[redacted] Well, yea, if you guys come in and ask for my DCN log, they're going to know somethings going on for sure.

HERNANDEZ: Right.

[redacted] Cause I'm kind of regarded as being a shit disturber out there anyway.

HERNANDEZ: But this DCN log is it a log that's kept either informally or formally....

[redacted] No it's required by you people I believe.

HERNANDEZ: So we could go there and look at DCN log?

[redacted] You can look at anybody's DCN log out there.

HERNANDEZ: Is a log then kept a separate log for each inspector or a log kept.

[redacted] -The log I keep is just copies. They keep the original on file in the QA/QC managers office, with the attached steps to prevent recurrence. Before they can close that deficient condition, which is has to be closed before you can finally accept either a hanger or a piping, or whatever, They have to document the steps to prevent recurrence and then a QA person has to audit that to make sure its all been done, and when they're satisfied, they sign it off on the bottom.

HERNANDEZ: But I though you said that the DCN was an in-house procedure, that they utilize before you go to an NCR. What you're telling me is essentially a DCN is an NCR.

[redacted] Well it can be, but only if the QA/QC... If the DCN like it use to be that you get a DCN arc strikes on piping. Well that was automatically, anything that had to do with piping or any kind of work that had to be done on piping. That was automatically reported to PG&E. So if you saw that then it became... What happens then is you're assigned a DR number that is written on you DCN and you have to log your DCN number in you log, you log the date that it happened, whether you applied a hold tag or not, The hanger number (____) number, or whatever, some kind of reference, and then you have a space for a DR number, if it goes to a DR, and then the date that its closed.

HERNANDEZ: OK, that's what I was referring to, the process before. You write the DCN originally, and if somebody along the line the QA manager decides yes this is nonconformance of condition, you then write what is called a discrepancy report.

[redacted] -- He would write that

HERNANDEZ: Who would write it?

[redacted] His office

HERNANDEZ: Do they ever come back to you?

[redacted] Yes I would get a copy of that. I, well it would be first, When I submit the original copy of the DCN with supporting documentation, it goes with the Engineers signature, my lead signature, it goes down to the QA/QC manager's office they run it through the mills to get the Chief engineer signature, a copy is made at that time and given to me as a control copy which goes into my log. and, I usually make an information copy of them prior to ever sending them in

KIRSCH: Do you keep that in your log?

[redacted] I do in some cases, but its stamped for information only. I keep that.. there has been cases where I have written DCN's that got lost, conveniently, right before a ASME audit that had to do with uncontrolled filler metals and uncontrolled pipe attachment removal on class C . :

KIRSCH: What I'm looking for would be.. Suppose I wanted to look at DCN's written by a number of inspectors, OK? And what I was concerned about that these were that the QA/QC manager had decided that it wasn't a DR, non-conforming item

[redacted] Uhum.

KIRSCH: Is it still entered in the DCN log in the QA/QC area.

[redacted] Yea, he would have the oringal copy, If he just voided that thing and kicked it back to you, then he would not have a copy of that, but when that happens to me, I keep that copy in that my log with his signature on it voiding it so that I know what happend with it.

HERNANDEZ: Is this a separate log from the official log?

LOCKERT: Yea, there is two logs. The company has one and the individual has one.

HERNANDEZ: Does this voided DCN does that have a reason why its voided?

[redacted] Usually he'll write something in there as to why he voided it. Sometimes they don't follow much pattern of coherence.

KIRSCH: Where do you work?

[redacted] I work, right now I work in the (_____) shop, and I work for the QA. What I have been doing recently is when QA, You know how the QA system works on Piping match the warehouse requisition with everything you have in the package, weld stores requisitions all of that When QA is reviewing a package and they can't find the original warehouse requisition, They come to me and give me the approximate date of installation and I go down to the warehouse and I look through their copies and see if I can find a copy of the original. If I can find it, I burn a copy like the one I gave you there, and they use that as the QA package.

KIRSCH: Our question though, Back to the DCN's, I want to DCN logs are all inspectors required to keep them?

[redacted] Yes.

KIRSCH: Their own individual logs?

[redacted] Yes.

KIRSCH: So if I were to go in tomorrow or someday and say I want to see the DCN, I want to look at DCN logs for...

[redacted] You'd have to come to the individual inspector.

KIRSCH: For [redacted] I would just go to Carter(sp) and say Carter(sp) I want to look at the DCN logs for inspector [redacted] and for some other QC inspector out there, who are some other ones that I can use that won't point a finger at you?

[redacted] Um,

KIRSCH: Some other QC types, and just say I want to look at these DCN

HERNANDEZ: How may guys are in the (_____) shop similar to your position?

[redacted] There is only a couple doing the QA, see I didn't write most of my DCN's as a QA inspector in the warehouse

KIRSCH: You did them in the field.

[redacted] Field work and I, right off hand, I could give you some names to.

KIRSCH: OK, Why don't lay me a few, lay a few on me, so that way I can go say I wanted to look, I want the DCN logs for these inspectors in 20 minutes, here.

[redacted] Uh, One guy, Don Lee, Um... You could ask to see Steves, They have to maintain that on File after he's terminated.

HERNANDEZ: His private log, as well as the one after they . .

[redacted] Yea, your log is really a controlled log that is turned in. That's why I make the information copies also, Cause When I leave I am going to take my affirmation copies out of that DCN log and turn in the control copies.

[redacted] Um, I'm trying to think of some inspectors , I'm trying to think of people who are reasonably on the ball there and should have their books in order. Uh. Gary Sawyer.

KIRSCH: How do you spell his last name.

[redacted] SAWYER.

LOCKERT: Gerry Dunn.

KIRSCH: Gerry Dunn. OK. so that gives me five, so that won't really point a finger at anybody. That's good, OK. So that's one of the things we'll do (unintelligible and we'll make copies --

HERNANDEZ Maybe we can touch on something we did this afternoon. Have you ever been instructed that you can write an NCR or discrepancy anytime that you want to?

[redacted] Never.

HERNANDEZ: There has never been a meeting held by Carner (sp) or his group where you have been informed that you have that right.

[redacted] Not at all. That's one thing that we have really, myself, [redacted] We both address the Carner (sp) on several occasions at the lack of training out there is responsible for a lot of the problems that he has. In fact now, When people get DR's they have just now started keeping track of who gets DR's written against them, and a guy that gets a DR written against him now gets this letter out of Carner (sp) which is very strongly worded and attached to that is a notice that if you do it again, you are going to be terminated. In some cases, it may be justifiable, but to the inspector in the field, it looks like [redacted] (sp)

[redacted] mostly going just go after your job and you know, if you screw up; your the one that's going to get... You're responsible as an inspector for guaranteeing that the engineers do their job right, that all the revisions and all the changes that they make to these drawings are right. I've got some horrendous packages that I have kept information copies of, just to show you the way that these packages are butchered up out in the field while they're being worked. A lot of times, they you come up to these things and there is some much red ink scrawled on this approved for construction drawing that is suppose to denote where everythings been changed that you can't make any sense out of what their doing.

KIRSCH: So you've never been told that you can identify problems to your management and that your management will resolve your problems?

[redacted] I have been told that I can identify problems to the management, not through a training session, I have learned that by reading the ESD's(sp) on my own.

KIRSCH: Weren't you required, weren't you given ESD's(sp) as required reading when first came on the job.

LOCKERT: That's true.

[redacted] Not all of them. I was required to read the ESD's(sp) that applied to what I would be doing. Piping.

LOCKERT: The Quality assurance manual does have instructions in their how to do a DR, I believe, I don't if any NCR is addressed. But the fact is that you're not encouraged to write your own DRS. You not encouraged to write your own NCRs. The preferred method is through the DCN which then goes to Harold and then he decides. then he would be the one to decide whether it is a DR or an N.....

[redacted] And like I say he's just now started looking at the inspectors to get these written against him, not so much as a means to identify where the problem areas are, but more as an intimidation and harrasement type thing. The game plan out there seems to be keep th e inspector over-worked. We worked 60-70 hours a week. Up until recently when we re-negotiated our contract and we still aren't being paid this yet, but we were being paid very little compared to the other crafts, and compared to our leve of responsibility, you've got, you know you're signing permanent plant-life documentation out there, and there's the guy sweeping the floor making more money than you are, which is, you know, its kind of hard to swallow. Some cases its justified, but ...

KIRSCH There's not a lot that I can do about that.

[redacted] We already took care of that, somewhat. You know, overworked, you get fatigued. You're always told, I don't how many weekends now, you're going to work Saturday and Sunday. I told them Well I don't want to work Sunday. Well if you don't you could be subject to termination. That's routine out there. The inspector is always under Carners(sp) program is generally not encouraged to find out what specs and codes he's suppose to be working to. You've got supervisors that are telling you that if its not addressed in the ESD(sp) which are our specs, that you are not to look any further

LOCKERT: Yea.

[redacted] You are to just buy it, because if its not addressed in the ESD, Steve addressed Don, That's one certain individual that's more blatant about that than anyone else.

KIRSCH: (_____) Unintelligible

[redacted] Russ Knowle(sp)

LOCKERT: - Yea, he told me specifically that I could not look in the AISC construction manual, the ASTM(sp) standard, or the ASME code. I was not to look at anything beyond the ESD (sp). I'll see if I can find that for you. October 17th is a (_____) (Unintelligible.)

[redacted] The way the training is conducted out there, too, when it is done, there is (_____) What they do is they hand you a sheet, like say you get burned for a DCN You brought out something that has the wrong pipe gaps on it. You're given a sheet that's basically a copy of the section of the ESD that you violated. You're told to read this sheet, and then sign a sheet that says you've been retrained on this subject. Which in a lot of cases, people just look over it, sign the sheet, and you know, up until now, when this other letter's been coming out, I need that one copy. I can give you a copy of that letter if you'd like. That's a union. I have to keep that.

HERNANDEZ: Let me take a look at it, Yea I'll give it back to you. You don't have formal training classes?

[redacted] We do but they're very sporadic and its only in times like right before the ASME audit, we had a real pump on well if these guys come up to you and ask you any questions, don't really volunteer anything, just answer their questions, Don't try and bullshit em or you know.

KIRSH: What's this, now I am having a little bit a trouble here. This September 20th, and these are the problems that you noted on September 20th.

LOCKERT: Well yea, from that incident on September 20th, I believe that those code references there were violated.

[redacted] Maybe you ought to re-submit that and read it into the record as having supplemented your statement.

LOCKERT: -- - Into the tape. .

[redacted] Yea, you're going to submit this document.

CLEWETT: I don't think you have read the whole 13 pages.

LOCKERT: — It would take too long.

ALL SPEAKING
Unintelligible:

[redacted] Particular statement, Problem XYZ or something That might help anyone listening to the tape could have a reference here to what those were.

[redacted] I would like to talk about a design problem that I just today addressed while I have been.

KIRSCH: Before we get to that, hold on to that one, Because I'm still trying to figure out what all this is saying to me. Deviation September 20, Demoted (sp) deviations from the (_____)of contract specification 8711. What kind of a deviation?

LOCKERT: Well if you read th incident, you'll find

KIRSCH: What incident, where's it at? -- I'm having trouble following what your talking about.

LOCKERT: Alright, September 20, these are the code violations 123, and then starting here is the. . .

KIRSCH: This is the description of the situation that lead to these things.

LOCKERT: Right.

KIRSCH: Ah. OK, let me . .

[redacted] Is that the gas-tungston audit?

LOCKERT: Yea, that was way back in September.

KIRSCH: If you wish to save tape, you can tape, you can take it off the tape, Because I'm going to be reading for a minute, then before I ask any questions, I'll put you back on the tape.

[redacted] The hardest thing to figure out there, I still have been looking for, but I haven't been able to find out what codes PG&E is really bound to hold out there.

HERNANDEZ: We have having that similar discussion on that, and basically, what we've been able to find is that their committed we're talking Pullman, Piping supports, they're committed AMSE (?) E31-1 (SP) and B31-7, 69 1971(sp which are reference spec A7-11. Now you've got to remember when this plant started up, started construction that is why we're going back to these early codes.

HERNANDEZ: Also I think only B31-7 makes a slight reference to pipe supports, for instance. It's not like (unintelligibl At that time there was nothing explicitly talked about pipe supports, so what happened is the engineer PG&E essentially (_____?) information from other areas as codes came into existence. But they simply had no commitments to any other code and so they essentially generated their own criteria. That's why you have no reference to the AWS pre-qualified joint design or ASME. So essentially what the engineers specified.

[redacted] Does this have to do with their PSAR, and FSAR, were these codes written in? So that's where 8711. What I'm wondering is are they held to the strict letter of these codes.

HERNANDEZ: Like what code are you talking about?

[redacted] Like ASME 9

HERNANDEZ: Well they whet through the qualifications OK to section 9, ok. but Again, at the time that the plant started up their (_____?) like MF)sp) was not in existence in 1971,

[redacted] The reason I'm asking is I noticed on all those welding procedures, there is a rev (sp) update in 1977 to bring them into the 77 edition of Section 9. You know, if you look in the corner of all those weld procedures on revisions that are all revised at least all of them in 1977.

HERNANDEZ: So maybe thats the latest, the last date that they revised that procedure.

[redacted] Section 9 of 1977, that's the procedure, or the edition that's referenced in the 8711 specifications so thats where I'm wondering how it all ties in.

HERNANDEZ: Well the only thing I can say is that, I'm not sure how that, when they elected to do the procedure qualification to such section 9. Ok, at what point they decided. All I talking about is the pipe supports themselves, the welding criteria that would be specified (_____?).

[redacted] I think B-31-1 and B-31-7 were in reference to section 9 also. I'm not sure of that, but I believe they do.

HERNANDEZ: That's right.

[redacted] I wanted to look at the pre-qualified material .

KIRSCH: September 22nd, you document, supposedly, a violation here, failure to implement the quality assurance programs specified in (_____unintelligible) criteria 2 and 10 rather. A welder, what welder?

LOCKERT: If I had my daily logs and my papers, I would be able to tell you what welder.

KIRSCH: Are you saying your daily logs, in otherwords If I grab your daily logs, I can go through here.

LOCKERT: The unfortunate thing is I'm calling these dates from memory, and in the introduction, I'm telling you these dates are not...

KIRSCH Ok. then these dates are not exact.

LOCKERT: Dates mentioned in this report before December are approximate because I don't have the necessary paperwork to ....

KIRSCH: OK

LOCKERT: So these dates are on or about December, or whatever the date is.
September 22.

LOCKERT: In the event that you could provide that paperwork to me, I could give you the exact dates, exact welder.

KIRSCH: OK. these would be in what logs, would they be in.

LOCKERT: They would be in my daily inspection logs.

[redacted] From that you could trace it to was it a pipe attachment, or was it a hanger weld?

LOCKERT: I can't remember what incident that one is. Oh that was rupture restraints.

KIRSCH: I think we better get something down here before we get a whole lot farther. I forgot to put down to ask you specifically the question.

Steve, do you request confidentiality?

LOCKERT: Um I don't see any reason why I should.

[redacted] Let's get some legal advice on this.

LOCKERT: No don't know what. I understand that these charges have serious consequences, but..

KIRSCH: No I mean, for you it doesn't have any serious consequences.

LOCKERT: Well

KIRSCH: But do you wish to have your name kept from PG&E and Pullman's knowledge that we talked to you. I mean we won't go divulging the information, but some of the things that we may do for example, when we go ask for Steve Lockert's daily inspection log, or his DCN log, is going to point a finger, and somebody will sit back and say Ahah I got it without Us saying something.

LOCKERT: Well the way I feel about it is that the confidentiality to me I mean Pullman, and PG&E, I have already contacted these people about these problems already. So they know who it was leaking. I don't mind that you tell Pullman or that you tell PG&E, but if you were, if this thing really blows up, and it was to go into the paper and on TV, or where-ever, I don't know what could happen, but I don't want a bunch of these (_____?) coming over to my place and saying . . .

KIRSCH: I don't think so, ... and break you legs, no I don't think it will go there. We won't mention your name, but there may be some of the documents that you have generated that we will be wanting to look at. and just to go back through here and see what dates, and who, and wheres, and whys and wherefores.

LOCKERT: Yes you have my permission.

KIRSCH: You [redacted] do request confidentiality.

[redacted] definitely.

KIRSCH: I understand.

[redacted] I believe that if it were ever to come to Harold Carner (sp)'s knowledge that I was here tonight, I would not be working.

KIRSCH: That would be the most foolish thing they could possibly do.

LOCKERT: They've already done it once.

[redacted] There have been other guys that was, I don't know if you've ever heard from a guy by the name of Roger Fisher, This is kind of rare, because he quit, he was terminated under the threat. . .

KIRSCH: This doesn't have anything to do with the allegations let's go off the tape.

[redacted] Now we're back to harrasement and intimidation of inspectors. There was an inspector by the name of [redacted] was the guy that knew the codes fairly well and he did kind of have an attitude problem, where people were concerned, but the reason he was terminated when he was terminated was because for much the same

[redacted] Reason Steve was terminated, I feel, and this is my own opinion. I was involved with [redacted] and I knew what Steve went through. [redacted] was terminated because he made allegations that he was going to contact the NRC on site about intimidation and harrasement in relation to a DCN that he had written, It was not really kind of nit-picking on the part of the DCN, but we had a certain craft superindentent who I was very familiar with as was a partner of mine Greg Meager (sp) who everytime you tried to bring, you know, basically it ended up if you shot anything down, this guy was right down on your back telling you, you know, what an asshole you were. He goes to our craft supervision. or pard me to my supervisi. with stories about things that I'm not doing at all that they've made up trying to make me look like an idiot out there to get my supervisor to come out there and fire me, basically.

A certain incident.

KIRSCH: What does Craig Meager (sp) do?

[redacted] He is also a QC inspector out there. A certain incident. well what happened with [redacted] was one day he was down in the vault, we have these diesel fuel oil vaults out there, and he was writing a DCN on a certain hanger down there. The superindentent by the name of Rich Babino(sp) came down and asked, he yelled down in the hole, Pardon me, Rich Babino(sp) was down in the vault with [redacted] He was writing a DCN on a hanger. Another inspector Keith Octenberg(sp) looked down in the hole and asked Babino(sp) if [redacted] was down there and Babino (sp) replied, and this is from key supporting statements that I'll define in a minute. He replied yea, that [redacted] yea, he's down here. Something to that effect. This guy was really a hot head. I got into several other altercations with the guy and he basically tried to

[redacted] Intimidate me into buying this stuff that was not there. Um. So [redacted] wrote the DCN, the next day was a Saturday, It was a Saturday that that happened. That was a long time ago, It was back in October or so. I got it in my records.

LOCKERT: No, because [redacted] was gone by the time I got into the program.

[redacted] Yea, He was fired basically for they said excessive absentism. Well the company policy is you give the guy a verbal warning, then you give him a written warning with 3 days off, and then you terminate him. Well [redacted] wrote on his DCN the harrasement incident with Mr. Babino(sp). When the DCN was forwarded to Harold Carner(sp) Carner (sp) voided the DCN. He took a supporting statement from Keith Octenberg (sp) threw it in the garbage and said I don't need this. He took the word of Mr. Babino(sp) and exonerated him before even hearing Mr. [redacted] story on the whole thing. And a welder and fitter that witnessed the whole incident when [redacted] went to get their signature on a supporting statement were told by his foreman these two welders and fitters that if they signed that supporting statement they were down the road. Um.

Start of tape 2 side]

HERNANDEZ: Your talking about the statement that This Rich Babino(sp) made about this guy that he's down here, or not down here.

[redacted] Yea, the long hair you know etc. etc.

HERNANDEZ: Why was this written on a DCN. It was added as an

[redacted] additional kind of clarification that this kind of stuff was going on. I have in my daily inspection records many references to Mr. Babino(sp) and to incidences of intimidation and harrasment made against myself out there when I was a field inspector in his area. It later turned out that Mr. Babino(sp) was relieved of his superindendent

[redacted] responsibility out there and was trasferred to Georgia as a Field engineer because he just didn't fit into the program anywhere. He had a habit of making friends and infuencing people by walking and telling you Your'e going to start doing this. People don't really like to be told what they're going to do by someone who isn't their immediate supervisor. um.

KIRSCH: OK, Let's go on. You said that you are I'm reading, going through Steve's write up here. Would talk about that design incident that you were going to discuss here just a little bit ago, before I so rudely interrupted?

[redacted] Through the years of studying welding and metallurgy I have come up with in 304 stainless steels, basically an ostenetic(sp) stainless steel of 300 series. You have a real problem in this stainless steel when you weld it If you get the carbon too high. The carbon content in ostenetic (sp) stainless steel, after you weld it is directly related to the corrosion resistance of that steel. A very disturbing thing that I came across and I addressed this just today with this memo right here to Harold and Frank Leoti(sp) the assistant and the QA/QC manager, they have been purchasing all their stainless materials out there, welding, filler metals, and face (sp) piping, plate, etc, all AISI 304 materials essentially to a purchase order specification, and I just have one here for the welding filling, that says all filler metals, and its the same on every PO for a base metal out there, a pipe, or any stainless specifications. The material purchased under this Purchase order shall have a minimum carbon content of .04. Now I have had this confirmed by Metallurgists at Cal Poly, who is a former teacher. What they have there, is they have that ass backwards. It should say a maximum carbon content of .04. Let me explain why.

When stainless steel, Ostenetic(sp) stainless steel is welded with a carbon content, well let me just explain, how it all came about. It's kind of hard to get this across in a non-technical manner, but What were talking about here is a phenomeno called carbide percipitation, that greatly reduces the corrosion resistance and thus the design life of the stainless in question. The way it works is when you make a weld in stainless, you heat the weld metal and an adjacent area next to the weld metal into a temperature range of 800-1500 degrees. Ok, when 304 came out, the original specification called for a .08 maximum carbon content. .08 is pretty low in comparison with mild steel or normal carbon steel, but to stainless .8 is the maximum allowed under the 304 specification. under various all your ASTM specs that reference to 304 reference .08 is the maximum. Now that they discovered was that in these areas, where it has been heated between 800 and 1500 degrees, the carbon in that .0, usually it will run, and I've seen some mill(sp) test reports out here around .56, .60 what happens is that carbon combines with the chromium in the grain boundaries of the metal there and it sucks... the reason stainless is corrosion resistant is because that chromium is left in solution and after its all cooled and everything, it forms a protective oxide layer over all exposed surfaces. Once that layer forms its impervious(sp) to further corrosion. Chromium oxide is really hard and sticks to the metal and it doesn't come off easily, in fact, a the mill what they'll do is they'll use a pacification(sp) treatment of nitric acid to build this chromium oxide layer up on this stainless surface, because, face when your taking stainless is for corrision resistance, you're not worried, really about strength. What happens is the areas heated in that 800-1500 degree range, the carbon takes that chromium in a ratio of about 6 CR24 C6. So you get about 4 chromium atom to every carbon atom in the

[redacted] and it creates a chromium carbide that has the effect of pulling all the chromium out of the grain boundaries where its needed to supply the corrision resistance, which gives you a direct avenue for your corrosion to take place. And the way that happens is it gets in your zones, usually in your weld metal and right next to the weld metal it at a specified distance where that heatings take place. And that would depend a lot on your thickness, the process you using. So to combat this problem, the steel manufacturers, and metallurgists and stuff got together and they came out with a L grade stainless. and you've seen 304L. Well that L means that its got .035 maximum carbon my specification, because they've found that at that carbon content, you can weld it with high heat input and it will not cause. There is not enough carbon in there to causes carbide precipitation loss and corrosion problem.

HERNANDEZ: They call it what sens.....

[redacted] Sensitization (sp).

KIRSCH: You brought this to their attention today. Have They given you an answer back.

[redacted] No the last time a brought a memo like that to them, I didn't get an answer back for a month. It was one month. I have a copy of that memo. That concerns the ....

KIRSCH: Do you feel that they are not going to give you an answer on this?

[redacted] I'm waiting to see. I feel that if I do it will be at least a month from now before I get it.

KIRSCH: While I'm not reluctant to jump hop on the problems, I would, I, We, The agency has always encouraged people to notify their responsible management or the licensee and If they don't get satisfaction from them, then we can do something.

[redacted] That's why I have gone through . . .

KIRSCH: Right now, I, all they're going to tell me is Oh yea, we got it, we're still looking at it. We're evaluating it, but there is... it means nothing.

[redacted] I realize that. I addressed that to Harold today, and He said well if PG&E's approved it, and that is his out on PG&E. That's PG&E Purchase order specification. What that says to me is PG&E really doesn't understand welding of stainless because if they did, they would never specify it like that. You've got your steel manufacturers, probably love them because they can unload all their high-carbon stainless that nobody else will buy

LOCKERT: Its cheaper.

[redacted] It's a whole lot cheaper to make high-carbon stainless that 304L. From my research I found out that they discovered the problem ... maybe you guys know about this down in San-Onofre in some large diameter heavy wall stainless pipes that was fabricated with a sub-arc process in the shop to put the spools together. It was like 2 inch wall thickness and they come along after five years in service and here they're reading 2 inches, and they get within a certain area of the weld and now they're reading 1/2 inch on the wall thickness. Because what happens is it eats that out from the inside. The only way you can catch that is with an Ultrasonic wall thickness.

HERNANDEZ: All right, is this the (_____)of the stagnat fluorated (?sp) water? Remember that 304 metal.

KIRSCH: That requires 304L, or ....

HERNANDEZ: Well, the problem has been recognized before, like Bechtel orders all, nothing but 304L.

[redacted] Another person on site told me he was working at another plant that was about half completed and they came in and just tore out all the 304 and replaced it with 304L.

KIRSCH: Do you have. May I have this copy?

[redacted] That's my only copy. I can make you a copy.

KIRSCH: Can you (_____) me a copy of it?

[redacted] Yea, I can get you copies of all of this. In fact I have other copies of my inspection records and things that relate these other incidences that I am just telling you off the top of the head now.

KIRSCH: If you'd bring me a copy of that, I would appreciate it.

[redacted] Sure.

KIRSCH: Then I can run it by some of our members.

[redacted] That's why I went and checked . . .

KIRSCH: Unintelligible. .....don't claim to be even remotely familiar with that (_____)

[redacted] You know, they obviously can't tear out all the 304, but they do have to address (unintelligible _____) capicity. That's what I want to see out of them. Is

[redacted] That they're gonna to address.. I speculated, I imagine they'll just come back with memo saying this is a PG&E approved procedure. Our hands are out of it, or something to that effect. but I don't know. I also address there stainless electrode storage out there.

HERNANDEZ: Is this our copy here?

[redacted] I should have made you copies of all of this stuff. They have a copy machine down here, I can get you copies of this, or if you're gonna be here tomorrow.

KIRSCH: You mean here in the Hotel?

[redacted] They don't have a copier?

HERNANDEZ: Well we're going to be here for a while.

[redacted] If you'll be here, I can give you copies of this tomorrow

KIRSCH: You'll drop it by tomorrow?

[redacted] Their stainless electrode storage out there I questioned right off the bat. I used to work up at Westinghouse

KIRSCH: Why don't you hit the cool on that, would you?

[redacted] I came out of a job where we were building the Trident missile tubes for the Trident submarines, and the Military has some pretty tight control on processes. We kept all of our stainless electrodes in heated ovens and controlled them after they went in the oven and went out to the field. Because basically, although no mention is made in ASME section II, or the AWS A5.4 specification, that it doesn't explicitly call out a low hydrogen electrode. The coating ingredients are

[redacted] basically identical to the coating ingredients in your E 7018's your 8018's, its a mineral coating, mostly calcium carbonate, a lot of fluoride in there. and it is suseptible to moisture pick-up in the research I've done

Oh definitely.

HERNANDEZ: Are you talking coated stainless steel electrodes.

[redacted] Coated stainless steel electrodes.

HERNANDEZ: And they have no requirements for keeping them a minimum of something like 200 degrees or so.

[redacted] NONE, None what-so-ever I should have brought a copy of the other memo that I gave Frank Leoti (sp)

LOCKERT: I've got a copy.

[redacted] Steve's got it here. This was addressed a month later with another letter from a Pullman welding engineer that was even... that was just rather humerous I thought. Uh.. They, Technically they're right, There is no mention of it being low hydrogen, but common sense says it is

HERNANDEZ: The code, I thought ASME or somebody did talk about a minimum temperature for coated stainless steel electrodes. Like what number are we talking about?

[redacted] For ASME. That would probably be in a section 3, if its in there at all.

HERNANDEZ: No but what's the number like E30....

[redacted] E308-15 or -16. See your electrode designations are basically the same. You've got -15, -16 and -18 are low hydrogen. -15 is a low hydrogen line type electrode

[redacted] suitable for DC reversed polarity operation only. Your -16 is a lime titania (sp) They add titanium dioxide to that coating to give you arc stabalization so you can run it on AC or DC reverse polarity and then to get you to an 18 coating, which is only for carbon or low alloy steel, they add iron powder to it to increase the deposition rate and give you a little higher current. So you can get more metal out of that electrode. But your -15 and -16 are definitely low hydrogen type coatings. Now they claim through that letter that porosity is not a problem. You know, the guy sits in there....

HERNANDEZ: They do tests to determine that?

[redacted] I don't know if pullman's documented any tests like that. They referenced some Bechtel reports in this . .

KIRSCH: Becthel did some tests on it.

[redacted] But, you've got to look at where they did the tests. Did they do that down in Baton Rouge (sp) Louisiana where the humidity is 100%? Did they do it out here? Did they do it Yuma Arizona, where there is no humidity? It's relative. The military has realy stringent requirements for water-moisture content in electrodes

HERNANDEZ: They're referencing the Bechtel tests on low hydrogen?

[redacted] They don't really. They just say Bechtel reports. They don't tell you what reports. The guy says the code there; I don't even know what code he's talking about.

HERNANDEZ: In other words they're referring to the Bechtel tests that were done on low Hydrogen rods (?) for (_____)?

[redacted] Stainless coatings, stainless electrodes.

HERNANDEZ: No low hydrogen carbon E7018. I'm sure that's what they're talking about. I don't know if they did stainless also.

[redacted] Yea, well I wrote that letter because for everything I've been taught, that spec contradicts itself in that its saying here's all these storage conditions for low hydrogen electrodes and then it says you need only keep stainless clean and dry. They do store it in a heated cabinet in the rod room, but once it goes out to the field. There is no control over heating. It goes out in the rod oven and it doesn't even have a plug on it.

HERNANDEZ: Well how long does it stay out?

[redacted] Well, say that's where they're control breaks down. Supposedly there's no requirement for, you know, it can stay out . . .

HERNANDEZ: Well no, but the guy goes, the welder takes the rod and lets say he takes it out at 8 o'clock in the morning does he bring it back at lunch time, which is four hours later?

[redacted] No they're not to held to the four hour requirement. So they can be bringing them back at the end of the shift, eight hours. They go right back into the rod oven. You know, they may have picked up moisture. They may not. It's a... There's definitely a control problem on filler rod (?) They don't count... The QA rod room attendant does not count the rod stubs coming back in In fact I have a DCN, I believe its number 006 and a supporting statement 007 where they, here we're talking about a safety related line, a CCW line for the component cooling water heat exchangers down in 85CCW room Unit I, where they have, they were going to put pipe attachments on this line as doubler plates, and

[redacted] this is another point that I've seen out there. They weld on the CCW system when they put all these new pipe attachments on for the seismic re-evaluation program. They weld on that line with water, and they don't drain the line. So what you're doing. The carbon specification on A-53 pipe which. . .

KIRSCH: What's this on?

[redacted] This is the component cooling water system in general. It's a class C line. The way I see that system. That system is vital to the . . . .

KIRSCH: I understand the vitality of system. What I'm wanting to know is where on the component cooling water system.

[redacted] If you go down into the 85 foot elevation, they have a lot of the pipes going into the pump, Pipes going into the heat exchangers, all in the heat exchanger room they've put, a lot of times they'll take and put big large doubler plate on there, and then they'll attach a big spansion, they'll either put a pipe clamp on or put a snubber on it. The component cooling water heat exchanger room would be a good place to look at. Uh, I believe due to the quench (sp) rate, and I haven't seen mill test reports on the carbon content on those spools, because those spools were fabbed up down in our Paramount shop, and I haven't been able to find any tracible records of chemistry on that, but the ASTM spec on that will let carbon go up to .03, or pard me .30 and under normal conditions, .30 is not too bad, but if you put a water quench (sp) behind that, you're going to be putting such a quench rate on the weld, that you're going cause underbead (sp) cracking in that welding, and I believe that we have that out there. I talked with my Roommate whose a PTMT (sp) technician out there. He's told me of cases where he's seen tig welds root passes for these stansion(sp)welds which are.... Tig weld is a real

[redacted] small weld compared to that big 30 inch pipe full of water. That's a hell of a heat (____).

HERNANDEZ: Are you sure the line is full of water?

[redacted] The line is full of water. They're not pumping the line. The line is not under pressure. Sometimes they are through. I've .. . .

KIRSCH: It's full of water. It doesn't make a hell of a lot of difference one way or the other whether it's full of water, or its. . . . Your certain?

[redacted] Positively they weld it full of water because it's a chromated (sp) water system, as I understand it you don't have the facilities to drain the system, or they don't want to. For whatever reason, they weld attachments on to this line, as a general rule without draining it, That's my way of thinking.

KIRSCH: You got that one down? Welding attachments to full water lines with lines full of water.

HERNANDEZ: Yes, this is a . . . but you know. I wonder if I can again this same question. Are they full of water?Because there was a problem with the confluent (sp) cooling water, say a year ago. I don't recall exactly when, where they had a leak after they welded, determined they had a problem, and they put up those (_____) plates and all that. If I recall correctly, the line was not full of water.

[redacted] They may have drained that one. The ones I've seen, and been involved with .....

HERNANDEZ: But you have seen lines that were full of water?

KIRSCH: The big lines going into the heat exchanger and into the pumps huh?

[redacted] Those big ones those husky 30 inch. They're 30 inch, but their wall thickness is only 3/8 of an inch

KIRSCH: It's a low pressure system.

[redacted] Yea, it's, I've seen them weld directly on those with water in that line. In fact the fire sprinkler lines are another one. A guy comes up to me one day and here they have a pre-heat requirement. And the guy goes to me how are we going to pre-heat this line with water in it. I said I don't know, go ask the piping engineers what they wanted. And then that night I started thinking about, and I thought well There must be some code requirement for that pre-heat or they would'nt have put it on there. The process sheet came back in (_____)on the pre-heat and everything, so they went ahead and welded on it. But I asked the piping engineer the next morning when I saw him. What's the deal behind this pre-heat, and he said it was some interpretation problem between B31-1 required or 31-7, I'm not sure which one, requires that, and I believe he's talking wall thickness here. On a wall thickness greater than 1 inch. You have to either pre-heat prior welding, or you post-weld heat treat when you get done. And what they were trying get around was the post-weld heat treat requirement. But they were interpreting it because they were attachning 1 inch thick lugs A515 lugs onto the pipe that they didn't. . .

KIRSCH: get that much heat into them. . .

[redacted] Well they thought that they had to pre-heat the lug, which may very well be cause another pipine engineer who was a frined of Steve's and mine, Roger Clap (sp)

[redacted] Who just quit out there because of the bullshit he was subjected to, He told me a lot of times they were getting A515 in there with greater than .30 carbon and he'd address it to his people saying well you know this stuff really should be pre-heated. The carbon content is high enough and the manganese content as well is high enough that it should be pre-heated, and they'd say, well the code does'nt require it so we're not bound to do it. Basically don't do anything the code says you don't have to do. So they came back and they welded those lugs on. They weld lugs on all over the place, pipe attachments, with water behind.

KIRSCH: You say all over the place.. You mentioned one fire protection line..

[redacted] OK. I've seen it happen on the fire protection line...

KIRSCH: Where at?

[redacted] In the turbine building.

KIRSCH: Where at in the turbine building?

[redacted] On the north, lets see what would that be, that would the north west corner of the turbine building where the main comes into the building. They welded lugs on those pipes, That I was directly involved with.

KIRSCH: OK.

[redacted] The CCW system, they, I have seen them on that with water behind the line in the heat exchanger room. I've seen them weld them on 100 Auxillary where the fan cooler lines go up into the fan coolers and up through the auxillary buildings there. In fact all through those vertical pipes going into the fan coolers

[redacted] through auxillary they weld pipe attachments I've been involved with those...

KIRSCH: CCW system?

[redacted] CCW system. I was also involved in an incident that became a real harrassment deal on the diesel fuel oil transfer lines down in the same vault that we were talking about before, where these guys wanted to weld on a fuel oil line. It was a weld repair to clear a DCN that was written by somebody else for porosity and a lug attachment on this line. Well they supposedly have a line clearance to weld on it, but I was down in the vault three days prior to this and they were running the pumps. OK, they..I have been involved with this before. So if they had the line clearance... This is like they got the line clearance on a thursday, I was down in the vault Saturday and they were running the pumps, supposedly when they had a line clearance on that line. Well Monday they come in and they want to weld on this line. Well I asked them to see the line clearance. The guy says well... and the way the clearances work, you have a red tag that goes on the valve that shuts it off and the foreman has the stub on that, and I demanded to see the red stub to make sure they have a valid line clearance, so the guy doesn't fire up and blow sulfuric acid or fuel oil, or whatever back in his face. Um, so what happened was the foreman... I talked to the welder, and you know, what they had to do was grind out the porosity and they almost got to a low (sp) wall condition and so I said well lets see the line clearance before you start welding on this... Well they didn't have the line clearance, or they got a piece of paper that says there was a line clearance issued, but it didn't say it was still valid. So I said well I want to see the red tag, and this general foreman and the superindendent became realy abusive and started saying well hell in the oil fields we weld on our lines full of gasoline, we

[redacted] weld on lines full of diesel oil, we weld on lines full of natural gas...

KIRSCH: and they do..

[redacted] I'm fully aware of that. I just said to him, well you know, we're not in the oil fields here and the welder feels its unsafe and I feel that its unsafe, because it was in a trench where if the guy were to blow through that line and if it were to catch fire, he'd never get out of there, he'd be scorched and plus as far as them having a line clearance, it was not clear in my mind that they did because when I'm down there three days after they're suppose to have a valid clearance, they're running the pumps, that tells me somebody's either ignoring the line clearance or they just never had it to begin with.

KIRSCH: Or they pulled (unintelligible??)

[redacted] They didn't have anything that indicated that. That was what my major worry was that they didn't have a line clearance and it turned out that they didn't.

HERNANDEZ: Who were the people that became abusive?

[redacted] A guy by the name of Jay Wright (sp) a foreman out there, General foreman, pardon me. A guy by the name of Roger Martin, he's a superindendent, and we've had several incidences with Roger Martin. He's finally Basically they've gone to my supervision and said hey this guy's an ass hole, everytime he comes up, He rejects are work, puts a hold tag on it or whatever. I don't do it intentionally, It's just it's so screwed up that I have no choice, so they've convinced my supervision that I really don't belong out there inspecting craft work. I believe that to be the bottom line

KIRSCH: You think that's why you were put over in QA, and taken out of the field?

[redacted] Yea, I think that's why I'm not doing direct inspections in the field now. Which I don't mind. It's... Actually I kind of like it, I don't go home with a headache everynite from dealing with those people. That's the truth.

KIRSCH: OK.

[redacted] I realize that we've covered a lot of ground.

KIRSCH: That's an understatement. I still haven't digested all of this.

[redacted] Its tough. Especially from a non-technical point. It's hard to really latch on.

LOCKERT: An immense transfer of information, you can't really digest it all in a short amount of time.

[redacted] Well we what we were mostly concerned were the events leading up to Steve's, you know, Mostly I'm here to substantiate what here's to tell you.

KIRSCH: Why don't you kill it. I'm just going to read here for a minute and make sure that I understand what is in this, in the letter.

CLEWETT: I have plenty of tape

KIRSCH: Let it run....pause....By this report you say you requested, you request (_____)full penetration . while attaching a stansion (sp) to a pipe you found that a color plate was on the (_____) and you asked them to remove it and they didn't remove it. Uh... Where was this at ?

LOCKERT: It was in Unit II, probably the 91 level.

KIRSCH: Is this in your log?

LOCKERT: Yes, there's a note in there saying Russ Knowle (sp) prevented me from taking the cover plate off.

KIRCSH: Can you tell us what stansion (sp) it was.

LOCKERT: Yea, it would be in my daily log.

KIRSCH: Daily log. I should be able to pick that up.

LOCKERT: There will be a little not saying Russ Knowle(sp) prevented me from taking the cover plate off.

LOCKERT: OK before we go, we probably ought (_____) I'm not saying we should leave right now, but before we come to a conclusion...

CLEWETT: We not quite half done with available tape. We have as much again, as we talked about already.

LOCKERT: [redacted] here is a pretty deep well. When it comes to welding and we have spent many a night talking about our jobs.

[redacted] The nuts and bolts out there on the things with the containment liners studs. I have another package here that's ... This is a snubber on the feed water line, it's a design class I code clase E line. It's out on the pipe rack. The way I got involved with this was It was was re-issued because they had to swap the snubbers. They took a snubber off of one location where they needed a match set and they took the snubber that was at this location and moved it over there, and moved that snubber over here. So they had to go back out and re as-built (sp) on the drawing the

[redacted] pin to pin (sp) dimension of the snubber serial number. Well when the asbuilder (sp). Do you know what an as builder (sp) is? When he walked out there, he looked at it and could see that the welding on the plate was obviously deficient. So it got to me through our department through my lead at the time, and he said go out and write a DCN on this because they didn't asbuild (sp) this DR 4678 right here, which only addresses the over-sized weld. It doesn't address the under-sized welds on this thing OK. this is also dispositioned by a field engineer who is suppose to use "good engineering judgement" and he just said accept as is, accept as is, accept as is... well some of these welds have contours on them that are just completely out of acceptance tolerances that we're working to, excessive convexity. It's pretty obvious the guy was welding with it could not handle low hydrogen electrode, because he had just piled it all up on the middle and really didn't fuse it into the sidewalls very well. I've gone around and around with this particular engineer. His name is Carl Galudo (sp) He's pretty good at just saying accept as is, and this is stronger than the origina. installation and we're going to just buy it like this.

HERNANDEZ: He's an engineer that;s . . .

[redacted] He's a Pullman field engineer. To my knowledge the guy really doesn't have an engineering background. He's an industrial arts instructor.

HERNANDEZ: Is this not conforming condition.

[redacted] yea it is. well its deficient. Is the way we described it. Well it would have been written up by NCR and then dispositioned by PG&E.

[redacted] It's going to be written up on a DR tomorrow, I haven't written it up today. I mean I'm coming with this stuff right here just fresh. This stuff fell in my lap. But the reason I bring this up is I go out to this hanger, and here on the bottom of it, there are anchor bolts that have nuts cut in half. That are torqued on then the nuts are tack-welded onto the base plate. Well a nut ASTMA 194 and you'll look in here and you'll look in the section 9 and A194 is not a P1 material and they don't really have a qualified procedure to be welding that onto a P1 base plate.

HERNANDEZ: I guess I lost you. Did you say they cut the nuts?

[redacted] They cut the nuts in half because what the problem was is they couldn't get full thread engaged with a whole nut, so they decided well we'll cut in half and they still couldn't get full thread engagement so they came up with this thing, It's called a design problem, and this, I think this is pretty much typical of the way the engineering works out there from what I've seen on PG&E's level. I would like to just read this to you here: Design problem #1-2335-P, its dated August 7, 1978, engineering problem. Attention. J. Gormley (sp) RE bacher.Attached is as-built plate detail for hanger 1048-8SL drawing 04919818. The studs for this hanger were set in the concrete for civil drawing 447242 however, the studs are not long enough in all cases to allow for full thread engagement through the nuts. Two have the nuts have been cut down to 9/16 of an inch in height. Bottom of plate has been welded to existing insert with a 3/16 fillet (sp) weld. Field would like disposition as to the accesibility of this installation. Answer required 8/23/78, per RS Reed (sp) on 9/23/78 As of 9-22-78, no response has been received on site. Please expedite.

[redacted] Per J. Gormley (sp) on 10-26-78, this type of question is very troublesome. It appears to me that the GC filed engineer is as qualified as we are to estimate the capacity of the as-built scheme. Perhaps if we knew how much the capacity has been reduced over design we could answer more quickly. As is, this will just stop an engineer from doing priority, first priority work. Per J.R. Stevenson (sp) on 1-12-79, M.R. Tressler (s agreed to review with field personnel and re-submit if necessary. Per J.R. Stevenson (sp) on 1-30-79. M.R. Tressler (sp) agreed to submit a as-built drawing this problem is resolved, And in an asterisk here, per R.S. Breed (sp) on 2-14-79, per previous discussion between D.J. Curtis and CBraff (sp) and based on J.E. Shigley (sp) mechanical engineering design, second edition, section 7-9 "three full threads are all that are required to develop a full bolt strength" the existing nuts tack-welded to the base plate are sufficient. This problem is resolved. And that's approved by RDE, which I'm not sure but I imagine that's . . . .

KIRSCH: You say that's a class E hanger.

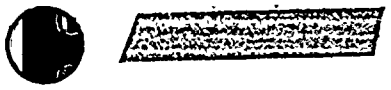
[redacted] Class E. that's correct, but its seismic class I with snubbers. We are bound....unintelligible, interrupted

KIRSCH: You say it's located out on the pipe rack.

[redacted] Yea on the pipe rack. It's on the feed water line of as it's just making the bend in the containment and there is another, there's a Y coming off

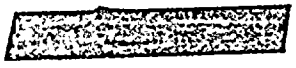
KIRSCH: Unit I containment?

[redacted] Yea Unit I. The thing about this, I talked to all th e inspectors involved in this and they were pretty much told under the threat of their job that this has already been accepted by PG&E as is. This inspector that bought



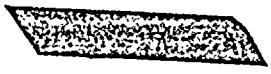
The final workmanship, Craig Meager (sp) , addressed the problem at the time, because I asked him. I said well what's the story with how can you buy welding that looks like this, and he said that he was told by our field engineering people that this is already been addressed

start of second side tape II



He said that this has already been addressed. I talked to the PCGC, the general construction inspector that dispositioned the DR 4678. He told me by the way his name is Bill Young. He told me that this was when he first came on site. He wasn't quite sure about it and that he told him that he felt it would come back at them at some time if they didn't fix it up. Um. but everything was accepted as is by our filed engineering and by PG&E and everybody down the line.

KIRSCH: How'd you come by that docment?



Like I say they re-issued the drawing because they changed the snubber, and what they did was they had to go back out and re-as-built (sp) the pin to pin (sp) and the snubber change. and when the as-builder (sp) was out there, to check it out, he looked at the base plate. Now he wasn't suppose to look at that base plate, but you know, he did and he realized that number one, this DR4678 in here which is our pre-inspect type DR when we first go out and look at a hanger. If you find existing old work conditions that are deficient you write them up on the DR46-78 which is a generic DR for unit I for old work hangers. But its since been closed. Normally you'd write it up on that and it would be dispositioned by the field engineer, either bring it up to design specifications, or accept as is and as-built, and whatever, well they didn't as-build (sP) in the last rev. The existing conditions on this

[redacted] base plate here per the DR 4678 they had previously So I was told to go out verify it, and if that was the case to write the DCN for that item right there. Well when I went out and looked at it, I saw Number one all this welding was under-size. Welding was not up to our acceptance criteria for contour and convexity and things like that. These nuts were welded on the base plate.

HERNANDEZ: [redacted] If I can interrupt you about this welding thing. You're talking about 1978 work. Did you look at the spec in 1978 as rules required.

[redacted] Well from what I can tell. The section 9-77 is the reference document in 87 11 for welding. So that's what I'm basing this on.

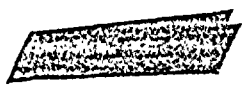
KIRSCH This is a base plate attachment in containment

[redacted] To the containment wall. It's attached. There is an insert behind it and that's where there... There is also a gap behind this base plate that's not at a tolerance yet. Its about 3/32+ I couldn't get an 1/8th inch well wire. That's how we check gaps behind base plates. But I couldn't get an 1/8 inch back there because of the way its set in the wall. Not only that, there is a platform support right here that appears to be pulling away from the wall. I brought my supervisor out there, we looked at it today. He didn't feel that it was a problem. but it looks like its pulling itself away from the wall. But, when I talked to the inspector that bought the workmanship, he told me that back in I don't know when it was, He said that when he was called to inspect this, He held up for two days on it because he wanted the welding (back in may in 1983) he would not accept the welding on there, and it became a political deal and he was told you got to accept it as is. and that's basically what happend on it.

KIRSCH: OK. Is that your copy of that document.

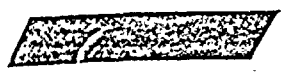
Yes, this is a for info only copy that I kept for my own records.

KIRSCH: What is the number of that document?



The hanger is number 1048-8SL. Which you'd want to see . . . (interrupted)

KIRSC..: What is this sheet?



That's the sheet that Pullman attaches to the drawing when it goes to our QA departments. See it has got the stamps on it. a QA/QC accepts stamp. and a QA accept stamp. That was my big question, was how did I get a hold of this package when its already through the mill in QA accepted. It took me half the day yesterday to get an answer on it. But I finally got with the snubber people and they shed some light on the thing. They were the ones that provided the copy that had that DP in there, that design problem. Now they use a quick fix as a design problem (unintelligible).

KIRSCH: This is the whole package that went with that hanger?

That right there is I believe the QA copy of the package. The one that PG&E should have the original in their vault.

KIRSCH: Unintelligible.. OK. we'll look at that.

If you want, I could get you an info copy or copy this one. I'm thinking if you go out there and ask them about all these hangers, and all this stuff that I've been working on. It's not going to be too hard to put together where that info came from.

KIRSCH: Well I know that there is any other choice do you? You raised the issure. I'm obligated to do something with it.

CLEWETT: In terms of getting the copy. He's coming out here with some other copies of other things, He can bring....

KIRSCH: Yea he can give me copies of other things, but I . . .

[redacted] Yea, you'd want to see the original anyway. That's what they got to have.

KIRSCH: You wrote a qualification thing where you talked with them here about with mark. That's all in here in this.

LOCKERT: Right.

KIRSCH: So basically all I need to do here is go through and pull everything out of your statement, your written statement here and then I have basically a summation of your concerns. Is that right Steve?

LOCKERT: Yes. If you have any questions while your skimming....

KIRSCH: I don't right now, I may, it may come to pass that after we get started running through this thing that I'm going to come up and get his logs, daily inspection logs, and his DCN log and I'm going have a lot of questions. Then I'm still going to be needing to get a hold of him. Likewise when I get a hold of [redacted] DCN logs, I may come up with a lot of questions, and I may need to get a hold of [redacted]. But right now I don't know what else I can do other that just try to digest all of this.

CLEWETT: Oh I understand.

[redacted] It's a lot to latch onto.

KIRSCH: And it may well come to pass that I'm not even going to be able to get anything, this is so massive ... that I may not even be able to get anything done due to people limitations this time around. I may have to come back. in a couple weeks or month. But we'll get to it, sooner or later.

[redacted] How do they stand up for their fire-up out there. Are they going to be given the go-ahead, or I've heard ...

KIRSCH: That's not up to me.

[redacted] I was just wondering.

KIRSCH: I don't have the foggiest idea.

[redacted] If they really do have to go back in and do any work on any of this. They will be putting people in a lot more risk unless they got beta hazards and things like that floating around after they fired it up.

KIRSCH: Oh that's understood, but other people have done that sort of thing. Other utilities have done this same sort of thing. So its not an unknown thing.

[redacted] I imagine it doesn't get that bad at first. couple of years.

KIRSCH: I guess I have a lot of work to go through. I am going to have to go through and digest all of this. You have agreed to sometime in the middle of next week provide me with a copy of that tape, Because what I'm going to do is submit a copy of it. There have been so many words that we haven't been able to get it all down in writing

KIRSCH: I'm going to have it all transcribed out and . . .

CLEWETT: I am going to have to find a second machine and somehow make a copy of that, but I think I'll probably be able to do that by then.

KIRSCH: Yea, if you'll get that to me by Wednesday. and then I'll make arrangements to get it transcribed.

CLEWETT: OK should I arrange to have that delivered to the NRC people on site here or should I mail it up to you.

KIRSCH: No, I'm going to be here through next week. We'll be checking out I think Friday morning.

CLEWETT: OK, I'll....

KIRSCH: If you could just bring it by to me and I'll make arrangements to get a transcription made of the tape. I certainly will appreciate that.

CLEWETT: It you do get it transcribed, is there any chance that we could get a copy of that transcript.

KIRSCH: I would'nt have any problem with that. Now it depends again. You realize that Sometimes these transcriptions don't come out all that clean because the lady doesn't know whose talking or she may make mistakes, as to what was said, and it will be a very rough kind of thing, but All I want to do with that transcription (_____)

CLEWETT: Sure we don't have a court reporter taking everything down.

KIRSCH: So it will be something.

Thank you Steve, I appreaciate it and we will probably be getting back in touch with you at least one time

KIRSCH: or another. for certain I may want somebody, somebody from the agency may be getting in touch with you to clarify some points or ask questions before our final, we get in touch with you finally.

Thank you very much.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Thomas S. Moore, Chairman
Dr. John H. Buck
Dr. W. Reed Johnson

June 28, 1984
(ALAB-775)

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)	

Joel R. Reynolds, John R. Phillips and Eric Havian, Los Angeles, California, and David S. Fleischaker, Oklahoma City, Oklahoma, for the San Luis Obispo Mothers for Peace, et al., joint intervenors.

Robert Ohlback, Philip A. Crane, Jr., Richard F. Locke and Dan G. Lubbock, San Francisco, California, and Arthur C. Gehr, Bruce Norton and Thomas A. Scarduzio, Jr., Phoenix, Arizona, for Pacific Gas and Electric Company, applicant.

Joseph Rutberg, Henry J. McGurren and Lawrence J. Chandler, for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

1. On March 20, 1984, we issued ALAB-763 containing our findings of fact and conclusions of law with respect to the adequacy of the applicant's current design quality assurance program and the sufficiency of its design verification efforts to establish the efficacy of the design

failed to present new evidence of a significant safety issue.[6]

We now have before us two additional motions of the joint intervenors to reopen the record in the Diablo Canyon operating license proceeding. The first, filed February 14, 1984, again seeks to reopen on the issue of the adequacy of the applicant's design quality assurance program.[7] The second, filed February 22, 1984, seeks to reopen on the issues of the adequacy of the applicant's construction quality assurance program and the applicant's character and competence. Both motions are accompanied by the affidavits

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[6] ALAB-756, supra, 18 NRC at 1354-55.

[7] The joint intervenors' motion is phrased in the alternative. They first endeavor to augment the evidentiary hearing record of the reopened design quality assurance proceeding with the materials accompanying the motion. Alternatively, they seek to reopen the record for further hearing. The joint intervenors attempt to augment the hearing record based on a colloquy between applicant's counsel and us at the end of the evidentiary hearing concerning the formal closing of the record. See Tr. D-3246. They have misapprehended the import of those remarks. Our comment was intended to accommodate, as a matter of administrative convenience, such matters as a party's belated motion to admit an exhibit that had been marked for identification at trial but, through an oversight, had not been moved into evidence. We did not (and could not properly) provide for the wholesale augmentation of the evidentiary record now sought by the joint intervenors. Supplementing the record with the materials proffered by the joint intervenors would require, at a minimum, the consent of all parties. Accordingly, the motion to augment the record is denied and we shall treat the motion solely as one to reopen the record.

filed a reply to the applicant's response to the motion concerning design quality assurance,[10] and then filed a second supplement to that motion[11] to which both the applicant and the staff responded.[12] By order of May 23, 1984, we provided the joint intervenors with an opportunity to reply to the applicant's and the staff's final responses to both motions.[13] The order stated that any reply must be accompanied by the affidavits of qualified individuals and clearly establish, for the matters raised by the joint intervenors' filings, why the responses of the applicant and the staff are insufficient. It also indicated that the joint intervenors must demonstrate the significance to plant safety of their assertions as well as identify each remaining issue of disputed material fact with regard to

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[10] See Joint Intervenors' Reply To Answer Of Pacific Gas And Electric Company To Motion To Augment Or, In The Alternative, To Reopen The Record (March 15, 1984).

[11] See Joint Intervenors' Supplement To Motion To Augment Or, In The Alternative, To Reopen The Record (April 6, 1984).

[12] See Answer Of Pacific Gas And Electric Company To Joint Intervenors' Supplement To Motion To Augment Or, In The Alternative, To Reopen The Record (April 23, 1984); NRC Staff Response To Joint Intervenors' Supplement To Motion To Augment, Or In The Alternative, To Reopen The Record (April 25, 1984).

[13] See Order of May 23, 1984 (unpublished).

> perfection in plant construction and the facility 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. . . .
>
> . . . In order for new evidence to raise a "significant safety issue" for purposes of reopening the record, it must establish either that uncorrected. . . 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. . . .[16]

Although the focus of ALAB-756 was a motion to reopen on the issue of construction quality assurance, what we said there is equally applicable to reopening motions directed to the issue of design quality assurance.

Further, the Commission has emphasized in this very proceeding that the proponent of a reopening motion must present "'significant new evidence . . . that materially affects the decision,'" not "bare allegations or simple submission of new contentions."[17] At a minimum, therefore, the new material in support of a motion to reopen must be set forth with a degree of particularity in excess of the basis and specificity requirements contained in 10 CFR 2.714(b) for admissible contentions. Such supporting

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[16] ALAB-756, supra, 18 NRC at 1344 (citations omitted).

[17] CLI-81-5, 13 NRC 361, 362-63 (1981).

have carefully examined each of the joint intervenors' charges with their supporting materials and the responses of the applicant and the staff. Our scrutiny of the motions leads us to conclude that the joint intervenors have failed to present new evidence of any significant safety issue that could have an effect on the outcome of the licensing proceeding.[19] Among other things, the movants have not presented evidence that establishes uncorrected design or construction errors that endanger safe plant operation. Nor have they demonstrated that there has been a breakdown of the applicant's quality assurance program that raises legitimate doubt that the facility can operate safely.[20]

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[19] The joint intervenors' reply to the applicant and staff responses filed pursuant to our May 23, 1984 order was accompanied by numerous supporting affidavits. Despite our instruction that the reply address why the responses of the applicant and staff are insufficient for "each matter raised . . . [or] asserted," the joint intervenors' reply "do[es] not individually address all of . . . the matters raised." Reply at 5. Further, in some instances, the reply raises entirely new issues. Although joint intervenors indicate that they had insufficient time to comply with our order, no request for an extension of time was filed. In any event, the joint intervenors concede that "few [of the noted] deficiencies will be demonstrably 'significant' if considered individually." Reply at 6. The movants are apparently content, therefore, to rely on the cumulative significance of the numerous purported deficiencies, none of which individually has been shown to be safety significant.

[20] For example, a number of the allegations focus on deficiencies in the methodology, practices, and quality assurance associated with the computer design of small bore (less than 2" diameter) pipe supports. The staff also found (Footnote Continued)

As previously indicated, the number of diverse allegations of purported deficiencies contained in the joint intervenors' motions is very large. Even discounting the substantial repetition in the two motions, the affidavits and other documentary materials proffered as new evidence in support of the movants' charges are extensive.[22] When the

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(Footnote Continued)
In Opposition To Joint Intervenors' Motion To Reopen The Record On The Issue of Construction Quality Assurance And Licensee Character And Competence, supra note 9, Attachment C at 12-13. As an exhibit to their June 12, 1984 reply, the joint intervenors have attached a May 31, 1984 Pullman Power Products "Interoffice Correspondence" memorandum dealing with this issue. That memorandum is addressed to "Distribution" from "H. Karner" and concerns the subject of "Acceptable Stud Materials For Carbon Steel Welding (Ref: DR 5891)." The memorandum states, inter alia, that "(A-307 bolts with the heads removed are NOT acceptable)," and is signed by Harold W. Karner, QA/QC Manager.

The applicant shall inform us by July 6, 1984 why, in the words of the Pullman memorandum, A-307 bolts with the heads removed are not acceptable. The applicant's explanation shall be accompanied by appropriate affidavits of qualified experts and shall address the movants' charge, the applicant's prior response to that charge, and the recent Pullman memorandum.

[22] Not only does some of the same material accompany both motions, there is substantial repetition within the supporting materials accompanying each of the joint intervenors' motions. Additionally, the material purportedly supporting each motion is lumped together in a manner that lacks essential organization. Further, some of this material consists of anonymous statements. See note 18, supra. The movants have also included in their filings considerable material that is irrelevant and immaterial to many of their claims. Thus, the unorganized nature of the supporting material, combined with the massive amount of irrelevant matter in movants' filings, has made our task of

(Footnote Continued)

demonstrate the applicant's deficient character and lack of competence to design, construct, and operate the facility.

To these historical examples, the joint intervenors add a lengthy list of alleged deficiencies in the applicant's design and construction quality assurance programs from their most recent motions to reopen the record. They argue that these new charges and supporting materials, combined with their previously recited historical evidence, in effect, create a pattern and practice of deficient character and incompetence on the part of the applicant that constitute significant new evidence to support reopening the record on this issue.

The joint intervenors' motion to reopen the record on the issue of the applicant's character and competence is denied. The movants' historical examples of alleged applicant misconduct are not timely presented. Moreover, the movants' new list of purported deficiencies fails to present evidence of a significant safety issue that could have an effect on the outcome of the proceeding.

The past incidents of alleged applicant misconduct relied upon by the joint intervenors occurred too long ago to be properly considered in a motion to reopen the record without a showing why this issue could not have been raised earlier. No such showing has even been attempted by the movants. Nor can the tardy presentation of these historical examples be saved by bootstrapping them to a series of more

For the foregoing reasons, the joint intervenors' motions to reopen the record, with one reservation,[25] are denied.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[25] See note 21, supra.

U.S. NUCLEAR REGULATORY COMMISSION
Office of Inspector and Auditor

Date of transcription July 3, 1984

REPORT OF INTERVIEW

Harold Denton, Director, Office of Nuclear Reactor Regulation (NRR), upon interview, concerning an allegation that he made a false and misleading statement to the Commissioners, regarding the timing of a notification by the Government Accountability Project (GAP), that the licensee for Diablo Canyon facility, Pacific Gas and Electric (PG&E), had made false and misleading statements to the NRC, provided the following information:

He confirmed that page 23 (attached) of the March 19, 1984 transcript of the Commission meeting addressing the "Status of Pending Investigation on Diablo Canyon" contained the passage apparently referenced by Devine in his allegation (specific comments highlighted in yellow). Denton noted that the purpose behind telling the Commissioners about the previous Friday's (March 16, 1984) contact with GAP was not to go into the history of contacts with GAP or to address the timeliness of GAP actions; but rather it was to advise the Commissioners that GAP had alleged that some of the material PG&E had provided to the NRC was false and misleading. It was in his mind to tell them of GAP's allegations because James P. Knight, NRR, had just briefed the Commissioners on the same PG&E material which GAP was alleging was, in part, false and misleading.

Denton believed that at the time (March 19) he did not know of the allegations prior to the previous Friday. He did not "have a view on the matter" when he told the Commissioners which meant that he probably didn't know about the matter prior to March 16. Denton further noted that he also had the Licensing Board considering Diablo Canyon notified of the GAP allegations. If he had known of the allegations earlier, he would have notified the Board earlier. There was no reason to delay the matter.

Finally, Denton suggested that Jim (James P.) Knight be contacted because, in Denton's view, he might have a better recollection of the matter.

Attachment:
As stated

Investigation on July 3, 1984 at Bethesda, MD File # 84-26

by Ronald M. Smith, Senior Investigator, OIA Date dictated July 3, 1984

we focused principally on allegations because of the large number.

So we are trying to take some steps to coordinate and integrate those items altogether.

MR. DENTON: One point I did want to mention, too, before we get too far off the topic. [redacted]

COMMISSIONER ASSELSTINE: I take it that's the thrust of the letter that we got today, based upon a fairly clear reading of it --

MR. DENTON: And I believe Friday Larry Chandler informed the board -- and, Larry, you may want to mention anything more about that.

MR. CHANDLER: We did provide informal notification to the board and we intended to formalize that if it's necessary, talk to OI who was not available Friday. But we intend to do that today and get it to the board and parties.

MR. MARTIN: I think I can answer your question now about the early 1974 report. It's Item 30 in our final inspection report of the Pullman audit. And the issue was

U.S. NUCLEAR REGULATORY COMMISSION
Office of Inspector and Auditor

Date of transcription July 16, 1984

Report of Interview

James P. Knight, Assistant Director for Components and Structures Engineering, NRR, upon interview concerning allegations raised by the Government Accountability Project (GAP), in a 10 CFR 2.206 petition dated April 12, 1984, and concerning an allegation that he, by omission, made a false and/or misleading statement to the Commissioners that could have influenced their decision as to whether to permit low power testing at Diablo Canyon nuclear facility, provided the following information:

As to the first allegation by GAP against Harold Denton, Knight received a call from Thomas Devine, the previous Friday (March 16). He had the impression that Devine had been in previous contact with Region V. He did not mention to Denton that there had been any previous contact. It never crossed his mind on March 19, that NRR was doing anything but advising the Commission of the fact that they were in receipt of more allegations. The timeliness of GAP's submission was neither a concern nor a consideration.

Item 5 of the Devine Report of Interview contained an allegation that Knight, by omission, had made a false and/or misleading statement to the Commissioners on March 19, 1984 by failing to tell them of various concerns raised by Isa Yin, Region III. Knight said that he was aware of all three matters raised by Yin at the time of the March 19 meeting. However, more specifically, he felt that some of the issues (the 49 inspection issues material to the licensing decision) raised by Yin were preliminary and that on some of them Yin was "off-base," in other words he did not believe there was a fundamental flaw in the system. One thing that stood out in Knight's mind was that the QA program was less than it ought to have been. Within the concise format relevant to the "briefing" of the Commissioners, the general comment was made that things are happening, i.e., allegations were being raised. Further, Isa Yin had already gone over many of the specific issues in a public meeting held in San Francisco in late January (he believed January 31, 1984). A lot of them were pretty old issues in his opinion and none of the 49 has any great safety significance - he thought that then and particularly now that a 15-man peer review group has looked at the matter. (Knight also noted that the head of the group, Richard Vollmer, is superior to Knight and therefore Knight could not control the outcome.) Again there was no intent to hide anything from the Commission. In short, Knight felt that he is paid to evaluate information and to discern what is or is not important and to so advise the Commission. Again, he felt that most of Yin's issues had been addressed.

On the issue of "Quick Fix," Knight discussed the matter in a March 15 affidavit wherein he said that it did not result in a safety concern (Exhibit 1). Therefore, he felt that there was no reason to bring the matter to the Commissioners' attention.

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stigation on July 6, 1984 at Bethesda, Md. File # 84-26

by Ronald M. Smith, Senior Criminal Investigator, OIA Date dictated July 11, 1984

On the third issue of destruction of records as an undocumented Westinghouse management policy, mention of the destruction of records was made in the March 23, 1984 draft version of Yin's report but not in the March 12, 1984 version. Knight thought that he probably knew of the issue, which concerned destruction of original "check lists" after the information had been transferred to other documents. The procedures were not in conflict with Region IV vendor policy and practices and therefore he told Yin that he could not cite the vendor. Region IV had found Westinghouse practices as acceptable. The reason he did not bring the matter up was that in his opinion it was a non-issue. Subsequently, the peer review group, referenced above and which included QA people, found that the practice was no impediment to the issuance of a low power license (see copy of April 12 report, Exhibit 2).

Finally, Knight noted that Yin raised a number of issues which did represent things to be done but were not seen as an impediment to low power testing, for example see the ACRS consultant report on some of them at Exhibit 3.

Exhibits:
As stated

James P. Knight

UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

June 26, 1984

MEMORANDUM FOR: Hans Schierling, Project Manager
Diablo Canyon Nuclear Power Plant
Licensing Branch No. 3
Division of Licensing, NRR

James P. Knight, Assistant Director
Division of Engineering, NRR

FROM: John C. McKinley, Chief, Project Review Branch No. 1

SUBJECT: COMMENTS OF ACRS CONSULTANT REGARDING DIABLO CANYON NUCLEAR POWER PLANT PIPE SUPPORT/RESTRAINTS

On May 23, 1984, several members of the ACRS toured the Diablo Canyon Nuclear Power Plant Unit 1; they were accompanied by a consultant, Mr. E. Douglas Mysinger. Part of the tour included looking at a number of examples of large- and small-bore piping supports and restraints. These were particularly selected by NRC Inspector, Mr. Isa Yin as examples of poor engineering practice.

Attached for your information are Mr. Mysinger's comments on those pipe supports and restraints.

Attachment:
As stated

cc: C. P. Siess, ACRS Member
J. C. Ebersole, ACRS Member
R. F. Fraley
M. W. Libarkin
T. G. McCreless
A. L. Newsom
G. R. Quittschreiber

Knight Exhibit 3

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37902
400 West Summit Hill Drive, W9C165

Mr. John C. McKinley, Chief
Project Review Branch #1
USNRC, ACRS
Washington, D. C. 20555

Dear Mr. McKinley:

In response to your letter of May 15, 1984, I accompanied members of the ACRS on a tour of the Diablo Canyon Nuclear Plant on May 23, 1984. As requested by your referenced letter, I observed the installation and sizing of the pipe support/restraint systems. Comments on what I observed are enclosed.

I am very appreciative of the opportunity to make the tour with you.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

E. D. Mysinger, Principal
Mechanical Engineer
Civil Engineering Support Branch

Enclosure

ATTACHMENT

Diablo Canyon Nuclear Power Plant
Pipe Support/Restraint Observations
by E. Douglas Mysinger

On May 23, 1984, I accompanied members of the ACRS on a tour of the Diablo Canyon Nuclear Power Plant. As requested by Mr. John C. McKinley, Chief, Project Review Branch No. 1, I observed the installation and sizing of pipe support/restraint systems. The purpose of this paper is to comment on what I observed.

On the tour Mr. Isa Yen, a NRC inspector previously assigned to the site, pointed out typical examples of concerns he had documented.

Concern No. 1 - A snubber had been placed on a small branch line relatively close to the run line. Thermal movements were not sufficient to justify a snubber and seismic movements were not as large as the snubber free travel. Thus, the snubber would not provide the support as modeled in the piping analysis.

Response: The small branch line had initially been qualified by conservative span tables (alternate analysis rules). The designer had prudently specified a snubber adjacent to a valve to accomodate relative thermal movement of the run and branch line and to provide seismic support of the valve. PG & E has subsequently performed a computer analysis of the line and it is qualified with or without the snubber. There is no safety concern for leaving the snubber in.

Concern No. 2 - A spring and snubber and two rigid supports were very close together near a valve. The spring and snubber could not be effective due to the close proximity to the rigid supports.

Response: PG & E had run the problem with and without the spring and snubber and the pipe was qualified. At one time during the design of the plant, an economic decision was made to leave the supports in place.

Concern No. 3 - A rigid and snubber are close together. The snubber cannot be effective because of close proximity to the rigid and inherent free travel of the snubber.

Response: If the rigid support does not deflect enough to redistribute load to the snubber, it cannot be overloaded.

Concern No. 4 - A snubber was attached to a valve operator. An analysis without the support indicates movement of the operator was not sufficient to lock up the snubber. A strut should be specified.

Response: A strut has very little free travel. Rigid supports in the run line near the valve are designed with gaps. A fixed support point on the valve operator and a gap in adjacent rigid support points on the pipe could potentially overload the operator. Concrete creeps and shrinks for years, pipe shakes down during the first few cycles of operation, etc. These

things are not considered in a computer analysis and resulting movement calculations are not indefinitely accurate. If the snubber and strut were comparable in reliability and maintenance, a snubber would be a clear choice for this application.

Concern No. 5 - Calcium silicate insulation with metal cover has been installed on relatively large pipe without sufficient clearance to avoid impact with the building structure during a seismic event.

Response: Building structural steel members were obviously sufficient to crush the insulation or withstand the seismic loading transmitted by the pipe through the insulation. It is reasonable to expect that crushing of the insulation will increase dynamic damping in these pipe runs which will reduce stress in the pipe and load on adjacent supports.

Concern No. 6 - There are too many snubbers in the plant. Examples were sited of plants that have removed hundreds of snubbers. The expressed concern was for radiation exposure to personnel during inspection and maintenance of the snubbers.

Response: It has been difficult for experienced piping designers to specify rigid supports that reduce flexibility of piping systems. This desire to maintain flexibility has resulted in the use of snubbers where a rigid support would qualify. As indicated by NUREG/CR-3718 (Reliability Analysis of Stiff Versus Flexible Piping - Status Report) reliability of rigid systems is still being questioned. It is also apparent, industry wide, that inexperienced designers specified an excessive number of supports including snubbers. However, meaningful relief such as higher damping, elimination of 1/2 SSE as a design consideration, spectrum peak broadening changes, etc., is now being considered. Removal of snubbers considered in design of the piping is an economic and not a nuclear safety consideration. Many factors enter into the economic evaluation such as age of snubber, type of snubber, operating experience, pending changes in industry practice, etc.

Concern No. 7 - It is industry practice to specify a 1/16-inch gap between a pipe and rigid structural steel type support. A 1/16-inch gap on each side plus a reasonable tolerance of 1/16-inch can result in a cumulative gap of 3/16-inch. When two supports are closely spaced and the major part of the 3/16-inch cumulative gap is on opposite sides of the pipe at the two supports, load distribution to the supports may not be equal.

Response: PG & E is shimming supports to address this concern. To expedite licensing, this approach seems prudent. However, unless nuclear power plants are extremely overdesigned for such an unlikely event an an SSE, it is reasonable to expect deformation to redistribute load through a 3/16-inch gap. For normal operation, the larger gap is preferable.

In summary, taking out supports that are not required but have been considered in the piping qualification is an economic consideration. Changing out snubbers with struts is an economic consideration. If a system is so conservatively supported that movement will not be sufficient to load up a snubber, there is no safety concern. Snubbers on valve operators versus struts are preferred by some designers to ensure against loads due to normal operation. With the possible exception of concern No. 7 there was clearly no valid safety problems observed during the tour. PG & E is modifying support gaps in response to concern No. 7 to avoid further delays.

U.S. NUCLEAR REGULATORY COMMISSION
Office of Inspector and Auditor

Date of transcription July 16, 1984

Report of Interview

Thomas Bishop, Director, Division of Reactor Safety and Projects, Region V, upon interview conllcerning various allegations of false statements raised by the Government Accountability Project (GAP) and an allegation that he made a false and/or misleading statement to the Commissioners that could have influenced their decision as to whether to permit low power testing at the Diablo Canyon nuclear facility, provided the following information:

As to the specific allegation that Bishop, on March 26, 1984, made a false and /or misleading statement by stating that the NRC had not yet been provided additional supporting material for an allegation concerning hydrostatic test records, Bishop first pointed out that he qualified his comment to the Commissioners at the time with the phrase "to my knowledge" (Exhibit 1). In any event, at the time of his statement, he was not personally aware that the questioned materials had, in fact, been received by Region V. No possible purpose could have been served by hiding the fact that they had been received. His only purpose in even mentioning the matter was to make it clear to the Commission that Region V had not examined all of the GAP documents, so far as Bishop knew.

After the issue was raised by GAP in their 2.206 petition dated April 12, effort was made to reconstruct what had happened to the documents within Region V. It was established that they were received by Region V on March 5, 1984. (Exhibit 2). Bishop was on travel that day. Apparently, the 17 enclosures plus the questioned "Exhibit 4 to Attachment 2" and other documents laid around the office for a few days. Someone, it is not clear who, then reproduced the first 17 enclosures, "Attachments 1 thru 17." The original "Exhibit 4 to Attachment 2" was not received by Bishop. The document was finally retrieved from the original package which had ended up in Lewis Shollenberger's office (Regional Legal Counsel).

Regarding the specific concern about hydrostatic testing, based on summaries provided elsewhere in the GAP 2.206 petition of March 1, 1984, and other allegations previously received, the issue was already within a "body of knowledge Region V already knew something about." The allegation, therefore, was not being ignored.

Devine's statement in the April 12 petition that "Region V took no initiative whatsoever to obtain the relevant records either from the alleger or from counsel" (Exhibit 3) was false because Region V tried to setup a meeting on March 15, 1984 (Exhibit 4) and on March 19, 1984 Region V representatives actually appeared for a meeting at which GAP did not appear (Exhibit 5).

Investigation on July 10, 1984 at Walnut Creek, CA File # 84-26

by Ronald M. Smith, Senior Criminal Investigator, OIA Date dictated July 11, 1984

Investigator Note: The following represent the results of inquiry into whether Bishop had any additional information concerning other allegations raised by Devine in his interview of June 25 thru 27, as modified by him. Each item is referenced with the same number as identified in Devine's interview.

Item 1 - Bishop did not draw the same conclusions from Denton's statement as GAP. He did not perceive it as an attempt by Denton to discredit GAP and therefore did not see the need then, or now, to say anything. In his mind Denton's statement was just a simple statement of fact that GAP had contacted NRR. Additionally, GAP, in its petition of March 1, had already told the Commission that PG&E had made misleading statements. Therefore, such a statement would not exactly have been news to the Commission anyway, in Bishops opinion, (see extract of March 1 petition at Exhibit 6.)

Item 2 - Martin's statement was accurate based on a detailed review wherein Region V felt that they had previously talked to approximately 10 of the 13 or so authors of the affidavits/letters etc., which contained allegations. Bishop also confirmed Dennis Kirsch's version of the treatment of issues which were raised by GAP on page five of their April 12 petition.

Item 3 - Bishop was not present at the March 27 meeting.

Item 6 - The NRC draws different conclusions than Hudson on this matter. Further, many of the examples raised by Hudson were based on his own audit reports which surfaced problems to Pullman, which were then acted upon by Pullman. Thus, NRC review of the actions taken as being appropriate leads Region V to conclude that the system was working.

Item 8 - Bishop verified the response of Martin and Kirsch on this issue.

Item 9 - Bishop reiterated - as did Martin and Kirsch - that ANSI - N45.2.6 is not a regulatory requirement for Diablo Canyon at this time.

Item 10 - Bishop wasn't present at the April 13 meeting but agrees with Martin and Kirsch's versions of what happened during the walkthrough.

Item 12 - Bishop stated, as did Kirsch, that NRR is handling the issue of Quick Fix, etc., Region V accurately reported the results of its separate effort as indicated in paragraph 5.4, SSER 22, that effort being concerned with proper documentation of major design changes.

Exhibits:
As stated

2pb5

used. This happens to have been the subject of a previous NRC review not too long ago, where we looked at the tubing installation practices employed by the contractor and found them to be consistent with codes and requirements. And so we have some background in it to indicate to us that we don't feel this is an area that we have no knowledge of and could turn into a significant problem or anything.

Other problems relate to hydrostatic test records, missing data. When we go back into these supporting material which is provided in the petition, we find a statement that the supporting material is not attached and will be provided later. That note is dated February 2nd, '84 and [redacted]

Nevertheless, we do have a background in the hydrostatic test area, where we have gone in from our inspection program again, both under earlier allegations last summer, as well as standard NRC Staff reviews of the hydrostatic testing process, which give us some background in that area.

Anyway, those are examples of the totally new issues. We also have some 11 issues which the Staff identified that had insufficient information and were vague, that we just couldn't make an assessment on because there was not enough meat there to determine whether or not it was a