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 DENTON, H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards supplemental responses to issues raised in
 H. Hudson 840605 affidavit.

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J. O. SCHUYLER
VICE PRESIDENT
NUCLEAR POWER GENERATION

July 6, 1984

PGandE Letter No.: DCL-84-256

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

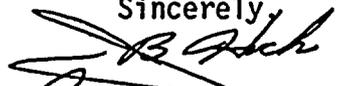
Re: Docket No. 50-275, OL-DPR-76
Diablo Canyon Unit 1
Supplemental Responses to Joint Intervenors' Allegations

Dear Mr. Denton:

On June 26, 1984, PGandE submitted responses to allegations contained in affidavits which were attached to the Joint Intervenors' June 11, 1984 Reply to PGandE and NRC Staff Answers to Joint Intervenors' Motions to Reopen Design and Construction Quality Assurance. Pursuant to a staff request for additional information, the enclosure provides supplemental responses to issues raised in the June 5, 1984 affidavit by Harold Hudson.

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

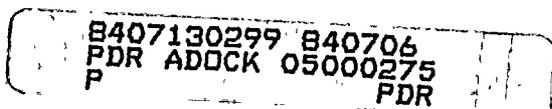
Sincerely,

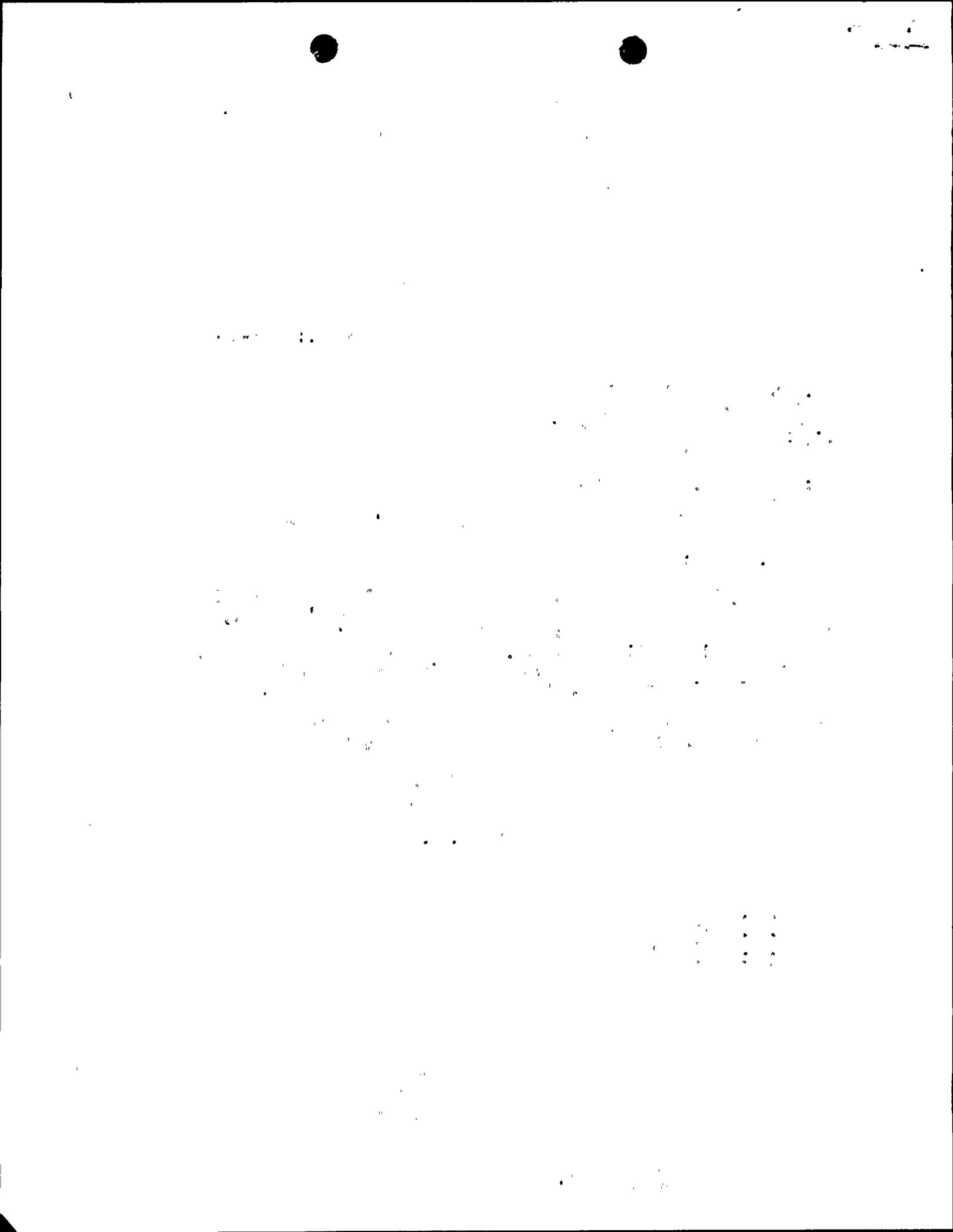

J. O. Schuyler

Enclosure

cc: D. G. Eisenhut
J. B. Martin
H. E. Schierling
Service List

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LIST OF ALLEGATIONS
FROM HUDSON AFFIDAVIT
DATED JUNE 5, 1984

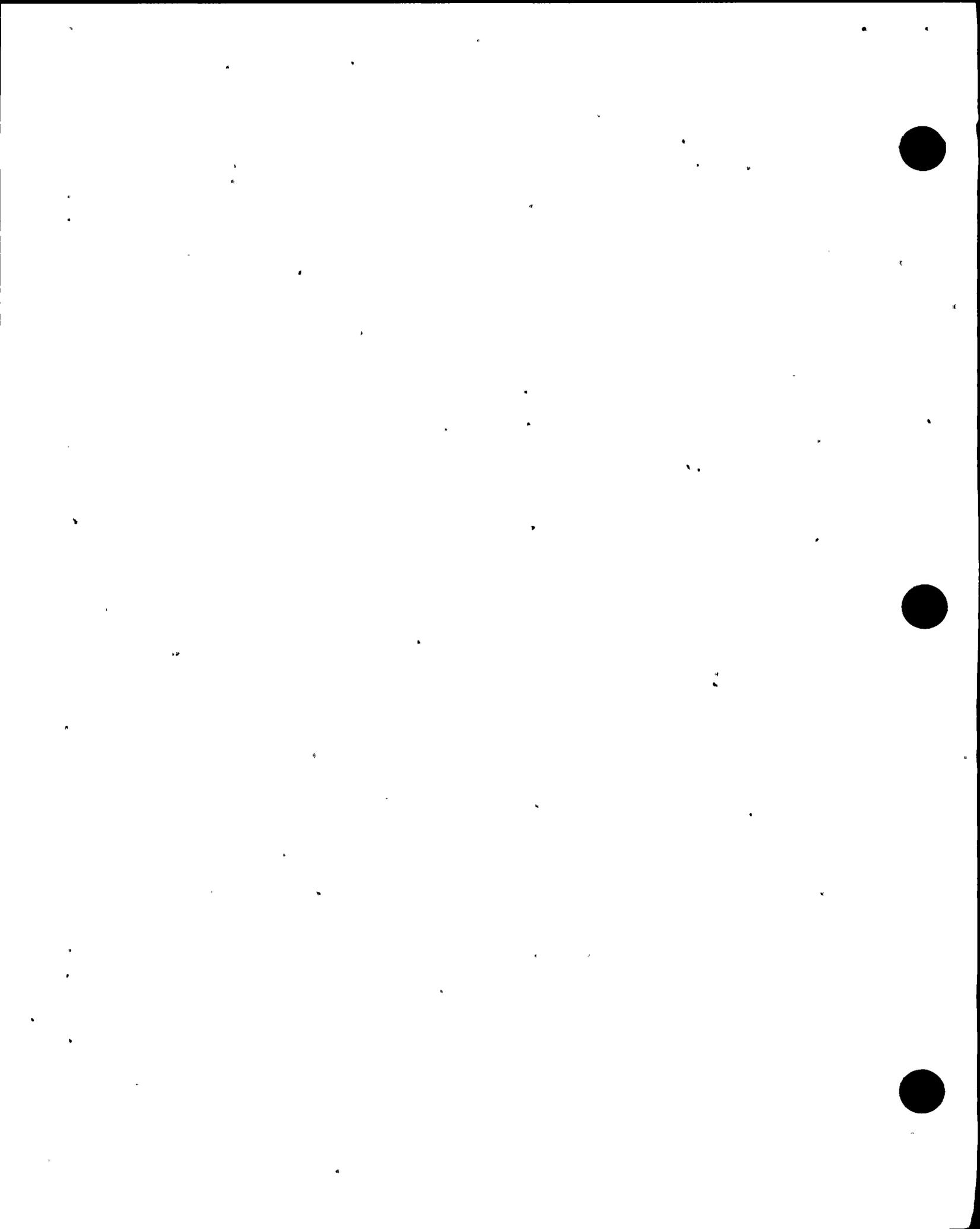
DCP ALLEGA- TION No.	PAGE NO.	PARA- GRAPH NO.	SUBJECT
H-1	1	1	QA program failed to identify deficiencies and address causes of problems. (6/5/84 Hudson Affidavit at 1)
H-2	3	1	Rupture restraint program (RRP) did not comply with 10 CFR 50, Appendix B. (6/5/84 Hudson Affidavit at 3)
H-3	4	3	PG&E did not audit restraints against the correct contract specification; Kellogg repeated the same mistake. (6/5/84 Hudson Affidavit at 4)
H-4	8	2	Field QA/QC manager falsified QA personnel certification records. (6/5/84 Hudson Affidavit at 8-9)
H-5	9	1	Kellogg did not revise its QA manual to reflect the attempted ANSI N45.2.6 compliance. (6/5/84 Hudson Affidavit at 9)
H-6	9	1	PG&E did not revise C.S.#8711 or C.S.#8833XR to direct compliance to ANSI N45.2.6. (6/5/84 Hudson Affidavit at 9)
H-7	10	1	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 10 CFR 50, Appendix B. (6/5/84 Hudson Affidavit at 10)
H-8	10	1	Pipe support and rupture restraint construction programs not based on ASME Section III and not required by contract spec. to meet 10 CFR 50, Appendix B. (6/5/84 Hudson Affidavit at 10)
H-9	11	2	PG&E had only limited QA/QC requirements for welding on rupture restraints. (6/5/84 Hudson Affidavit at 11)
H-10	11	3	The Kellogg (Pullman) QA/QC manager stated that superintendent had complained of QA/QC inspectors talking to and giving work instructions to foremen and pipe fitters. (6/5/84 Hudson Affidavit at 11)

Docket # 50-275
Control # 8407130299
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DCP ALLEGA- TION No.	PAGE NO.	PARA- GRAPH NO.	SUBJECT
H-11	12	1	Questions regarding amount of production work done by QA/QC in the rupture restraint erection program. (6/5/84 Hudson Affidavit at 12)
H-12	13	1	Delay in the incorporation of conclusions concerning weld process sheet documentation into requirements of ESD 243. (6/5/84 Hudson Affidavit at 13)
H-13	13	2	On December 24, 1974, DR#2654 was the first indication that a cracking problem was developing in rupture restraints. (6/5/84 Hudson Affidavit at 13)
H-14	15	3	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. (6/5/84 Hudson Affidavit at 15)
H-15	15	1	Process sheets, field layout drawings, and actual field conditions would not match and the QA/QC department would perform a restamping program to make them match. (6/5/84 Hudson Affidavit at 15-16)
H-16	17	1	Because of continuing problems with weld cracking in restricted joints, the QA/QC manager on October 23, 1975 issued an interoffice correspondence to QC support (restraint) inspectors which in effect ordered inspectors to perform engineering duties. (6/5/84 Hudson Affidavit at 17)
H-17	17	2	QC inspectors were now to assume engineering duties, in direct contradiction to the QA/QC manager's directions of January 31, 1974. (6/5/84 Hudson Affidavit at 17)
H-18	18	2	The process sheet did not necessarily reflect the correct welder for each welded joint and Kellogg's stamping program only compounded the problems. (6/5/84 Hudson Affidavit at 18)



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DCP ALLEGA- TION No.	PAGE NO.	PARA- GRAPH NO.	SUBJECT
H-19	19	1	The field inspector could not accurately match field records with welds, and subsequently many welds were misidentified and misstamped. (6/5/84 Hudson Affidavit at 19)
H-20	19	2	Improperly completed Kellogg QA documentation, including the use of "white out," which was a continuing problem. (6/5/84 Hudson Affidavit at 19)
H-21	21	1	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. (6/5/84 Hudson Affidavit at 21)
H-22	21	3	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. (6/5/84 Hudson Affidavit at 21)
H-23	22	2	Code 92/93 was qualified for open butt welding, but was used to weld groove welds with a backing strip. (6/5/84 Hudson Affidavit at 22)
H-24	22	2	Production and QC substituted Code 92/93 for Code 7/8 to expedite construction. (6/5/84 Hudson Affidavit at 22)
H-25	23	1	Paragraph 3.3 of ESD 219 concerning "Pre-Heat Temperature" states "the minimum pre-heat temperature on this project is 500F. If the air or metal temperature is below 500F, pre-heating is required. Air temperature shall be monitored by wall thermometers." Pullman Audit #8D found no wall thermometers. (6/5/84 Hudson Affidavit at 23)



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DCP ALLEGA- TION No.	PAGE NO.	PARA- GRAPH NO.	SUBJECT
H-26	23	2	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 QA requirements. (6/5/84 Hudson Affidavit at 23)
H-27	24	3	DRs dated 10/7/75 reported welding without preheating to rupture restraint structure members. Work not controlled by process sheets or any other QA/QC documentation. (6/5/84 Hudson Affidavit at 24)
H-28	26	2	QC Inspector Mullis was performing engineering and drafting work with the approval of Pullman (Kellogg) QA/QC management and production management. (6/5/84 Hudson Affidavit at 26)
H-29	26	4	Pullman issued conflicting memoranda to QA/QC personnel in 1974-1975 regarding giving instructions to foreman and pipefitters. (6/5/84 Hudson Affidavit at 26-27)
H-30	27	2	QC Inspector Mullis did as-built drawings of rupture restraints he worked on. (6/5/84 Hudson Affidavit at 27)
H-31	27	3	QC Inspector Mullis was fired for NA-ing an inspection point, yet QA/QC management on two occasions stated it was okay for an inspector to do so. (6/5/84 Hudson Affidavit at 27)
H-32	29	1	On June 21, 1979, PG&E issued NCR #DC2-79-RM-011 which identified welds in Unit 1 with rejectable defects, and that same or similar conditions may exist in Unit 2. (6/5/84 Hudson Affidavit at 29)



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DCP ALLEGA- TION No.	PAGE NO.	PARA- GRAPH NO.	SUBJECT
H-33	30	3	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. (6/5/84 Hudson Affidavit at 30)
H-34	30	3	Rupture restraint crack repair program required welders previously qualified to ASME Section IX to also qualify to AWS. (6/5/84 Hudson Affidavit at 30)
H-35	31	1	Pullman implemented the PG&E revised OAI#143 and for the next two years performed NDE that did not comply with the revised C.S. #8833XR requirements. (6/5/84 Hudson Affidavit at 31)
H-36	31	2	Pullman Internal Audit #LXXVII, dated September 25, 1980, found that PG&E had provided conflicting procedures for Pullman to use. (6/5/84 Hudson Affidavit at 31)
H-37	32	1	PG&E directed Pullman to use a PG&E ultrasonic procedure #3523 to examine only full penetration welds 9/15" and greater, effective throughout. This did not comply with C.S. #8833XR requirements to ultrasonically inspect all connections utilizing full penetration welds. (6/5/84 Hudson Affidavit at 31-32).
H-38	33	1	ESD 234 ultrasonic procedure was not properly performed. (6/5/84 Hudson Affidavit at 33)
H-39	34	2	PG&E stated that the 1971 code was consistent with the requirements of 10 CFR 50 Appendix B, yet Pullman's piping construction program was based on the ASME QA requirements. (6/5/84 Hudson Affidavit at 34)
H-40	36	1	In November 1978 an IOC from Pullman's corporate senior QA engineer to the director of QA confirmed PG&E's audit findings concerning Pullman's corporate audit program. (6/5/84 Hudson Affidavit at 36)



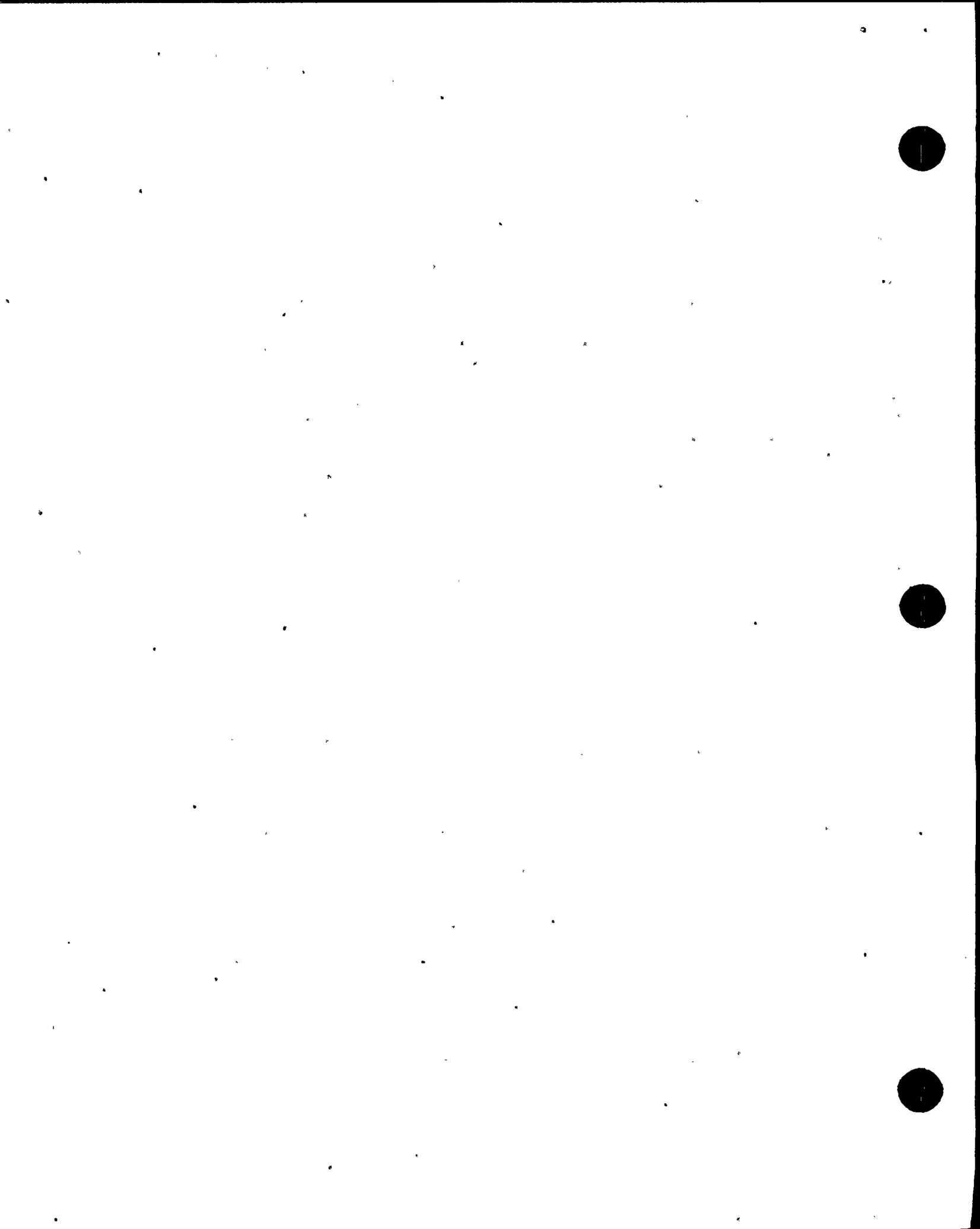
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DCP ALLEGA- TION No.	PAGE NO.	PARA- GRAPH NO.	SUBJECT
H-41	36	3	Nowhere in the QA program description is there a specific list of the piping manual requirements applicable to supports and restraints. (6/5/84 Hudson Affidavit at 36)
H-42	36	3	There is no commitment 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. (6/5/84 Hudson Affidavit at 36)
H-43	39	5	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. It was their absence of commitment to the federal code and national standards which resulted in a deficient QA program for rupture restraint. (6/5/84 Hudson Affidavit at 39)
H-44	40	2	Another cause not identified by PG&E was the fact that Pullman's rupture restraint construction program was not committed to the QA requirements of the ASME, 10 CFR 50, Appendix B, or ANSI codes, the result being a totally inadequate QA program for the erection and inspection of rupture restraints. (6/5/84 Hudson Affidavit at 40)
H-45	40	3	PG&E did not report these NCRs to the Nuclear Regulatory Commission as a 10 CFR Part 21 reportable item. (6/5/84 Hudson Affidavit at 40)
H-46	41	2	DCNs #476-027 (4/1/80), #476-028 (4/21/80) and #476-029 (5/1/80) identified final QA walkdown inspections that did not conform to QA instructions #137 and #148, which state that ESD 268 and ESD 273 be used to identify and document deficiencies discovered during final hardware walkdown. (6/5/84 Hudson Affidavit at 41)



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DCP ALLEGA- TION No.	PAGE NO.	PARA- GRAPH NO.	SUBJECT
H-47	44	2	Since January 1979, approximately 100 discrepancies or noncompliances (mostly involving Unit 2) have been documented in Pullman and PG&E reports but not identified or corrected by QC. (6/5/84 Hudson Affidavit at 44)
H-47	44	2	The Unit 2 final walkdown inspections would also result in major rework of rupture restraint. Subsequently, Pullman field engineers wrote several DRs on post 1/24/79 work when the work was inadvertently reviewed by Engineering. Also DCNs would be written identifying documentaton problems missed in pre-1979 work. (6/5/84 Hudson Affidavit at 44)
H-48	45	1	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 331.7 and ASME code work. (6/5/84 Hudson Affidavit at 45-46)
H-49	46	2	Weld Code 7/8 did not have procedure qualification records for the weld type, as required by the AWS, when joint details differed from those prescribed by the code. (6/5/84 Hudson Affidavit at 46)
H-50	46	3	Welds were made with Code 7/8 without establishing procedure qualification records. (6/5/84 Hudson Affidavit at 46)
H-51	46	4	In addition, eight other types of joint configurations not itemized in the code 7/8 WPS were identified as made with Code 7/8. (6/5/84 Hudson Affidavit at 46)
H-52	47	1	Code 7/8 was revised and weld procedure #AWS 1-10 was 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. (6/5/84 Hudson Affidavit at 47)



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<u>DCP ALLEGA- TION No.</u>	<u>PAGE NO.</u>	<u>PARA- GRAPH NO.</u>	<u>SUBJECT</u>
H-53	47	1	Pipe rupture restraints have had a continuing history of failure to meet basic codes and QA standards, leaving no basis for confidence that equipment near piping will not be damaged in an earthquake. (6/5/84 Hudson Affidavit at 47)

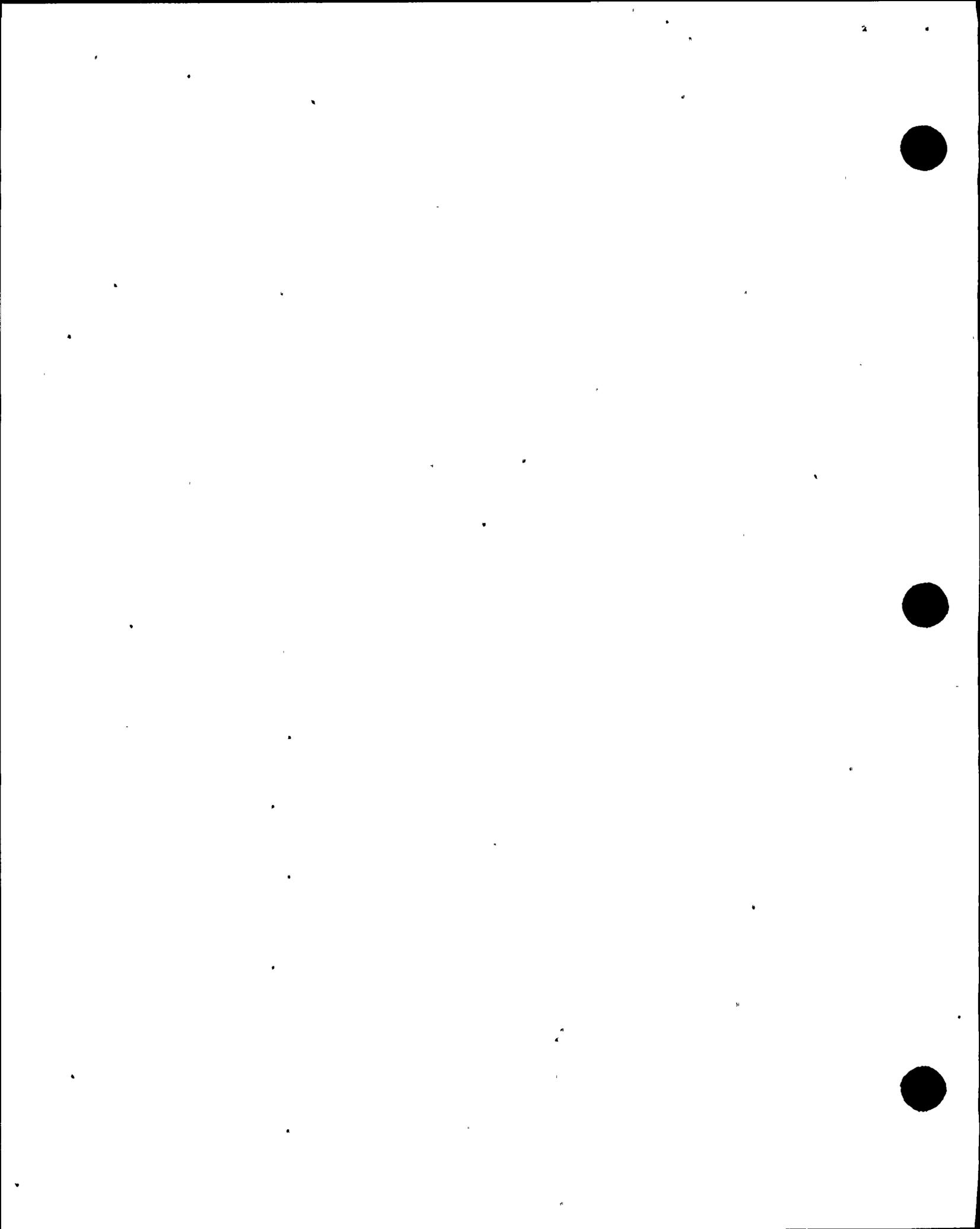


It is alleged that:

[T]he 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. (6/5/84 Hudson Aff. at 1.)

Mr. Hudson has repackaged his numerous allegations regarding rupture restraints from previous affidavits to support the theme of this affidavit, namely that there was a quality assurance breakdown resulting from an alleged failure of the PGandE and Pullman QA programs to address similar deficiencies and causes of problems that were identified. Mr. Hudson relies heavily on audit reports and findings of both Pullman and PGandE. Rather than establishing that a QA breakdown existed, these documents, which were created during a period of evolving regulations and standards and development of the rupture restraint program, establish that PGandE and Pullman had initiated actions to improve the existing program consistent with the intent of 10 CFR 50, Appendix B, and relevant codes.

Contrary to the allegation, PGandE's QA program and those of its construction contractors at Diablo Canyon effectively address all of the necessary aspects of an effective QA program. The requirements of Criterion XVI are to identify problems, to identify whether any similar deficiencies exist elsewhere, and to address the cause of the problem, thus preventing reoccurrence. Mr. Hudson himself has provided ample examples of a properly functioning QA program.

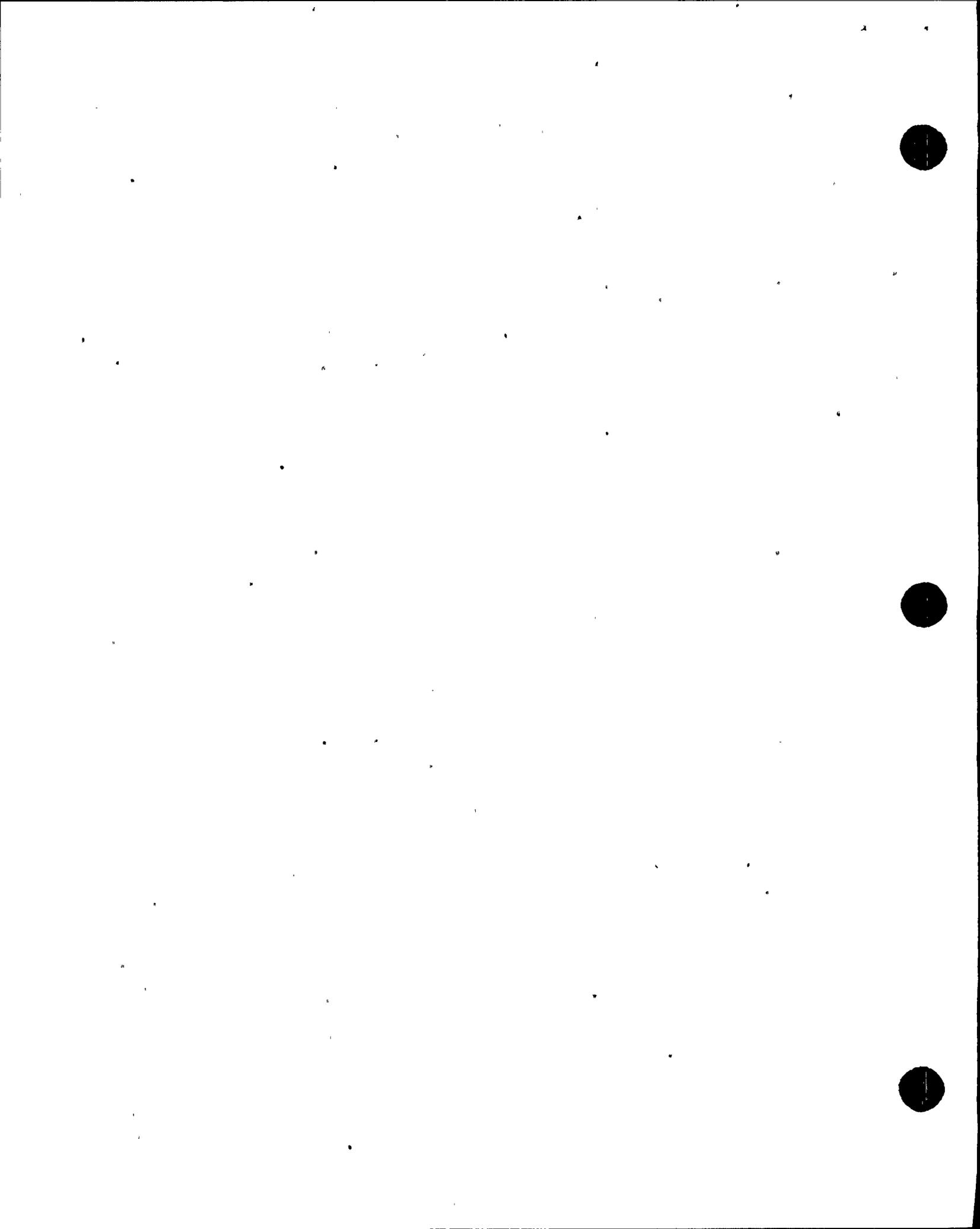


Unfortunately, he assumes that each time a solution is implemented, it will immediately and completely resolve the problem. In the real world, this is not always the case. In each case where a deficiency was noted, an effort was made to determine whether similar conditions existed elsewhere, what the implications of such conditions were, and what proposed course of corrective action was necessary. If it was determined later that the corrective action program was not effective, the situation was reexamined to determine further corrective action, and appropriate action was taken.

Mr. Hudson also alludes to the "large number" and "repetitiveness" of the errors identified. However, when one recognizes that the Construction Permit for Unit 1 was issued in 1968, and, thus, the plant has been under construction for about 16 years, the number of deficiencies identified is not unusual. As the Appeal Board stated recently:

...the inspection history of Diablo Canyon from 1969 to the present time -- a program amounting to some 20 to 25 man-years of effort and covering the activities of all contractors on the site -- did not find the applicant's noncompliance record out of the ordinary. Indeed, he found the noncompliance rate "about average, or possibly even on the low side."
(ALAB-756, Slip Opinion at 25.)

Such findings are not evidence of a QA breakdown, but rather they are the findings one might expect of a normally functioning and effective Quality Assurance program.



To put much of Mr. Hudson's concerns in their proper context, many address situations which he says existed from the early 1970s onward. However, an extensive rupture restraint reinspection program was conducted in 1978-1980, and all deficient conditions identified were repaired, as required. The repair of the restraints and the propriety of the existing conditions were reverified during the course of the verification program. This makes Mr. Hudson's concerns moot.



It is alleged that:

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 CFR 50 [sic] Appendix B, the Code of Federal Regulations concerning Quality Assurance requirements...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. (6/5/84 Hudson Aff. at 3.)

Mr. Hudson has asserted that neither PGandE Specification 8711 nor 8833XR made any reference to or made any commitment to comply with 10 CFR 50, Appendix B.

Contrary to the implication of the allegation, there is and was no legal requirement or licensing commitment for Diablo Canyon, a plant which received its construction permit prior to the adoption of Appendix B, to meet the criteria of the Appendix. This has been acknowledged by the Appeal Board when it ruled on a Joint Intervenors Motion in this case:

Although not expressly stated, seemingly implicit in movants' argument is the notion that the regulations required immediate compliance upon the effective date of Appendix B and that applicant's commitment was insufficient to ensure a properly constructed facility. We disagree.

The Commission's predecessor, the Atomic Energy Commission, recognized in promulgating Appendix B in 1970 that the nature of the construction process for a plant already being built, such as Diablo Canyon, Unit 1, precluded the complete and immediate application of the quality assurance criteria. In the Statement of Considerations accompanying the final

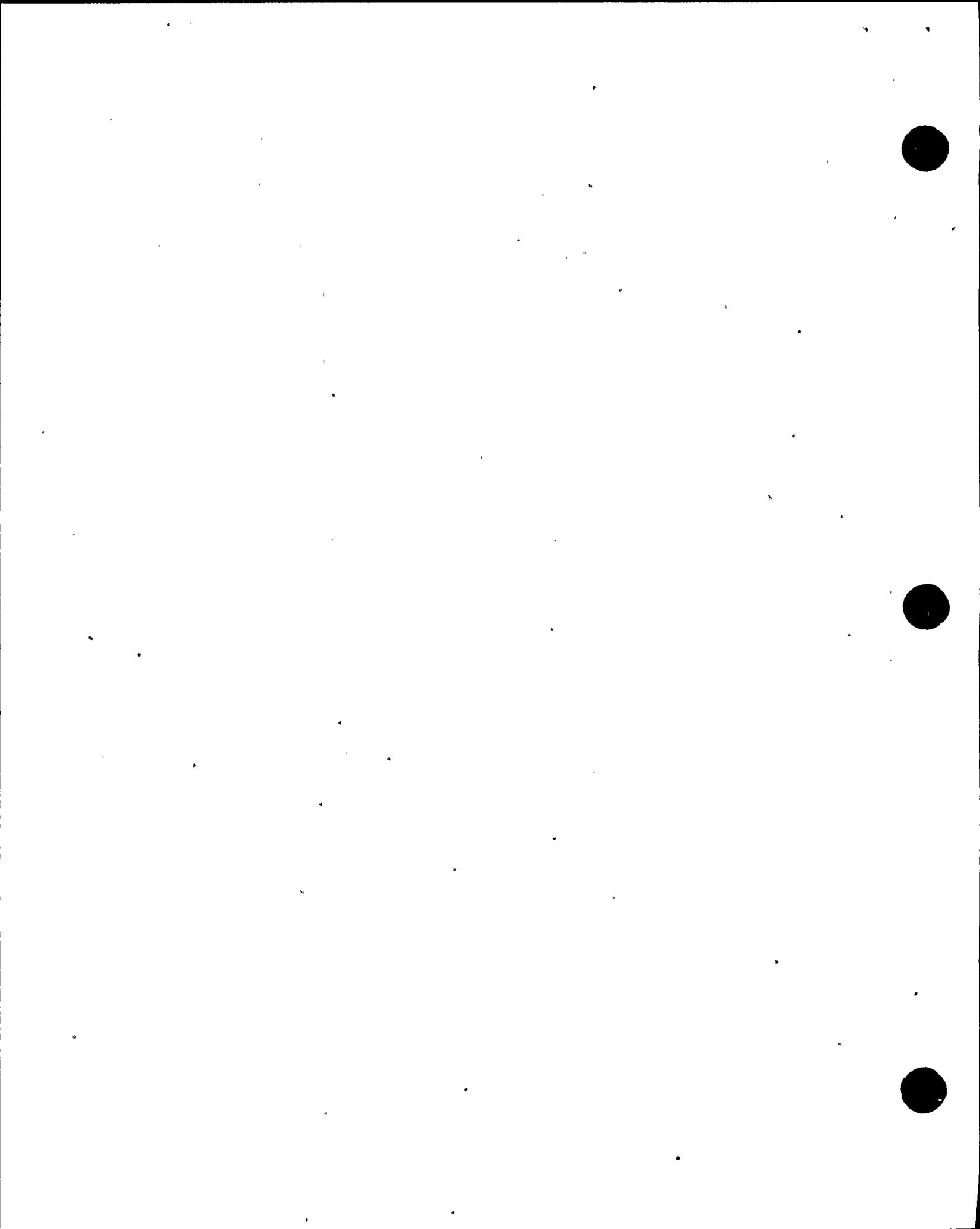


version of Appendix B, it stated that the criteria would be 'used for guidance in evaluating the adequacy of the quality assurance programs in use by holders of construction permits and operating licenses.²⁸ [Footnote omitted]. Therefore, contrary to the movants' suggestion, the applicant was not required to conform the construction quality assurance program for Unit 1 to Appendix B upon the provision's effective date. Moreover, the applicant's commitment in the Final Safety Analysis Report (FSAR) to apply the Appendix B criteria to the extent possible for the construction of Unit 1 was completely reasonable. (ALAB-756, Slip Opinion at 21.)

Both specifications identified which work was "safety-related," and both specifications contained a quality assurance specification which was patterned after draft versions of Appendix B. Although they have a difference in format, they meet the intent of Appendix B. The Pullman program has been evaluated against these requirements and found to be acceptable.

Mr. Hudson has used a quotation from a Kellogg (Pullman) audit report which referenced a PGandE letter (which he admitted not having reviewed) to draw an erroneous conclusion that rupture restraint work was not covered by a specification. His own quotation from the audit identifies "Spec 8833XR" which is the specification for rupture restraints.

There is no programmatic QA deficiency as alleged.



It is alleged that:

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 reoccurring problem in the early years of construction. (6/5/84 Hudson Aff. at 4.)

The subject matter of this allegation was previously addressed in PGandE letter, dated March 29, 1984, DCL-84-195 in response to NRC allegation numbers 470, 471, 472, 473, and 474:

The deficiencies in Pullman's QA program which are noted in this allegation [NRC #470] were reported in the PGandE audit in 1973. Subsequently, Pullman revised its QA program to include pipe supports and rupture restraints, and the revised program was submitted to PGandE's Corporate QA Manager for approval. The program was approved on December 11, 1973. The reinspection was completed and closed out by PGandE on January 15, 1974.

All pipe supports and rupture restraints that were installed under the original ESD 223 were reinspected and were replaced or repaired, if necessary, or accepted. Each was properly documented in accordance with the new program.

This allegation raises nothing new, and since the condition was corrected, no further corrective action is necessary.

The 1973 PGandE QA audit of the M. W. Kellogg Quality Assurance Program, which is actually referred to in this allegation, identified that pipe support and rupture restraint work was not covered under the main program. This work was being conducted under what was considered by the auditor as an "alternate QA program" under the provisions of ESD 223. The auditor evaluated ESD 223 as a QA program and identified eight programmatic deficiencies. In resolving this audit, Kellogg developed the Pipe Support Quality Assurance Manual for pipe support and rupture



restraint work. This manual was approved by PGandE on December 11, 1973. A review of the NSC audit reveals that there were no programmatic findings in these eight areas except for two items in the area of document control. The area of document control identified was that there was no procedure for control of ESDs or Special Quality Assurance Procedures. Contrary to the allegation [NRC #471], as a result of the various audits over time, M. W. Kellogg did "learn its lesson" and improved its QA program on pipe supports and rupture restraints.

No further action is required.

The January 10, 1977, memorandum referred to in the allegation [NRC #472] simply acknowledges the previously mentioned fact about deficiencies in the Pullman QA program four years before in 1973. The memorandum, however, also lists the steps that were "taken" to ensure that the requirements of the new ESD 223 were met. The memorandum concludes, "It is my opinion that this program will insure [sic] the present installations are, as a whole, meeting the requirements of ESD 223." Rather than show the continuous deficiencies, the memorandum demonstrates compliance.

No further corrective action is required.

Contrary to Allegation #473, Pullman did audit the Diablo Canyon project to the requirements of 10 CFR 50 or ASME. In order to qualify for NA and NPT stamps from ASME, Pullman was required to commit to and did audit its projects according to the requirements of ASME. Consistent with such requirements, Pullman established its QA Manual and QA procedures which required audits to procedures which satisfied ASME. Management audits of the Diablo Canyon Project were conducted by Pullman on a regular basis beginning in 1972 (Attachment 16) in addition to internal audits. Those audits were conducted to ensure compliance with Specification 8711 and 8833XR. While neither specification specifically references 10 CFR 50, each specifies the criteria to be met by Pullman's QA program. These criteria, in their substance, address the 18 elements of 10 CFR 50, Appendix B. The 1973 PGandE audit specifically found, "M. W. Kellogg's [Pullman's] QA Manual complies with Section 4 [Quality Requirements] of the Specification." The quality requirements for Specification 8711 and 8833XR are identical.

J. R. Manning's memorandum followed the NSC audit of Pullman in 1977 and can be seen as an exhortation that the



prospective corporate audit of the project be in the form of 10 CFR 50 or ASME to guarantee that the Pullman QA program satisfies third party review by NRC or ASME. The NRC Staff in its review of the Pullman corporate audit program determined that, while the elements of the QA program were general, there was "a history of Quality Assurance Program Audits based on checklists following 10 CFR 50 Appendix B criteria" (NRC Inspection Report No. 50-275/83-37 at 7-8).

Contrary to the allegation, it was a PGandE audit, not a Pullman audit, which addressed both piping and rupture restraints. As discussed above, the QA requirements for Specifications 8833 and 8711 are the same.

Contrary to the implication of Allegation #474, the Pullman Diablo Canyon QA program was audited both in hardware and software areas prior to 1978. Subsequent to a 1978 PGandE audit of a Pullman audit (PGandE Audit No. 80422), extensive additional effort was expended just in the hardware area of the Pullman program because of PGandE findings. This additional audit effort is what is referred to by Mr. Manning in his memorandum. PGandE found no reason to require an additional audit effort in the program portion of the Pullman QA program.

Pullman's QA program has been audited since the contract began to the substantive requirements of 10 CFR 50 and ASME. Deficiencies found by the audits by Pullman or PGandE have been corrected, and no further action is required.



It is alleged that:

[The] Field QA/QC manager J. P. Runyan deliberately [sic] falsified QA Personnel Certification Records to give the appearance of compliance to 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 ESD 235 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 [sic]. (6/5/84 Hudson Aff. at 8-9.)

Pullman's QA program was not required to address the newly issued ANSI N45.2.6 as the new standard was not a licensing requirement for Diablo Canyon, Unit 1. Although good faith efforts were made to bring the program into conformance with the ANSI standard, it was unnecessary and impossible to totally do so.

Mr. Runyan categorically denies ever having falsified any QA Personnel Certification records and Mr. Hudson provides no specifics other than his broad-based charge. The actions taken did not violate ESD 235 or ESD 237, ANSI N45.2.6, SNT-TC-IA, or the intent of 10 CFR 50, Appendix B.

ANSI N45.2.6 states that NDE inspectors "need only be certified in accordance with the requirements specified in SNT-TC-IA and



supplements" (See ANSI N45.2.6-1973, paragraph 2.2 and ANSI N45.2.6-1978, paragraph 1.2.) Pullman NDE inspectors at Diablo Canyon have always been certified in accordance with the guidelines of SNT-TC-1A. ESD 235 was written to follow the guidelines of SNT-TC-1A and all NDE personnel have been certified in accordance with this procedure. A certification program for NDE inspectors that complies with SNT-TC-1A automatically complies with ANSI N45.2.6. Accordingly, certification to SNT-TC-1A is adequate for any NDE inspector to perform NDE on pipes, pipe supports, and rupture restraints.

As for the quote from the May 13, 1975, memo, Mr. Hudson once again has failed to accurately interpret clear, concise information to buttress his otherwise unsupported allegation. The two sentences of the quote which show his concern in a true light are:

Even if the money were available, it would be difficult to find qualified people. We are taking the approach of a "qualification based on performance" in a specific job.

Thus it can be clearly seen that: (a) The problem was not solely Pullman's. At this time, there was a shortage of qualified personnel in the industry; and (b) Pullman then chose to follow an alternate course of action which is considered acceptable by ANSI N45.2.6.



Pullman is and was in full compliance with the training requirements of paragraph 2.1.2, "Training," since a training program had been established that included an on-the-job participation requirement. ANSI N45.2.6, paragraph 3.5, states that the education and experience requirements listed in the standard are only recommendations that can "be treated to recognize that other factors may provide reasonable assurance that a person can completely perform a particular task. Other factors which may demonstrate capability in a given job are previous performance or satisfactory completion of capability testing."



H-5

It is alleged that:

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....(6/5/84 Hudson Aff. at 9.)

This allegation is similar to that addressed in H-4. As stated therein, ANSI N45.2.6 was not a licensing requirement or commitment for Diablo Canyon, Unit 1 in this time frame, and thus, there was no need for Pullman to revise its QA manual to reflect compliance with ANSI N45.2.6. However, the Pullman program met the intent of ANSI N45.2.6. There is also no requirement that a QA Manual must reference the ANSI standards.



H-6

It is alleged that:

...PG&E did not revise C.S. #8711 or C.S. #8833XR to direct compliance to ANSI N45.2.6. (6/5/84 Hudson Aff. at 9.)

This allegation is similar in substance to that addressed in H-2, H-4, and H-5. As previously stated, ANSI N45.2.6 was not a licensing requirement for Diablo Canyon Unit 1 nor was there a requirement or commitment in this time frame to meet this standard and hence, there was no need for PGandE to revise Specifications #8833XR or #8711 to reflect compliance with ANSI N45.2.6.



H-7

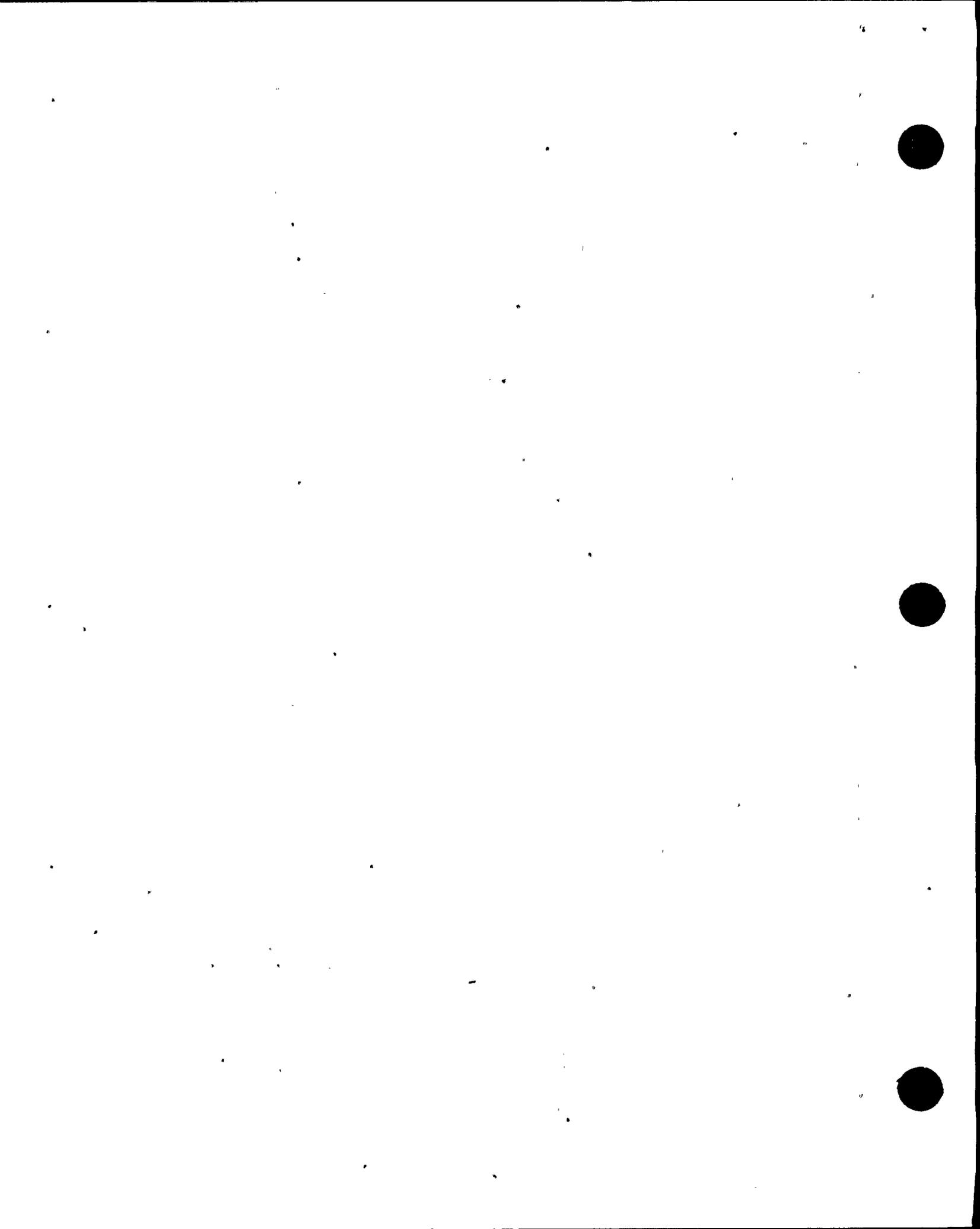
It is alleged that:

...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 10CFR50, Appendix B. (6/5/84 Hudson Aff. at 10.)

It was unnecessary to revise either Specification #8711 or #8833XR which would, in turn, require a change to Kellogg's QA program. The program, in fact, met the intent of Appendix B to the extent possible. As addressed in the response to H-2, the Appeal Board has noted that PGandE was not required to comply with 10 CFR 50, Appendix B.

PGandE did review the specifications to verify the QA requirements. The quality requirements for Specifications 8711 and 8833XR are identical in substance but differ in form. While neither specification specifically references 10 CFR 50, each specifies the criteria to be met by Pullman's QA program. These criteria, in their substance, address the applicable elements of 10 CFR 50, Appendix B. The 1973 PGandE audit specifically found, "M. W. Kellogg's [Pullman's] QA Manual complies with Section 4 [Quality Requirements] of the Specification."

The NRC Staff in its review of the Pullman corporate audit program determined that, while the elements of their QA program were general, there was "a history of Quality Assurance Program Audits based on



checklists following 10 CFR 50 Appendix B criteria" (NRC Inspection Report No. 50-275/83-37 at 7-8).



It is alleged that:

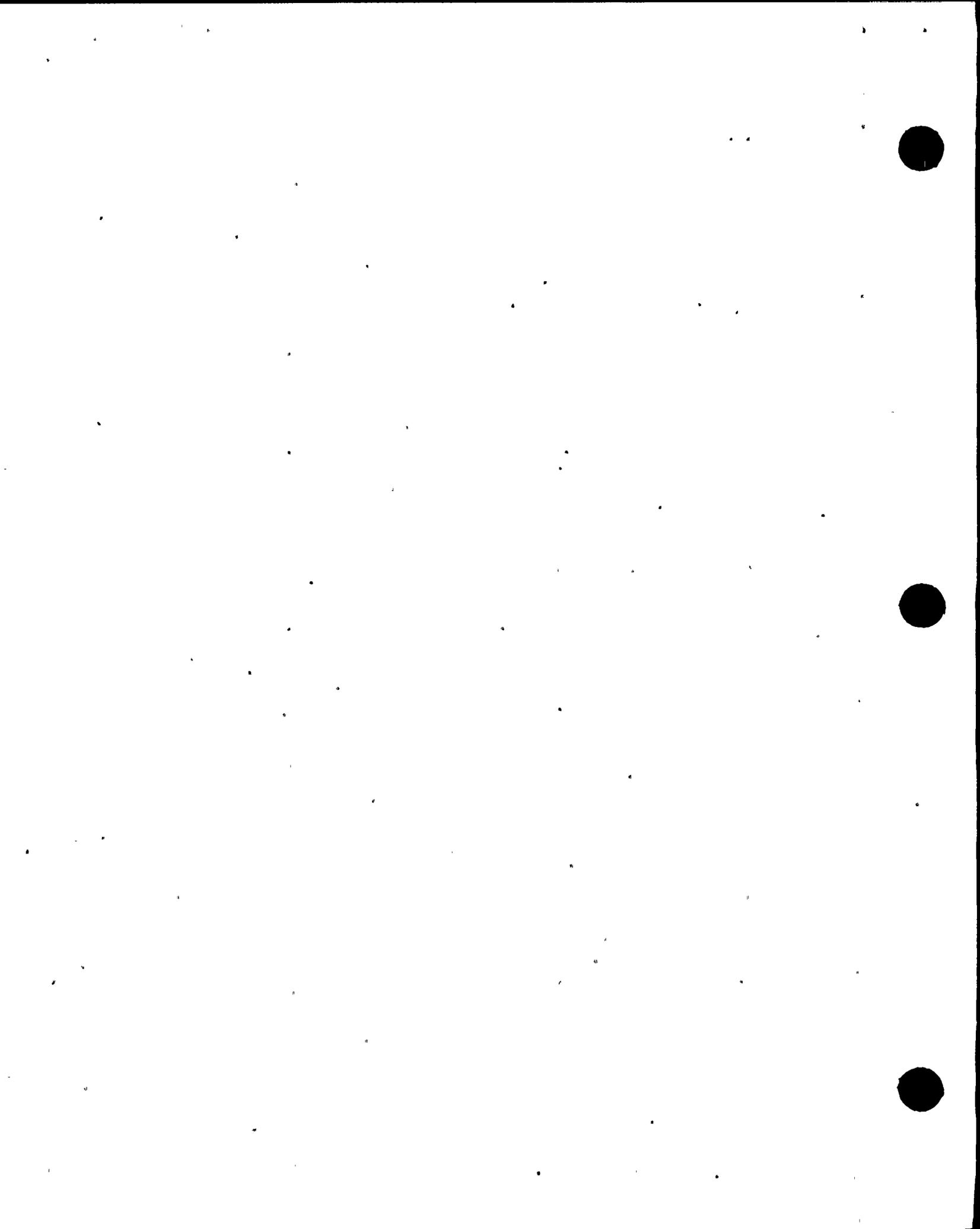
PG&E and Pullman have contended that the Piping construction program which was based on ASME Section III Code requirements meet the intent of 10CFR50, App. B. But the Pipe Support and Pipe Rupture Restraint construction programs were not based on ASME SECTION [sic] III, and were not required by Contract 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 overall Pullman QA program was based on ASME Section III quality assurance requirements, NA 4000. This is evident since ASME had awarded Pullman both an NA and an NPT stamp which require compliance with ASME Section III requirements. The ASME NA 4000 quality assurance program is virtually identical to Appendix B.

In 1973, Pullman developed and issued a quality assurance manual specifically for pipe supports and rupture restraints. This program was developed based on the quality assurance requirements contained in specifications 8711 and 8833XR. The rupture restraint QA manual was approved by PGandE as meeting the requirements in the specifications. As noted in the PGandE QA Audit 73-15, the overall Pullman QA manual complies with the specifications' QA requirements. The quality assurance requirements contained in Specifications 8711 and 8833XR, though different in format, meet the intent of Appendix B.



The rupture restraint QA manual was in compliance with both the overall Pullman QA program, which is based on ASME NA 4000, and is in compliance with the quality requirements of the specifications.

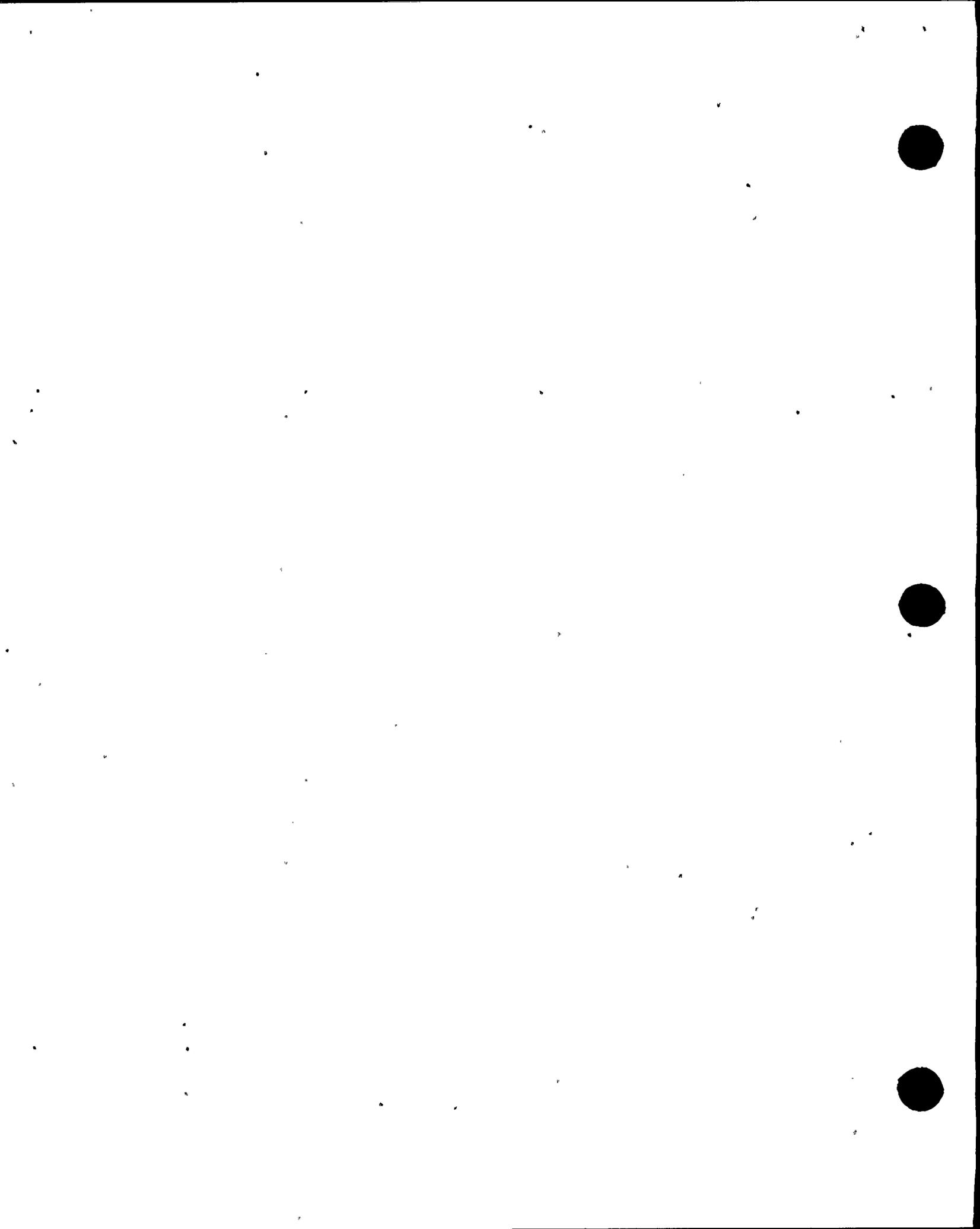


It is alleged that:

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 of 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. (6/5/84 Hudson Aff. at 11.)

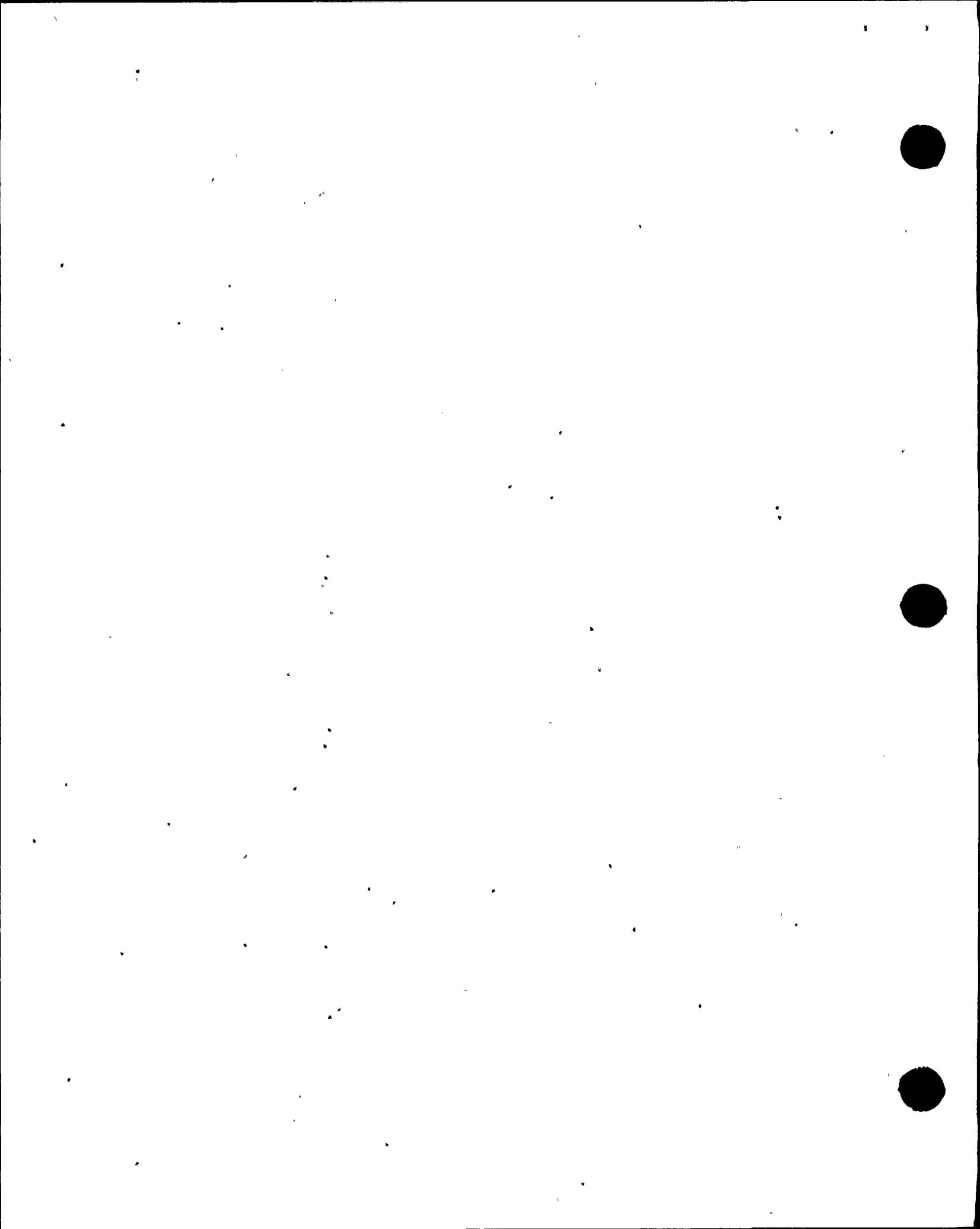
This allegation was previously addressed in PGandE's letter DCL-84-239, dated June 26, 1984. Although the design and construction of Diablo Canyon began in the late 1960s, it wasn't until later that the rupture restraint concept was introduced and retrofitted to the plant. Rupture restraints are similar to, but different from, pipe supports and building frames. Diablo Canyon was on the frontier, so to speak, of an advancing nuclear plant concept. The existence of problems could have been, and was, anticipated, but the specific problems and specific countermeasures could not have been predicted in advance.

The procedures for the welding QA/QC program for rupture restraints initially used the pipe support activity as a role model. Although the original requirements were thought to be appropriate at the time, the rupture restraint activities continued to evolve over time.



Mr. Hudson has chronicled the discovery of several problems and their proper resolution through the QA/QC programs of Pullman and PGandE.

The installation requirements were detailed in ESD 243. This was approved by Pullman and PGandE.



It is alleged that:

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 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. (6/5/84 Hudson Aff. at 11.)

It is very important that QC personnel performing inspections be independent of the work performance so that they can maintain an objective viewpoint. It is also important that crafts receive their technical direction through the appropriate supervision.

To ensure this, the Pullman QA/QC Manager issued instructions reiterating the QA/QC inspectors' role. Although the superintendent expressed a concern, there is no evidence that QA/QC was actually engaged in directing production work, beyond routine, professional discussion of common problems.

As on any job, there is a need for communication between the quality groups and the production groups. Such communication, which may include detailed discussion of what is acceptable and unacceptable and the reasons therefor, does not imply that QA/QC was providing engineering services or directing the production efforts. Having QC inspectors suggest and recommend acceptable practices involving such subjects as preheating and weld sequences certainly does not



inappropriately interject QA/QC into the engineering function. These are valid standard practices, especially during a period such as this when the rupture restraint program was just being implemented. The memos from the QA Manager to the inspectors detailing their responsibilities ensured that any misconception about actual responsibilities on the part of either party would be clarified.



H-11

It is alleged that:

QA 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. (6/5/84 Hudson Aff. at 12.)

The statement about production work being done by QA/QC personnel is pure conjecture. As is discussed in response to H-10, it is known that these personnel discussed common problems with craft personnel and their supervisors. It is also known that QA/QC would subsequently provide standard routine advice such as suggestions about appropriate preheat and weld sequencing. These interactions certainly did not constitute the performance of engineering or construction work. QA/QC simply had no responsibility for engineering or construction.

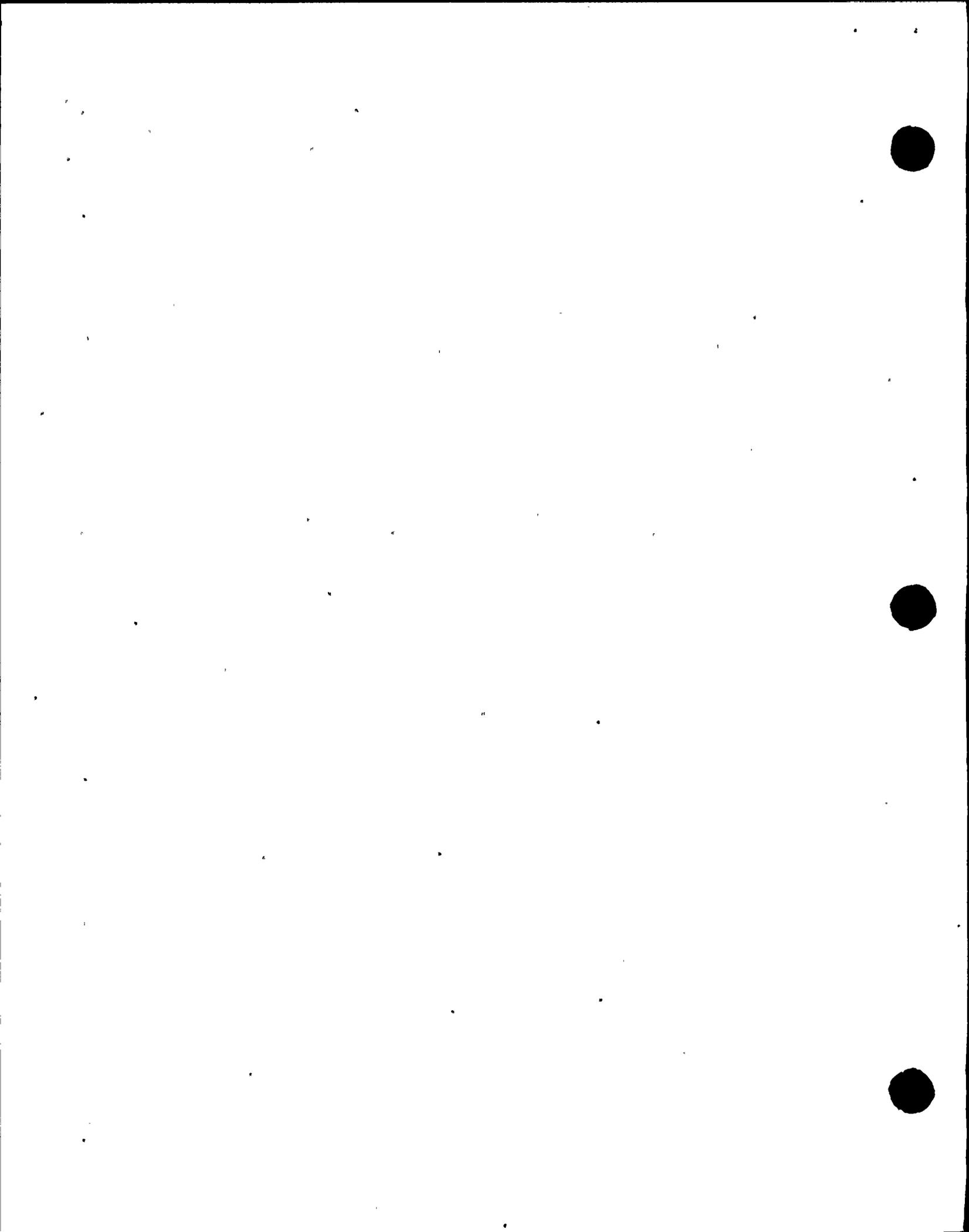


It is alleged that:

The conclusion 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 2 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. (6/5/84 Hudson Aff. at 13.)

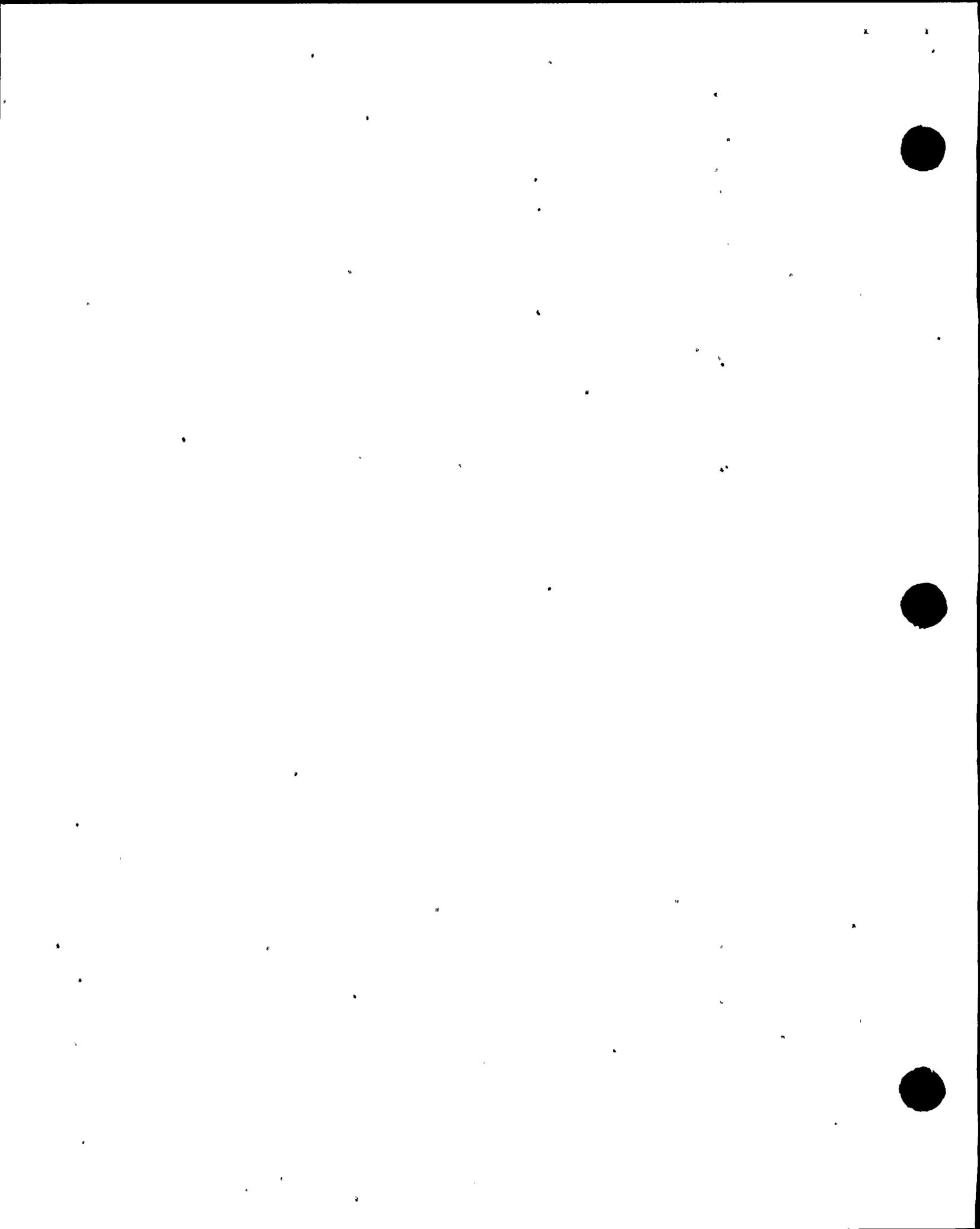
Mr. Hudson has alleged that field weld process sheets used to document the individual weld did not show a date when the welding operation was completed or when a final visual inspection was performed. The desire to include the date when work was completed and the final inspection date was a helpful, but not necessary, idea in the context of the codes, standards, and specifications applicable to the work at that time. The date of the final inspections was available, if desired, from the daily inspection log. As Mr. Hudson's affidavit makes clear, this was not a hardware problem but a suggested procedural change. This suggestion does not have any implications to plant safety.

This allegation also asserts that, although a "problem" with field weld process sheets was identified in an audit in May 1974, it was not until May 1975 that "these concerns would be incorporated into the requirements of ESD 243." However, as Mr. Hudson points out, one



of the conclusions of the audit was "if possible, a date should be shown ." The words "if possible" imply that the change should be made when the opportunity arose and that it was a recommendation, not a mandated change. The sheets were reviewed on this basis and the changes to the process sheets and ESD 243 were made when the opportunity arose. The audit rightly did not indicate that the lack of a date was a violation of the procedure in effect.

Even without the revised sheets, the participation of QA/QC in the rupture restraint effort was anything but cursory. Mr. Hudson himself points out several Pullman and PGandE audits during this time period and numerous follow-up actions. Errors were made, which the QA/QC program identified. This provides evidence that the QA/QC effort was significantly more than "cursory."

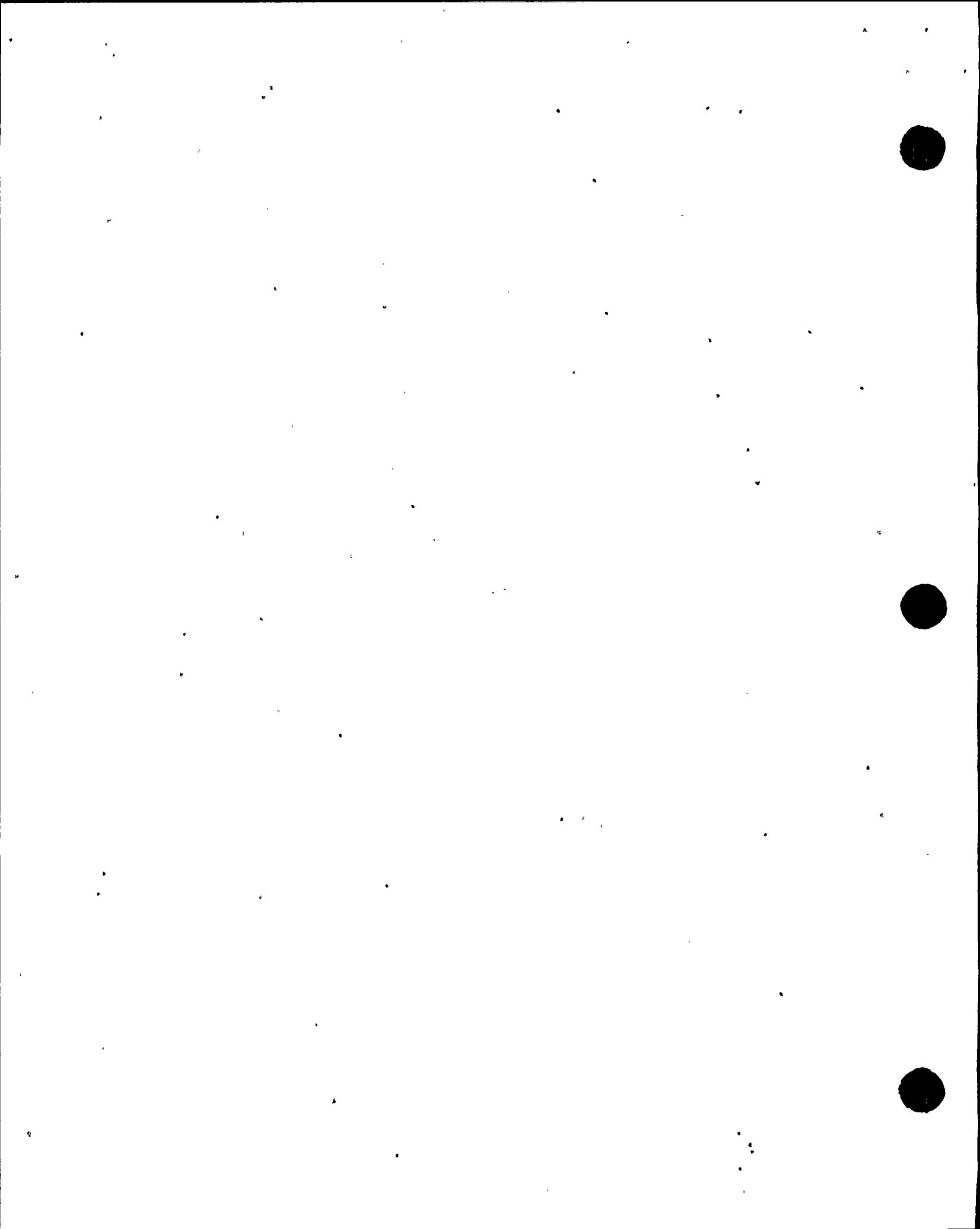


H-13

It is alleged that:

This [Discrepancy Report 2654, dated December 24, 1974] was the first indication that a cracking problem was developing in rupture restraints. Many more similar situations would arise. Many more similar situations will arise. (6/5/84 Hudson Aff. at 13.)

Mr. Hudson has identified an indication of laminar tearing in base material, not weld cracking as the allegation alludes, and this was documented appropriately on a DR. Mr. Hudson is wrong in implying generic significance to this distinct problem. This condition, discovered by QA/QC, was not related to the weld cracking problem identified subsequently. In effect, Mr. Hudson's statement supports the conclusion that the basic QA/QC program was functioning properly and did document the problems discovered.



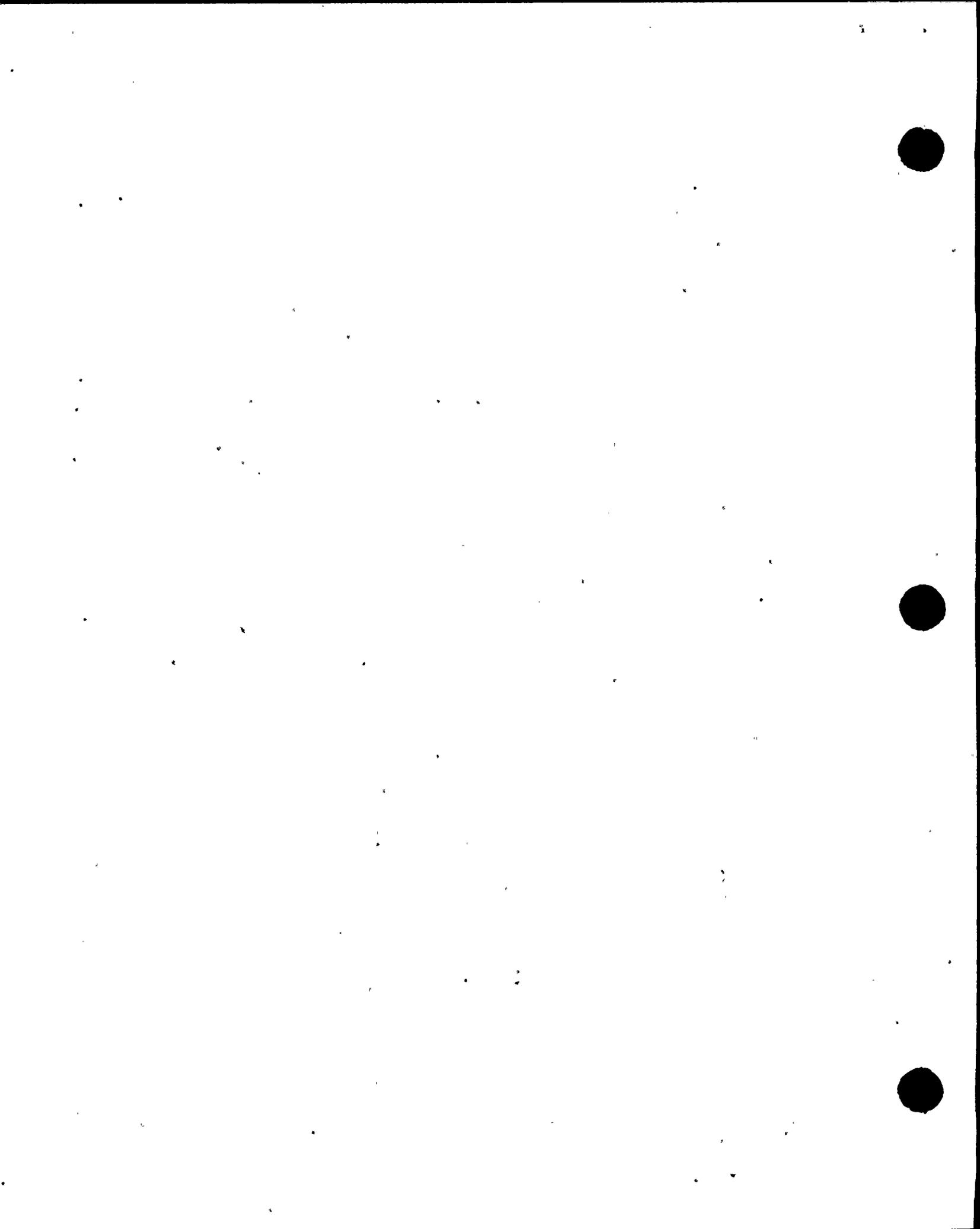
H-14

It is alleged that:

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. (6/5/84 Hudson Aff. at 15.)

Mr. Hudson has cited an example of process sheets on one restraint which apparently did not comply with the ESD requirements which had been issued 11 months earlier. Mr. Hudson does not identify any special significance or the specifics of this discrepancy. Based upon his allegation, there is insufficient information to make a specific response.

The discrepant documentation issue for rupture restraints was identified by PGandE and resolved through NCR DC1-79-RM-003.



H-15 and H-18

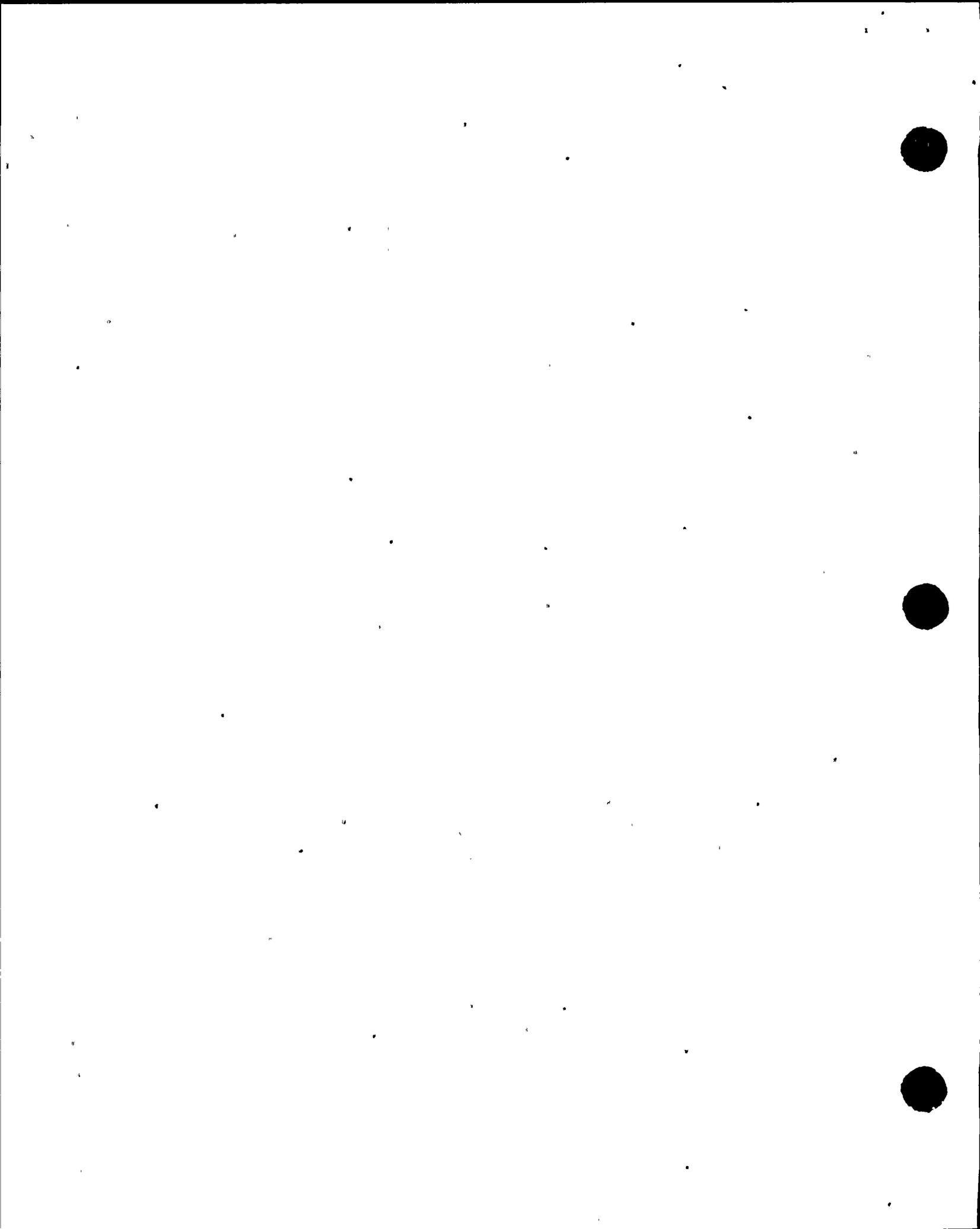
It is alleged that:

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 layout drawings and actual field conditions would not match and the QA/QC dept. would perform a restamping program to make them match. (6/5/84 Hudson Aff. at 15-16.)

Beside the weld cracking problem there would also be a problem in identifying welds after they were made.... [T]he 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. (6/5/84 Hudson Aff. at 18.)

As regards weld numbers, Mr. Hudson focuses on form rather than substance. The initial weld numbering system did not provide the detail which was subsequently determined to be desirable. The retrofitting of an identification system which met all the new needs was a difficult task but was deemed of value. The fact that a new identification system was installed is another documented, positive accomplishment of the QA/QC program. The concern for weld stamping/restamping does not address hardware or safety. It is simply a documentation concern which was appropriately addressed.

The jobsite requirement for welder identification in relation to rupture restraint welds was another self imposed requirement in excess of code requirements. The AWS Code does not require individual welds to be stamped for welder identification. The important feature was, and is, that the welders were qualified for

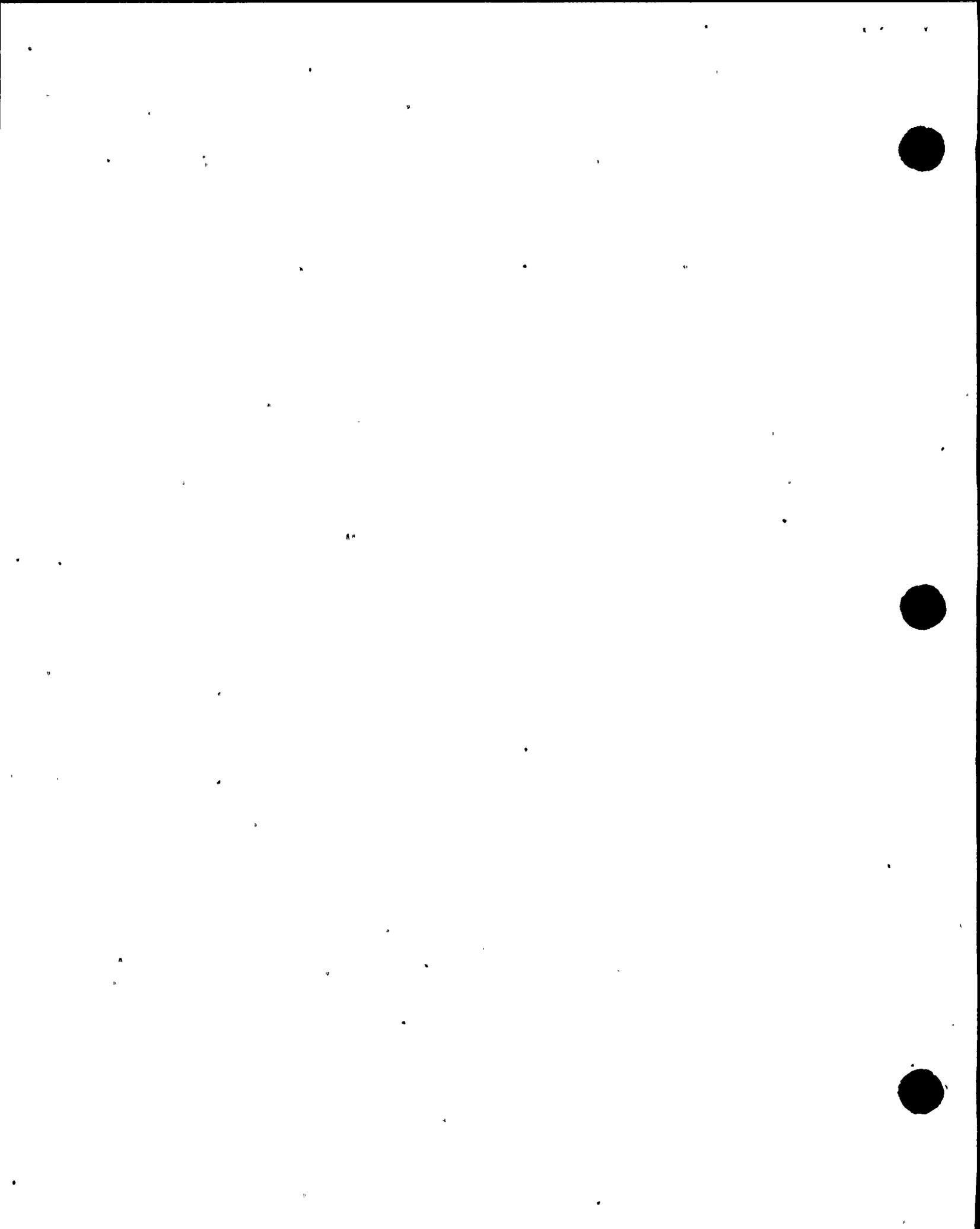


the work that they were assigned to perform. Identification of specific welders on the process sheets in relation to weld joints does not improve quality; likewise, initiation of the restamping program was nice, but not required. Failure to stamp welder identification constituted a procedural deviation, nothing more.

The subjects of process sheet identification of welders and the Kellogg restamping program have been previously discussed in PGandE's response to NRC Allegation #469 which was forwarded by PGandE letter DCL-84-195, dated May 29, 1984. That response stated:

278. Prior to 1979, Pullman used a single process sheet for multiple weld joints located at the same connection. Restraint numbers were clearly identified, as was the connection number. The connection number consisted of a field weld number (FW) and a letter designation. Standard process sheets were issued. The restraint and connection numbers (weld number and letters) were filled in, and each designated process was inspected and accepted by a qualified QA inspector on an individual basis.
279. The practice of multiple designation has been changed for purposes of improving workability and traceability, such that an individual process sheet is used for each individual weld. Both practices, however, are in accordance with the applicable approved procedures and requirements.

Neither of these issues reflect any potential adverse impact on safety at Diablo Canyon.



H-16 and H-17

It is alleged that:

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 (Restraint) Inspectors which in effect ordered inspectors to perform engineering duties. (6/5/84 Hudson Aff. at 17.)

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. (6/5/84 Hudson Aff. at 17.)

The October 23, 1975, memorandum referred to by Mr. Hudson did indicate "weld cracking in restricted joints." However, this problem was different from that identified in H-13.

Three of the five suggested actions indicated in the October 23, 1975, memorandum are clearly QA/QC functions. Of the other two, Item 1 suggested higher preheats and Item 3 recommended weld sequences, both of which were standard, good advice. They did not interject QA/QC into the engineering function.

The October 23, 1975 memorandum is, in fact, the suggestion of the QA/QC manager to inspectors reinforcing their existing in-process activities. Mr. Hudson is in effect complaining about an effective positive QA/QC activity.



Contrary to the allegation, the October 23, 1975, memorandum did not make inspectors responsible for engineering. The memorandum does not mandate inspector action but states that "you should take the following action." The memorandum also makes it clear that the only required action by the inspectors was their QA activities.

There may be an apparent conflict between the two memoranda issued at different times by two different QA/QC managers. Notwithstanding, there is no safety significance to this allegation because all rupture restraint welds were reinspected in subsequent reviews.



H-19

It is alleged that:

Field records used were "Daily Inspection Logs" and process sheets. These 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. (6/5/84 Hudson Aff. at 19.)

As indicated in the responses to H-15 and H-18, weld identification/stamping is of minimal significance. It is not a code or regulatory requirement. This activity does not improve hardware or quality and does not adversely impact safety. The procedural problems discussed by Mr. Hudson resulted in the implementation of a revised identification program. All welds can be properly located using the field layout drawings.



It is alleged that:

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. (6/5/84 Hudson Aff. at 19.)

The question of the use of "white.out" was previously addressed in PGandE response dated March 19, 1984, to JI Motion to Reopen on CQA, Arnold, et al. Aff. at 21. This concern arose out of Mr. Hudson's misunderstanding about the use of UT machines. The response stated:

The preprinted Data Report used during this time period identified two UT machines (a Nortec and a Branson unit). The record keeping technique was to either line through the unit not used or circle the unit which had been used on data sheet. Neither a line nor a circle appears on 19 data reports, thereby failing to indicate which unit was used. However, the Nortec unit was only used during procedure development, not to collect actual wall thickness data. Therefore, the Branson unit was applied in all cases identified by Mr. Hudson.

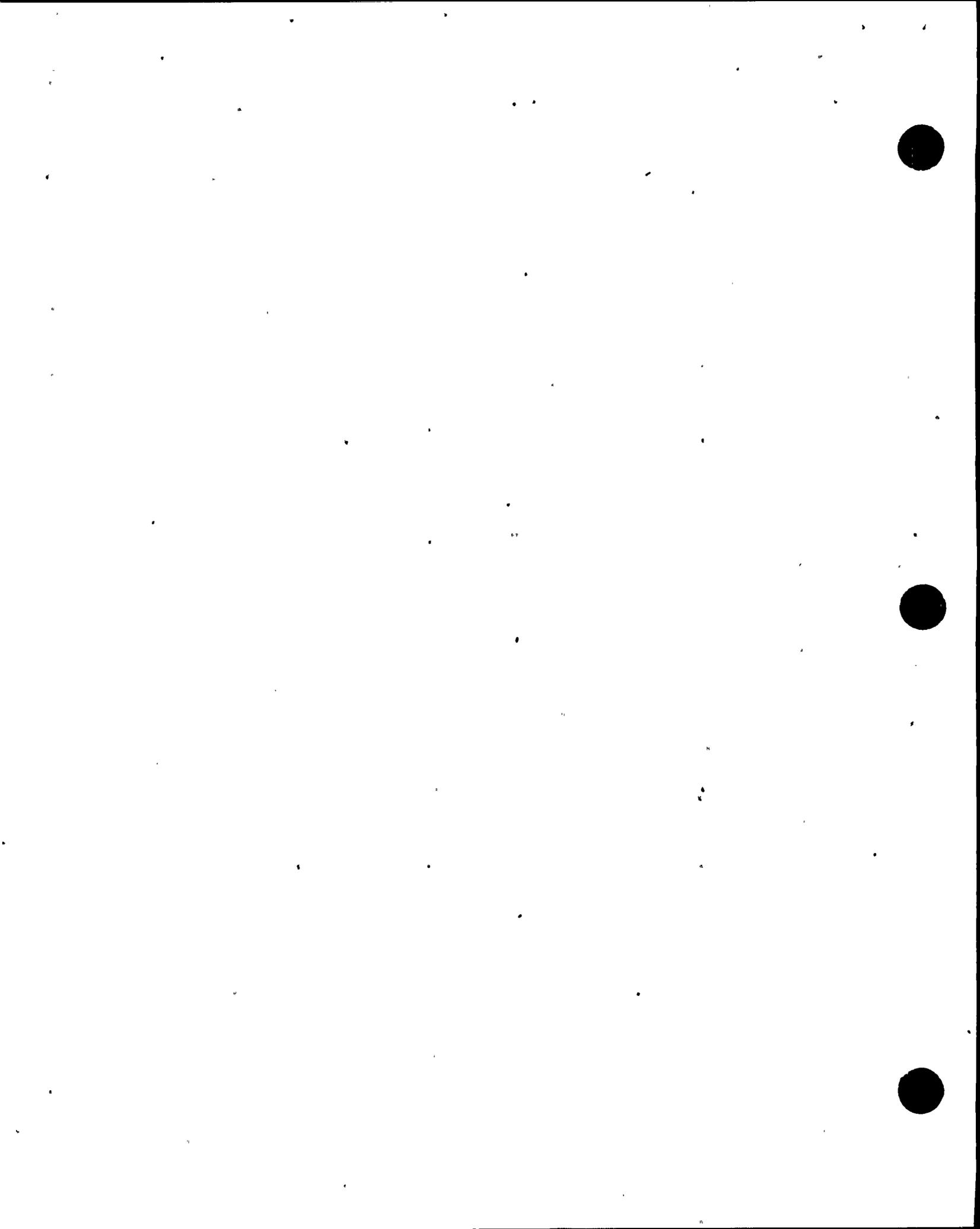
The minor documentation discrepancy is of no substance, since only one machine was actually used. Even this discrepancy which has no technical significance was caught and resolved satisfactorily, thereby demonstrating a fully functioning QA program.

The second aspect of this allegation relates to questionable serial numbers on valves. The two valves Mr. Hudson identified have been physically checked by PGandE, and the serial numbers do indeed match the Data Report serial numbers and are traceable.

Mr. Hudson was correct regarding use of white-out on the reports. White-out was commonly used for correcting clerical or transcription errors on



paperwork by Pullman Power Products prior to 1974 and it did not seem to pose any credibility problems at the time. This practice was prohibited in the mid-1970s.



H-21

It is alleged that:

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. (6/5/84 Hudson Aff. at 21.)

The entire subject of the proper use of Weld Procedure Specification 7/8 at Diablo was initially addressed in PGandE's response to JI's Motion to Reopen on CQA, dated March 19, 1984, Breismeister, et al. Aff. at 13-16. The details of that response are given in response to allegations H-49, H-50, H-51 and H-52, infra. It has been shown that this allegation is not supported by the facts and is of no consequence.



It is alleged that:

Revision #7 to ESD 243, dated 6-10-76 was a direct result of the PGandE 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 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. (6/5/84 Hudson Aff. at 21.)

Prior to 1976, specific preheat and interpass temperatures were included, by reference, on process sheets. There are no requirements that a welding procedure must cross reference other installation procedures. ESD 243 was approved by both Pullman and PGandE, and the procedure was in controlled distribution and in use and the process sheets referred to both the WPS and ESD 243.



H-23 and H-24

It is alleged that:

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. (6/5/84 Hudson Aff. at 22.)

A problem would arise with process sheets referencing Code 7/8 but rod requisition referencing Code 92/93. Production and QC substituted Code 92/93 for Code 7/8 to expedite the construction process. (6/5/84 Hudson Aff. at 22.)

These issues were addressed previously in PGandE's response to JI's Motion to Reopen on CQA, Geske Aff. at 1-5. This response stated:

1. The allegation that welder qualification was indeterminate is incorrect. The example given, that welders qualified under ASME WPS 92/93 performed rupture restraint AWS work under WPS 7/8, does not state all the facts. Mr. Hudson incorrectly implies that the work was performed to a different WPS than was specified on the process sheet. The following fully explains the Pullman program with regard to rupture restraints.
2. The Pullman welders were qualified using a ASME IX groove weld test, which qualified the welders to perform welding using either WPS 7/8 or 92/93. As discussed in response to JI #8, this test would qualify a welder for AWS D1.1 welding.
3. Pullman further restricted the welders' qualifications beyond the code requirements on the basis of their skills. One restriction was to not allow certain welders to make pressure piping welds. These welders were restricted to using WPSs such as 92/93, even though they were qualified by code to use WPS 7/8, or another WPS, for both groove and fillet welds.
4. During the mid-1970s, a number of welders with these non-code and management imposed restrictions upon their qualifications were used



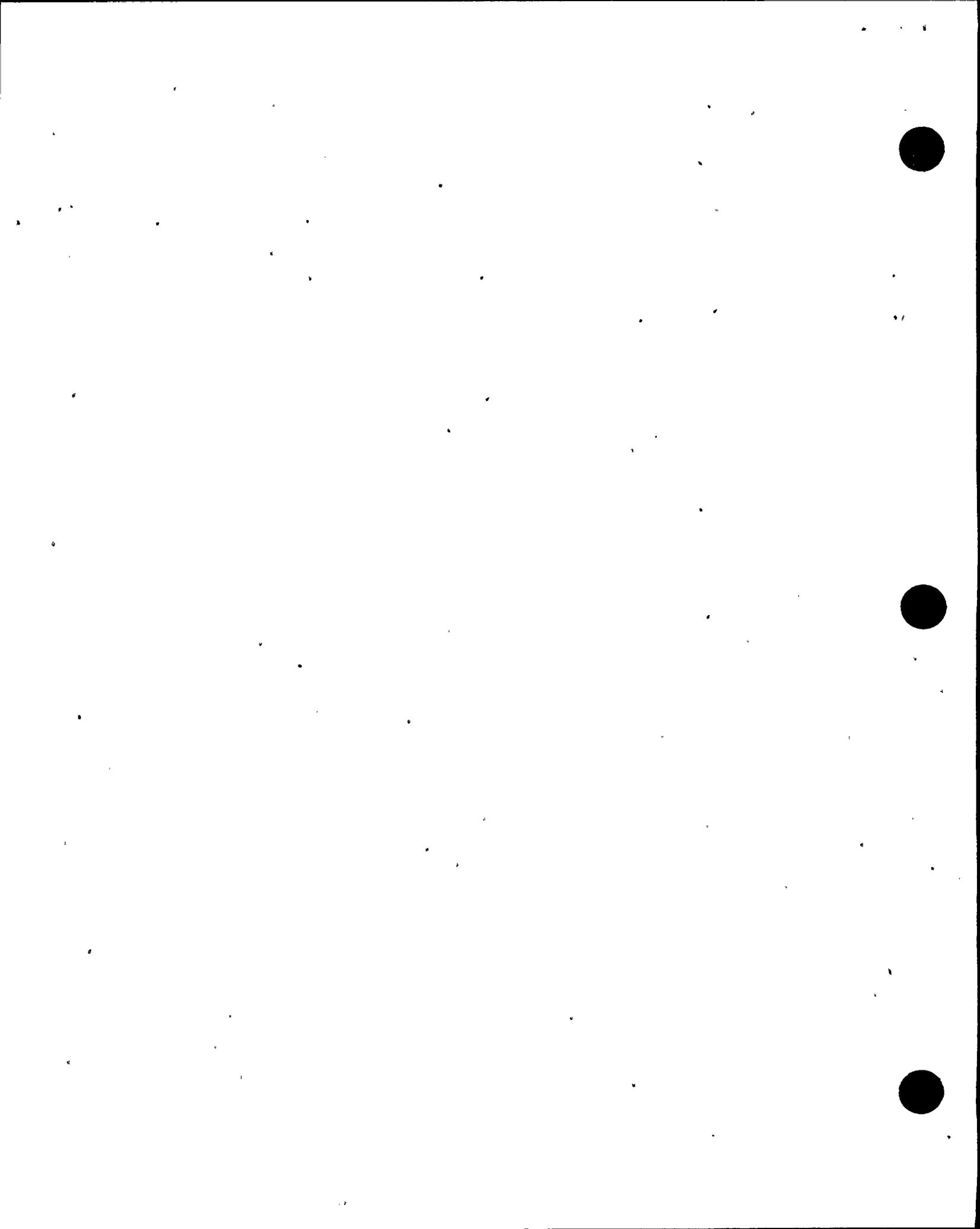
to complete rupture restraint welds and other non-pressure boundary welds.

5. Because these welders were restricted from receiving weld rod for use with WPS 7/8, weld rod was issued to these welders on requisitions indicating WPS 92/93, even though the process sheets specified WPS 7/8. Although the welder was, in fact, fully qualified by code to make these welds, the restriction imposed by Pullman on his qualifications resulted in documentation inconsistencies. Reference to 92/93 was a method to issue weld rods to these welders restricted from pressure boundary work. In all cases, the welders were appropriately qualified and the welding was performed in accordance with WPS 7/8, as required by the process sheets.
6. The memorandum of August 15, 1978, was developed to explain the use of WPS 92/93 on the electrode withdrawal forms compared with WPS 7/8 in process sheets where the specific welder qualification problem was encountered. This letter was not an authorization to deviate from process sheet requirements, but rather was an explanation for the differences which were encountered in a review of the documentation.
7. Additional information supporting the qualification of welders during this time period is found in NRC Inspection Report 50-275/83-37 dated February 29, 1984. After extensive investigations by the NRC stemming from the allegations regarding the 1977 NSC QA audit of Pullman, no noncompliances were identified relating to welder qualifications.
8. The welder qualifications were not indeterminate; there was no switch in welder assignments. All welders were properly qualified with groove weld tests.
9. The memorandum of August 15, 1975, did not authorize a switch because there was no switch. It attempted to record obvious documentation inconsistencies and to put these into proper technical perspective. No approval, review, or specification change was required. Mr. Hudson apparently is concerned because he did not fully understand the program in effect at that time.



10. Pullman did not substitute WPS 92/93 for WPS 7/8 indicated on the process sheet. Reference to 92/93 was a convenience to allow these welders to draw electrodes.
11. The record of work performed was correct. Welding was done to the requirements of WPS 7/8 as shown on the process sheet. The electrode withdrawal records did not show the WPS the work was performed to, but are an accurate record of the material requisitioned.
12. There is absolutely no safety significance to these documentation inconsistencies because the welders were adequately qualified in accordance with code requirements to make welds on the rupture restraints and the correct welding electrodes were used.

Mr. Hudson inaccurately describes the purpose of the WPS and how it was used. This allegation has no merit.



H-25 and H-26

It is alleged that:

Paragraph 3.3 of ESD 219 concerning "Pre-Heat temperature" states "the minimum pre-heat temperature on this project is 500F. If the air or metal temperature is below 500F, 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. (6/5/84 Hudson Aff. at 23.)

...[W]all 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. (6/5/84 Hudson Aff. at 23.)

This allegation is true but is of no concern. Mr. Hudson accurately points out the need to preheat if the ambient temperature is below 500F, and the Internal Audit #80 did point out that there were no wall thermometers evident in the power house. The corrective action of ordering thermometers was implemented as indicated. Whether the environmental preheat is 500F or 400F makes essentially no difference. The 500F environmental temperature has little technical significance for the materials, thicknesses, and filler materials which apply to Diablo Canyon. As is a common practice, restraints were flame dried prior to welding. In addition, the heavy sections which are involved in the rupture restraint program require 1500F preheat or more. When it is remembered that Diablo Canyon is



on the central California coast, where the ambient temperature seldom goes below 50°F, the concern for documenting a 50°F (versus 40°F or 60°F) ambient preheat is of little importance. Because this item has no technical significance, removal of this requirement from the ESD in the next revision is contemplated.

Finally, it should be pointed out that Mr. Hudson did not, in either of his audits, identify any welds that were being made with the temperature of the base material less than 50°F. Surely if a 50°F temperature was not being maintained Mr. Hudson would have included this as an audit finding.



It is alleged that:

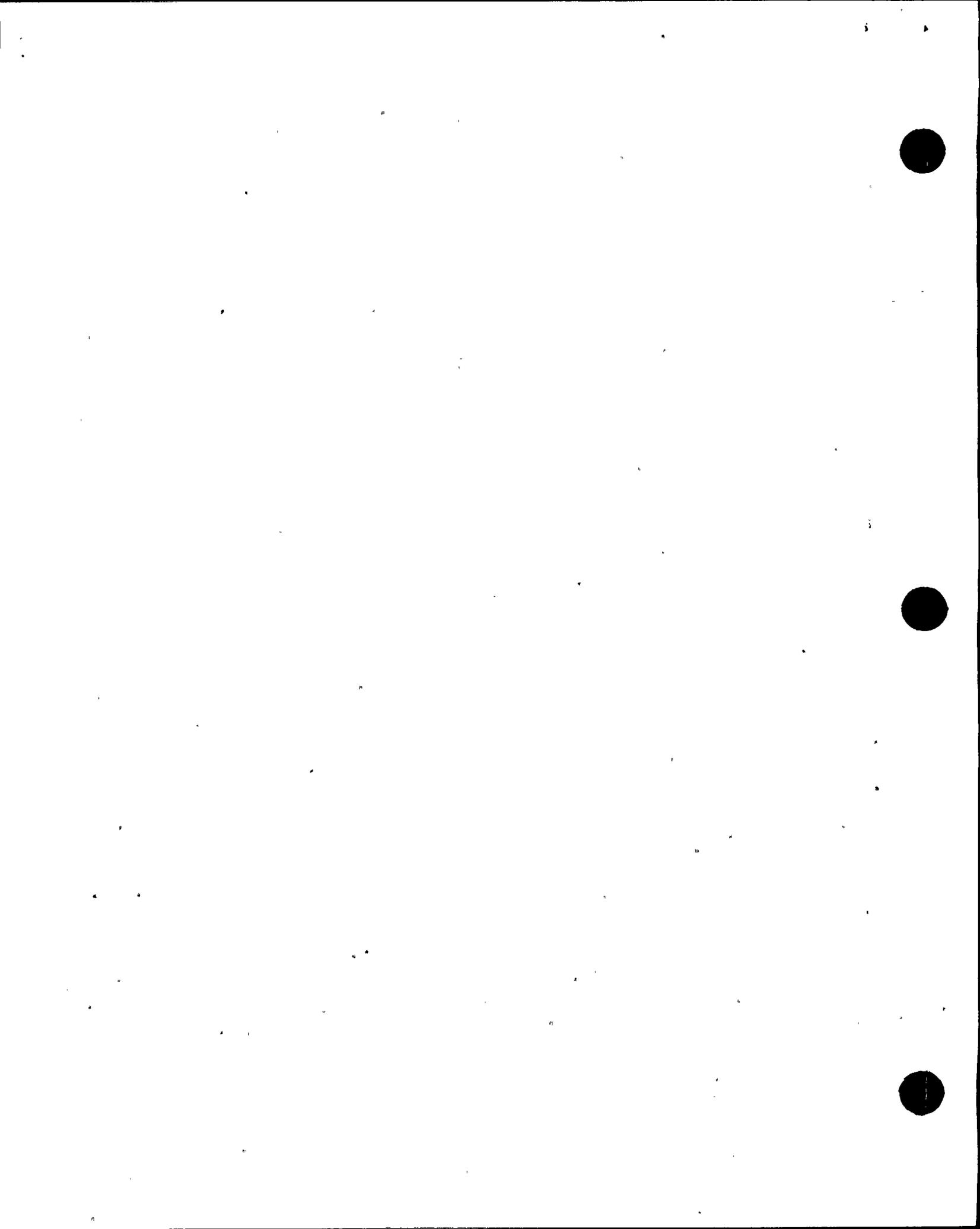
On 10-7-76, DR#3295 and PG&E DR#M-3192 would report 1200 welds to "rupture restraint structure members" without the application of the required preheat. The welds involved attachments such as temporary lifting eyes, nuts and bolts, shims, rod eyes and hinges. The weld sizes ranged from single pass 1/8" 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. (6/5/84 Hudson Aff. at 24.)

As reported by Mr. Hudson, a concern was raised about the application of preheat for 1200 minor and temporary welds to rupture restraint structural members. A representative sample of more than 25% of these welds was subsequently reinspected with magnetic particle tests and shown to be satisfactory. The disposition of these welds was addressed in PGandE's letter DCL-84-239, dated June 26, 1984, which stated:

Mr. Hudson continues to reiterate inconsequential issues in regards to the acceptance of minor and temporary attachments welded to rupture restraints. This issue was addressed in PGandE's response to NRC item #464 (DCL-84-195). Mr. Hudson fails to recognize these were not the kinds of welds which were cracking, that engineering analyses indicate that these welds were not a concern in and of themselves or in relation to the rupture restraints, and he fails to accept the significant fact that a sample of more than 25% of the 1,200 welds was examined and accepted. The acceptance of the remaining minor and temporary welds without NDE was appropriate.



Thus, the issue was resolved in a satisfactory manner. Any further welding was performed in accordance with approved procedures.



H-28, H-30, and H-31

It is alleged that:

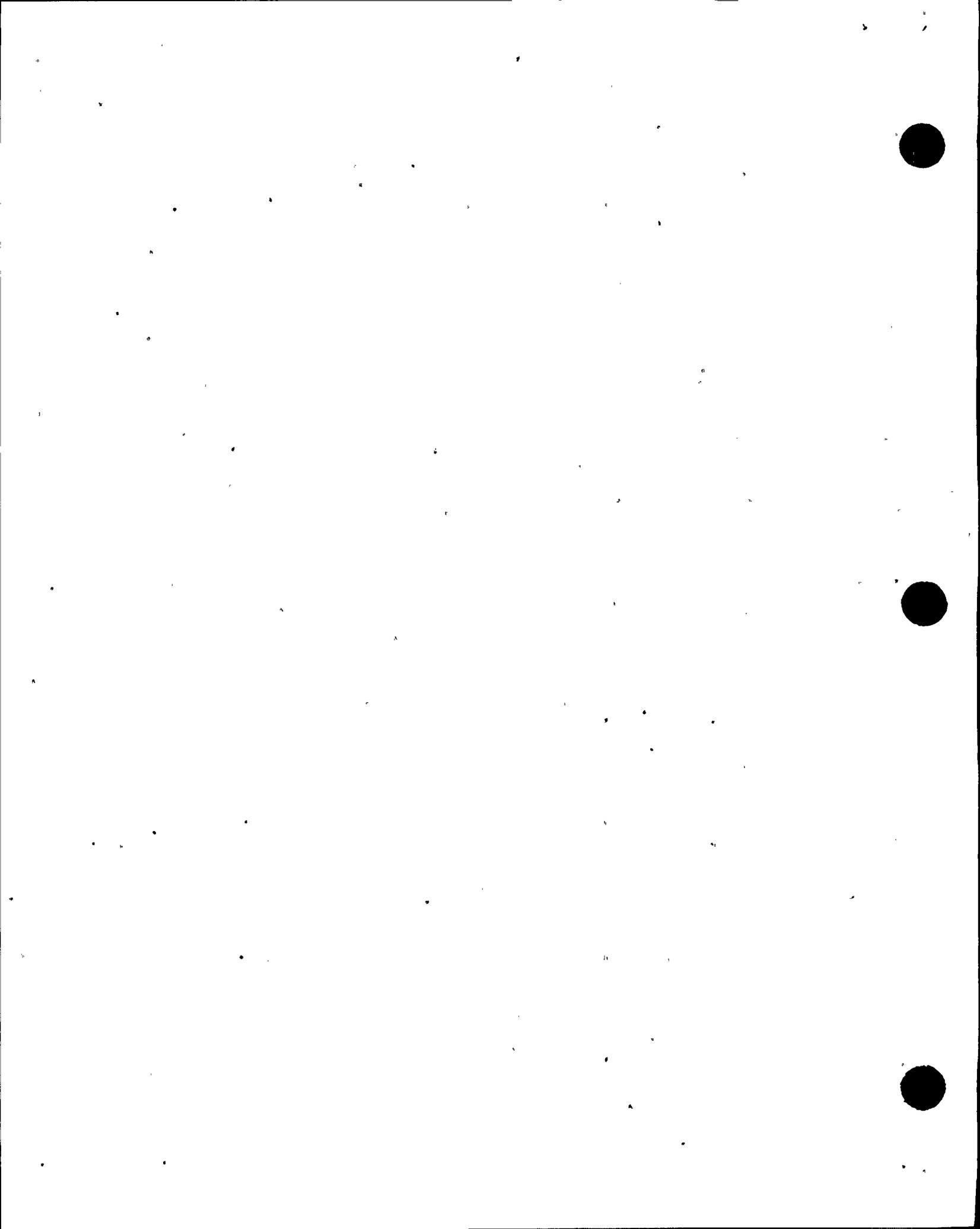
Inspector Mullis was a scapegoat to cover up bigger problems. Inspector Mullis cannot be excused for N/A'ing a final inspection point, but what about extenuating circumstances? Inspector Mullis was doing more than just QC inspection work. In the Unit #1 GE, GW and piperack areas, Inspector Mullis was performing engineering and drafting work with the approval of Pullman (Kellogg) QA/QC Management and Production Management. (6/5/84 Hudson Aff. at 26.)

...Inspector Mullis did As-Built drawings of 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. (6/5/84 Hudson Aff. at 27.)

Inspector Mullis was fired for NA-ing an inspection point, yet QA/QC Management on two occasions stated it was okay for an inspector to do so. (6/5/84 Hudson Aff. at 27.)

It is Mr. Hudson's opinion that Mr. Mullis, a Pullman QC inspector, was engaged in engineering and drafting activities. Contrary to the allegations, Mr. Mullis did not prepare engineering drawings. The fact is that Mr. Mullis did make inspection sketches to locate the field welds being installed. These were not design or installation drawings but merely used as an aid for weld location. Nowhere is there evidence that Management directed or gave approval for Mr. Mullis to do any engineering functions.

This series of allegations about Mr. Mullis, was, in part, previously



addressed in PGandE's response to GAP III allegations dated May 29, 1984. The response in reply to NRC Allegations #467 and #468 indicated that:

276. Mr. Mullis was never a field engineer for Pullman. He was hired and acted solely as a QC inspector. Contrary to the allegation, the drawings referred to are not design drawings. The first drawing was prepared by Mr. Mullis and was merely a sketch that located field welds as an aid to QC inspection. There are no weld symbols on this sketch. The second drawing, which is dated July 7, 1982, was not prepared by Mr. Mullis but rather by Pullman Engineering. The drawing states on its face, "Welds on this sketch are identified individually for walkdown and subsequent work identification."

Mr. Mullis was terminated for his failure to follow established procedures. His "N/A-ing" of a final inspection point contributed to that decision. Management had never authorized this practice. While it was acceptable to use "N/A" for a specific in-process inspection point for a specific fabrication, it was not acceptable to use "N/A" for a final inspection point for permanent plant work. The distinction between non-applicable in-process points and failure to perform a final inspection is obvious.



H-29

It is alleged that:

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? (6/5/84 Hudson Aff. at 26-27.)

This allegation is virtually identical to that raised as Allegation H-16 and the response thereto is equally applicable here.

1770d



H-32

It is alleged that:

On 6-21-1979 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. (6/5/84 Hudson Aff. at 29.)

NCR #DC2-79-RM-011 was written by PGandE General Construction to question whether similar deficiencies might exist in Unit 2 as had been documented by NCR #DC1-79-RM-010 for Unit 1. Contrary to the viewpoint espoused by Mr. Hudson in Allegation H-1, this is a prime example of the QA program functioning properly to identify any similar conditions that might exist in the two units.



It is alleged that:

In May 1979, Pullman would issue a special welding procedure to make the weld repairs. Welding technique Specification # AWS 1-1 was formulated to clarify the technique for application of weld code 7/8 procedure as applied to AWS welding only. AWS 1-1 and other similar techniques were based on PG&E recommended procedures 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. (6/5/84 Hudson Aff. at 30.)

The repairs of restraints were generally in thick material. This, coupled with the fact that the structures were already assembled, produced unique problems which were not universally applicable. The heavy section field welds in which cracks had been found were evaluated by Engineering to determine the significance of the defects to help understand their impact on the functioning of the rupture restraints. This evaluation identified the welds that required repair and detailed a specific repair procedure.

The general rupture restraint construction program was upgraded in 1979 to incorporate the experience gained during the repair program.



H-34

It is alleged that:

Prior to 1979 rupture restraint welders had been qualified to the ACME [sic] Section IX code. As a result of the crack repair program welders would now be required to qualify to the AWS Code requirements. (6/5/84 Hudson Aff. at 30.)

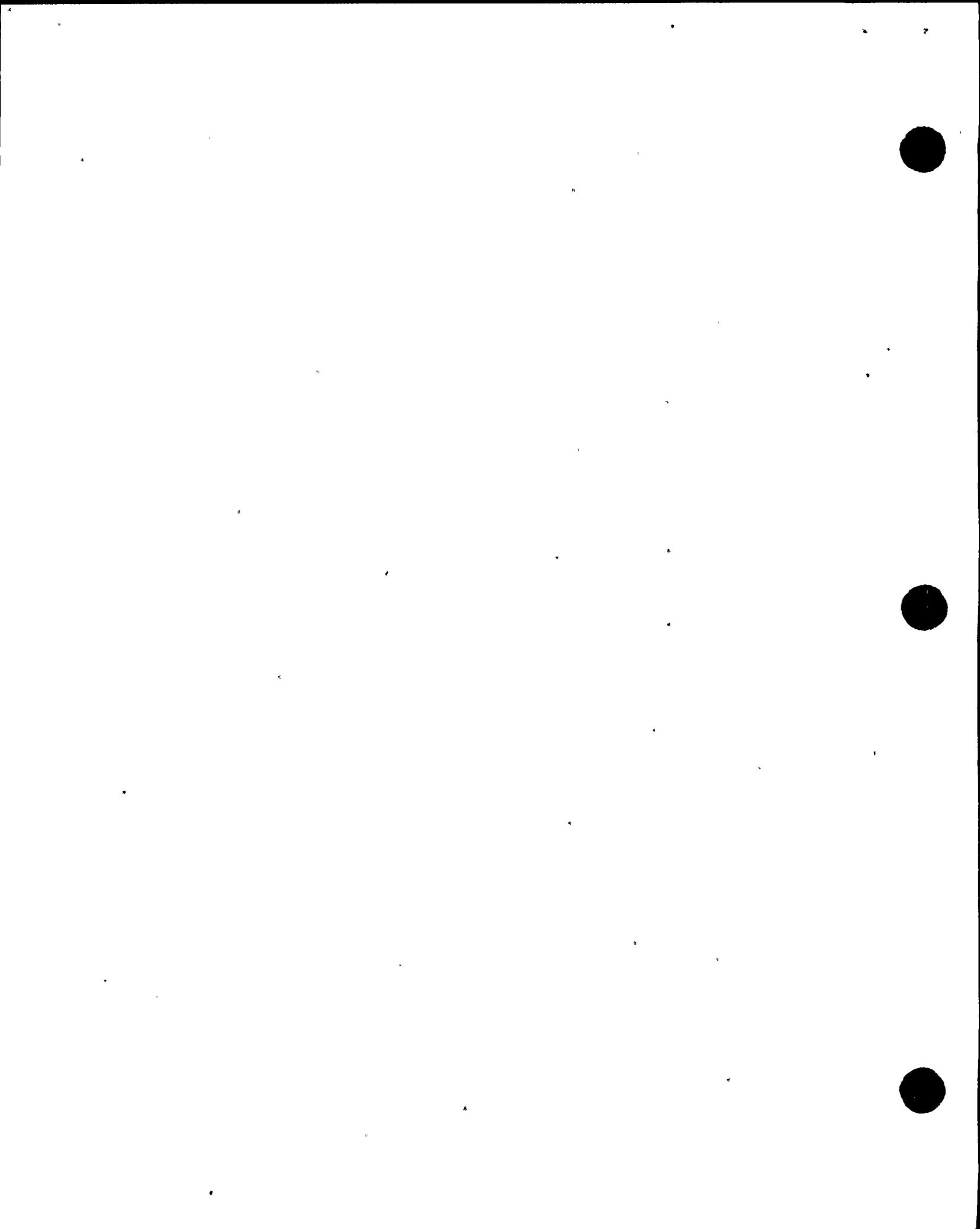
Either ASME or AWS qualified welders are acceptable to perform rupture restraint welding. The requirements of ASME and AWS are almost identical as regards welder qualification. This was addressed in PGandE response dated March 19, 1984, to the JI's Motion to Reopen on CQA, Breismeister, et al. Aff. at 1-7.



It is alleged that:

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 1/2" 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 1/2" 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. (6/5/84 Hudson Aff. at 31.)

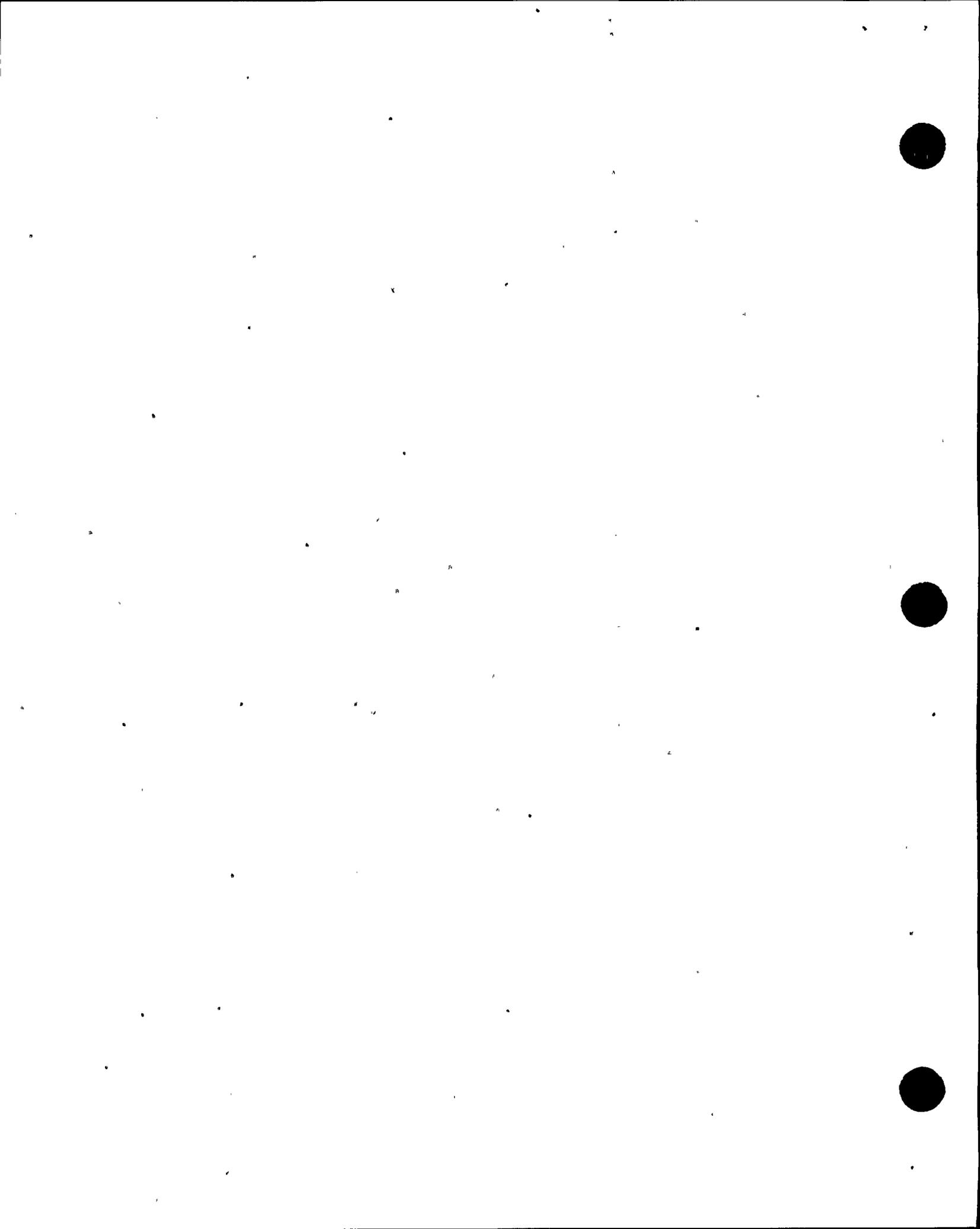
Mr. Hudson is correct in that PGandE initially did not require Pullman to perform magnetic particle examination (MT) on partial penetration welds less than 1/2". This deficiency was documented and it was required that QAI 143 be revised. PGandE then instituted a reinspection program to identify the partial penetration welds that were not MT'd. MT was then performed on all partial penetration welds less than 1/2". This issue is moot. There is no further corrective action required.



It is alleged that:

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. (6/5/84 Hudson Aff. at 31.)

Contrary to the allegation, PGandE did not provide Pullman with conflicting procedures for magnetic particle testing. The apparent conflict about which Mr. Hudson complains is that the yoke method was specified as the preferred method, but that PGandE's Department of Engineering Research (DER) had used the prod method during the investigation of the repair program. PGandE General Construction directed Pullman to also use the prod method to more easily correlate the results. Mr. Hudson's audit simply identified an item that was subject to question and which was subsequently clarified in writing. Either method, yoke or prod, has been determined by DER to be acceptable for detecting surface indications.



It is alleged that:

PG&E would direct Pullman to use a PG&E ultrasonic procedure #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 [sic] welds. This conflict between C.S. #8833XR requirements and PG&E VT [sic] 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. (6/5/84 Hudson Aff. at 31-32.)

The subject of ultrasonic examination (UT) of rupture restraint welds less than 9/16" thick was addressed in the PGandE response, dated March 19, 1984, to JI's Motion to Reopen on CQA, Arnold et al., Aff. at 14-16:

40. Beginning in late 1978, when PGandE identified a weld cracking problem in Pullman full penetration field welds on rupture restraints, PGandE conducted an extensive program to determine the cause and to formulate corrective action. This program was first documented on nonconformance report DC1-RM-78-008 dated October 3, 1978, and reported to the NRC.
41. In mid-1979, PGandE's Department of Engineering Research (DER) conducted a thorough investigation and metallographic study of the welds as part of the rupture restraint field weld repair program. DER and PGandE Engineering Department made specific changes in welding and inspection procedures to assure weld quality. The single most important change was to add the requirement for magnetic particle examination (MT) after completing full penetration welds on all thicknesses. This change was included in Revision 13 to construction specification 8833XR on August 24, 1979 (see Exhibit 6, attached). In conjunction with this change, the minimum thickness



requirement for UT examination of full penetration welds was raised from 5/16" to 9/16" by issuance on May 31, 1979, of PGand E UT Procedure DER 3523, "Manual Ultrasonic Examination of Welds and Plate in Pipe Rupture Restraints." Pullman was provided with, and instructed to use, Procedure DER 3523.

42. PGandE engineering revised specification 8833XR to make the important addition of MT examination to the weld inspection requirements but inadvertently overlooked revising the specification to exclude a requirement of UT examination on all full penetration welds thinner than 9/16". The language of the specification appeared to require that welds less than 9/16" continue to be examined by UT as well as the newly added MT procedure. This created the quarter inch paper "loophole" about which Mr. Hudson complains.
43. At the time of the revision to specification 8833XR, Pullman modified its weld examination procedures to require MT for all full penetration welds and UT procedures for full penetration welds 9/16" and greater. This revision was approved by PGandE in 1979, reflecting the clear intent of the specification change (see Exhibit 7, attached).
44. Contrary to the allegation, the corrective action commitment in the NCRs and weld crack program was not to examine full penetration field welds less than 9/16" with UT but rather to use MT.
45. Since 1979, consistent with the specification, procedures, and the commitment in the NCRs and weld crack program, the quality of all new full penetration welds on rupture restraints has been assured by the application of MT procedures.

Thus, this issue has been fully addressed and has been shown to be of no substance.



It is alleged that:

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 problem. (6/5/84 Hudson Aff. at 33.)

This issue was previously addressed in PGandE response to JI's Motion to Reopen on CQA, Arnold, et al. Aff. at 10 and 12. These responses indicated that:

25. ESD 234 is a procedure for UT inspection for groove welds on rupture restraints. Although neither the AWS code nor PGandE specification 8833XR required a PQR for this procedure, Paul Dawson, Pullman's UT Level III, produced a PQR for this procedure at H. Karner's directive on October 1, 1982 in response to Mr. Hudson's audit....
31. Since a PQT was never required, the allegation is false. ESD 234, the UT procedure for inspection of rupture restraint welds, was developed for use with AWS. The AWS Code does not require a procedure qualification record for UT procedures. The UT unit and the procedure are verified each time calibration is performed on the required calibration blocks.
32. Despite all of the above, the procedure qualification was demonstrated on October 1, 1982, by Paul Dawson, NDE Level III at Harold Karner's request in response to Mr. Hudson's concernThis was accomplished by performing ESD 234, as written, using all of the control elements of the procedure.

Thus, it can be clearly seen that procedure ESD 234 was properly qualified and the allegation has no merit.



It is alleged that:

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 code or standard and there was no commitment to 10CFR50, Appendix B for these programs. (6/5/84 Hudson Aff. at 34.)

The specifications for pipe supports and rupture restraints contained quality assurance requirements which meet the intent of Appendix B. Pullman's QA program was evaluated to these requirements and was found acceptable. This issue was previously addressed in PGandE's response to Mr. Hudson's allegations H-2, H-7, and H-8. As stated therein, 10 CFR 50, Appendix B, was not a licensing requirement for Diablo Canyon. As the Appeal Board has noted in this proceeding that it was adequate and appropriate to address the intent of Appendix B "to the extent possible," and as it was deemed that the Diablo program did meet the intent, there was no need to commit to Appendix B or revise any program accordingly.



It is alleged that:

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." (6/5/84 Hudson Aff. at 36.)

This issue was previously discussed in PGandE letter DCL-84-195, dated May 29, 1984, to NRC Region V, in response to NRC Allegations #473 and #474. The response stated:

Contrary to Allegation #473, Pullman did audit the Diablo Canyon Project to the requirements of 10 CFR 50 or ASME. In order to qualify for NA and NPT stamps for ASME, Pullman was required to commit to and did audit its projects according to the requirements of ASME. Consistent with such requirements, Pullman established its QA Manual and QA procedures which required audits to procedures which satisfied ASME. Management audits of the Diablo Canyon Project were conducted by Pullman on a regular basis beginning in 1972 (Attachment 16) in addition to internal audits. Those audits were conducted to ensure compliance with Specifications 8711 and 8833XR. While neither specification specifically references 10 CFR 50, each specifies the criteria to be met by Pullman's QA program. These criteria, in their substance, address the 18 elements of 10 CFR 50, Appendix B. The 1973 PGandE audit specifically found, "M. W. Kellogg's [Pullman's] QA Manual complies with Section 4 [Quality Requirements] of the Specification." The quality requirements for Specifications 8711 and 8833XR are identical.

J. R. Manning's memorandum followed the NSC audit of Pullman in 1977 and can be seen as an exhortation that the prospective corporate audit of the project be in the form of 10 CFR 50 or ASME to guarantee that the Pullman QA program satisfies third party review



by NRC or ASME. The NRC Staff in its review of the Pullman corporate audit program determined that, while the elements of the QA program were general, there was "a history of Quality Assurance Program Audits based on checklists following 10 CFR 50 Appendix B criteria" (NRC Inspection Report No. 50-275/83-37 at 7-8).

Contrary to the allegation, it was a PGandE audit, not a Pullman audit, which addressed both piping and rupture restraints. As discussed above, the QA requirements for Specifications 8833 and 8711 are the same.

Contrary to the implication of Allegation #474, the Pullman Diablo Canyon QA program was audited both in hardware and software areas prior to 1978. Subsequent to a 1978 PGandE audit of a Pullman audit (PGandE Audit No. 80422), extensive additional effort was expended just in the hardware area of the Pullman program because of PGandE findings. This additional audit effort is what is referred to by Mr. Manning in his memorandum. PGandE found no reason to require an additional audit effort in the program portion of the Pullman QA program.

Pullman's QA program has been audited since the contract began to the substantive requirements of 10 CFR 50 and ASME. Deficiencies found by the audits by Pullman or PGandE have been corrected, and no further corrective action is required.



H-41

It is alleged that:

...[N]owhere in the QA Program Description [sic] is there a specific list of the piping manual requirements which are applicable to Supports and Restraints. The Description [sic] states that many of the requirements of the piping manual are applicable to other work but it fails to specify which requirements for which work. (6/5/84 Hudson Aff. at 36.)

There is no requirement to have a singular listing of all requirements in one document. The QA program description adequately describes Pullman QA programs.



H-42, H-43, and H-44

It is alleged that:

Also there is no commitment 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. (6/5/84 Hudson Aff. at 36.)

Although significant QA problems were identified in the Rupture Restraint Construction Program, Pullman Management claimed the QA Program as implemented basically meets [sic] 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 [sic], had significant QA problems. It was their absence of commitment [sic] to the federal code and national standards which resulted in a deficient QA program for Rupture Restraint (sic). (6/5/84 Hudson Aff. at 39.)

Another cause not identified by PG&E was the fact that Pullman's Rupture Restraint construction program was not committed to the QA requirements of the ASME, 10 CFR 50 Appendix B or ANSI codes, the result being a totally inadequate Quality Assurance Program for the erection and inspection of Rupture Restraints. (6/5/84 Hudson Aff. at 40.)

As indicated in responses to Allegations H-2, H-7, H-8, and H-39, the QA programs at Diablo Canyon, including the pipe rupture restraint program, met the intent of Appendix B to the extent possible. This approach was reviewed and approved by the Appeal Board.



It is alleged that:

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 have require [sic] documentation."

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 Commission as a 10CFR Part 21 Reportable item. (6/5/84 Hudson Aff. at 40.)

The referenced NCRs were evaluated for reportability under 10 CFR 50.55(e) and were determined not to be reportable.

Subsequently, however, the entire rupture restraint welding program was reviewed and reported to the NRC under 10 CFR 50.55(e). During the closeout of the 10 CFR 50.55(e) report, the NRC reviewed the rupture restraint welding program.



It is alleged that:

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 deficiencies [sic] discovered during final hardware walkdown. (6/5/84 Hudson Aff. at 41.)

These DCNs were written by Mr. Hudson and were processed and dispositioned to correct the deficiencies identified.

Mr. Hudson fails to note that the form utilized for the QC/Engineering Walkdown Sheet has a specific place to note exceptions. This space was used. DCNs were written, as needed, to document conditions identified during the walkdown.

Apparently, one of Mr. Hudson's concerns involves a failure to use an individual DCN for each item noted. To require a corresponding DCN for each repetition of the same condition is taking the requirement of the procedure to its literal extreme. This is especially true when many of these items were arc strikes, minor gouges, etc. To write a separate DCN for each and every one of these items would be an unnecessary and inefficient use of manpower and paper. The items were appropriately identified and dispositioned. The ambiguity of the specific words and Mr. Hudson's interpretation were corrected by revision of the applicable ESDs.

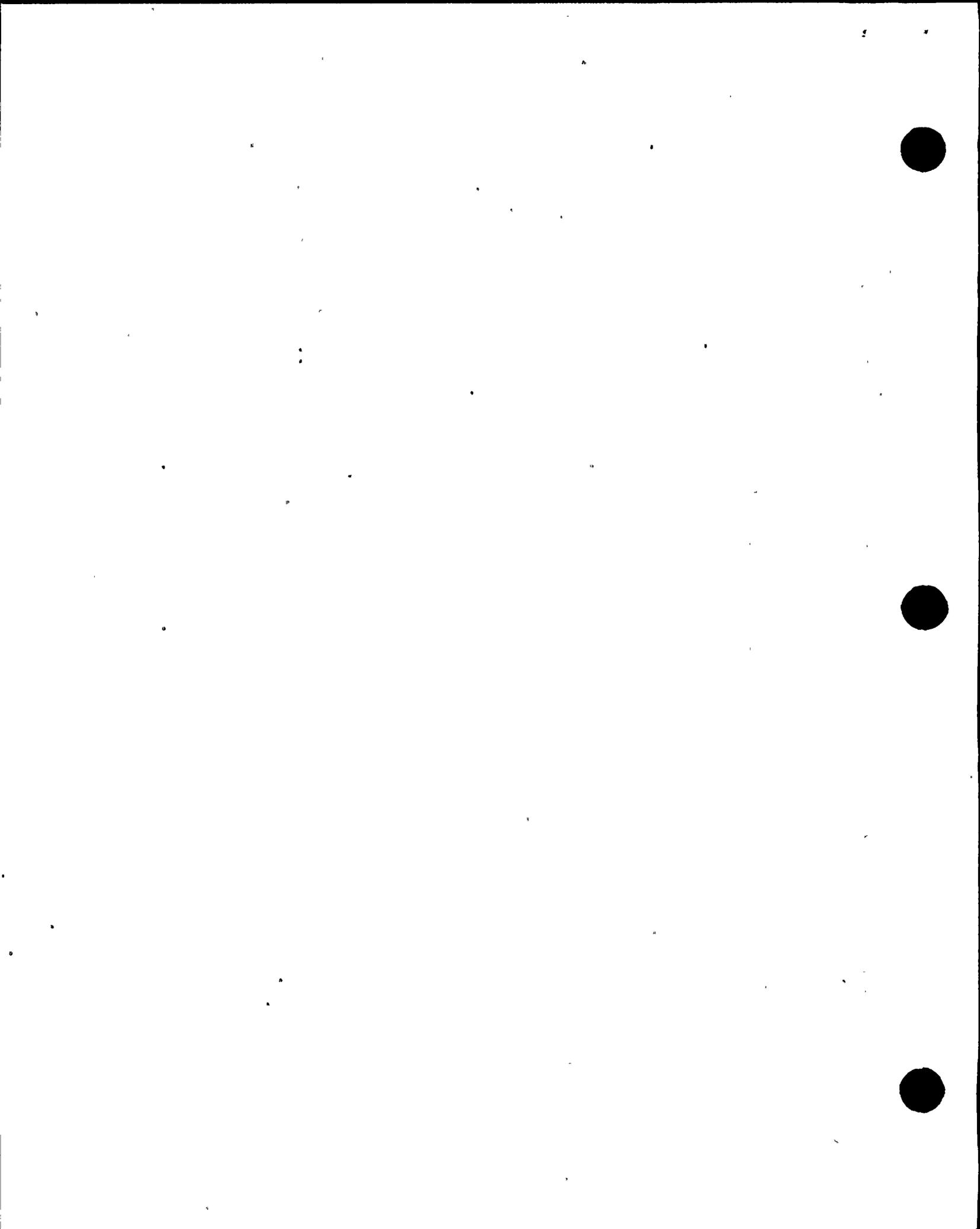


It is alleged that:

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 restraints. Subsequently, Pullman Field Engineers wrote several Discrepancy Reports on post 1/24/79 work when the work was inadvertently reviewed by Engineering. Also Deficient Condition Notices would be written identifying documentation problems missed in pre-1979 work. (6/5/84 Hudson Aff. at 44.)

The revision to ESD 273 was prepared by Mr. Hudson after he was requested to evaluate whether there was sufficient justification to eliminate inspection of bolted and welded connections installed after January 24, 1979. Mr. Hudson wrote a four-page, handwritten memo dated June 22, 1982, noting the proposed revisions and the justification. Mr. Hudson concluded his memo by stating:



Based on these assurances, ESD-273 can be revised to delete the reinspection by QC of bolted and welded connections installed after 1/24/79 for the purpose of verifying that the connections do conform to specification requirements.

The revision was approved by PGandE.

Mr. Hudson later wrote a July 7, 1982, memo requesting reconsideration of his June 23, 1982, revision to ESD 273 with detailed reasons.

Pullman management determined that the evidence presented, 100 findings in 2-1/2 years of major work, did not constitute a breakdown in the QA/QC program and, thus, did not warrant a complete reinspection of the bolted and welded connections installed during this time period.

The fact that the Unit 2 Final Walkdown Inspections caused rework was not unexpected since its purpose was to identify discrepant conditions. It is understandable that a major reinspection program of the existing restraints and over 2-1/2 years of work may uncover some previously unidentified conditions. This does not indicate that all previous work is discrepant.

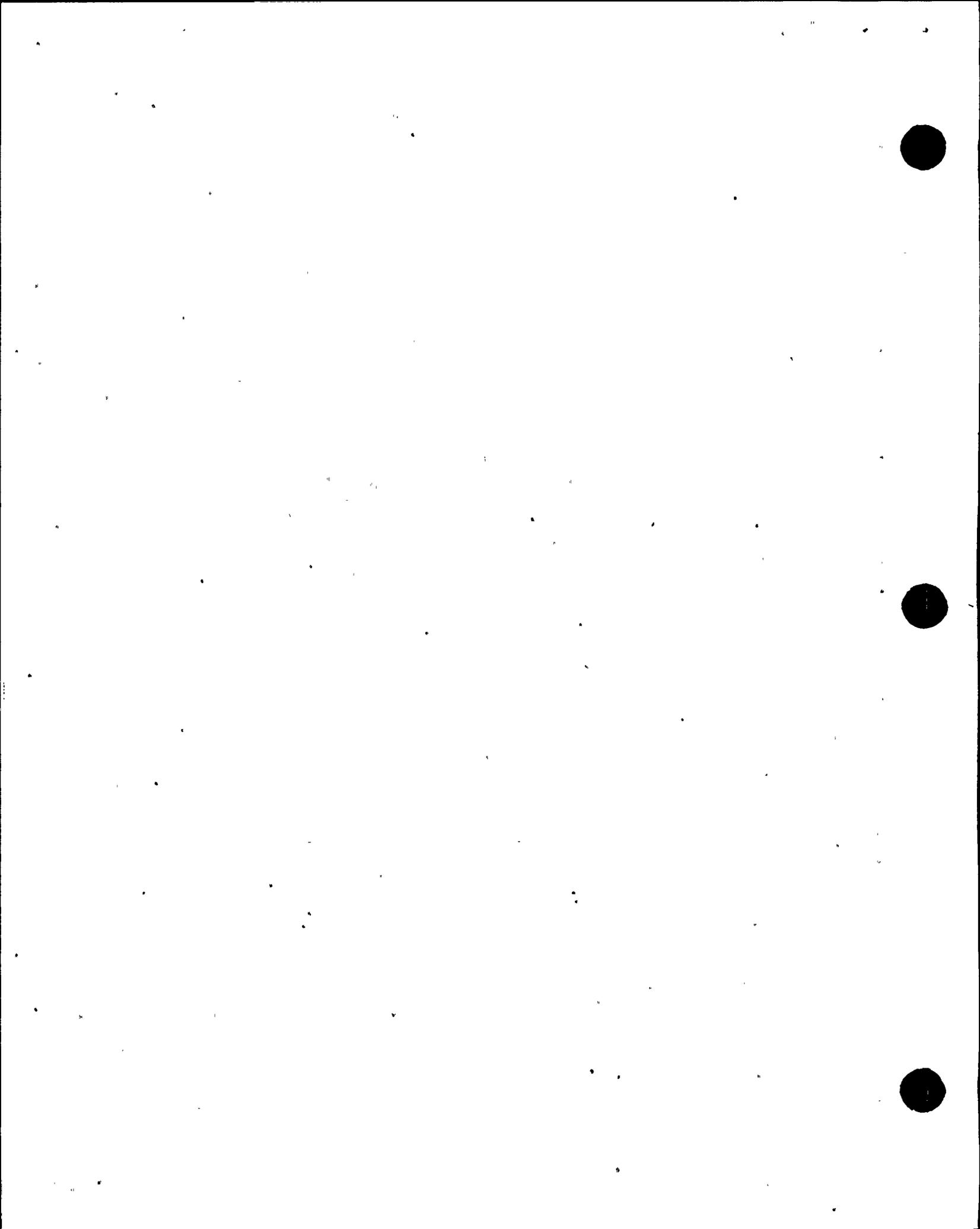


It is alleged that:

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 list until such a time as corrective action measures and measures to preclude recurrence were completed and approved.

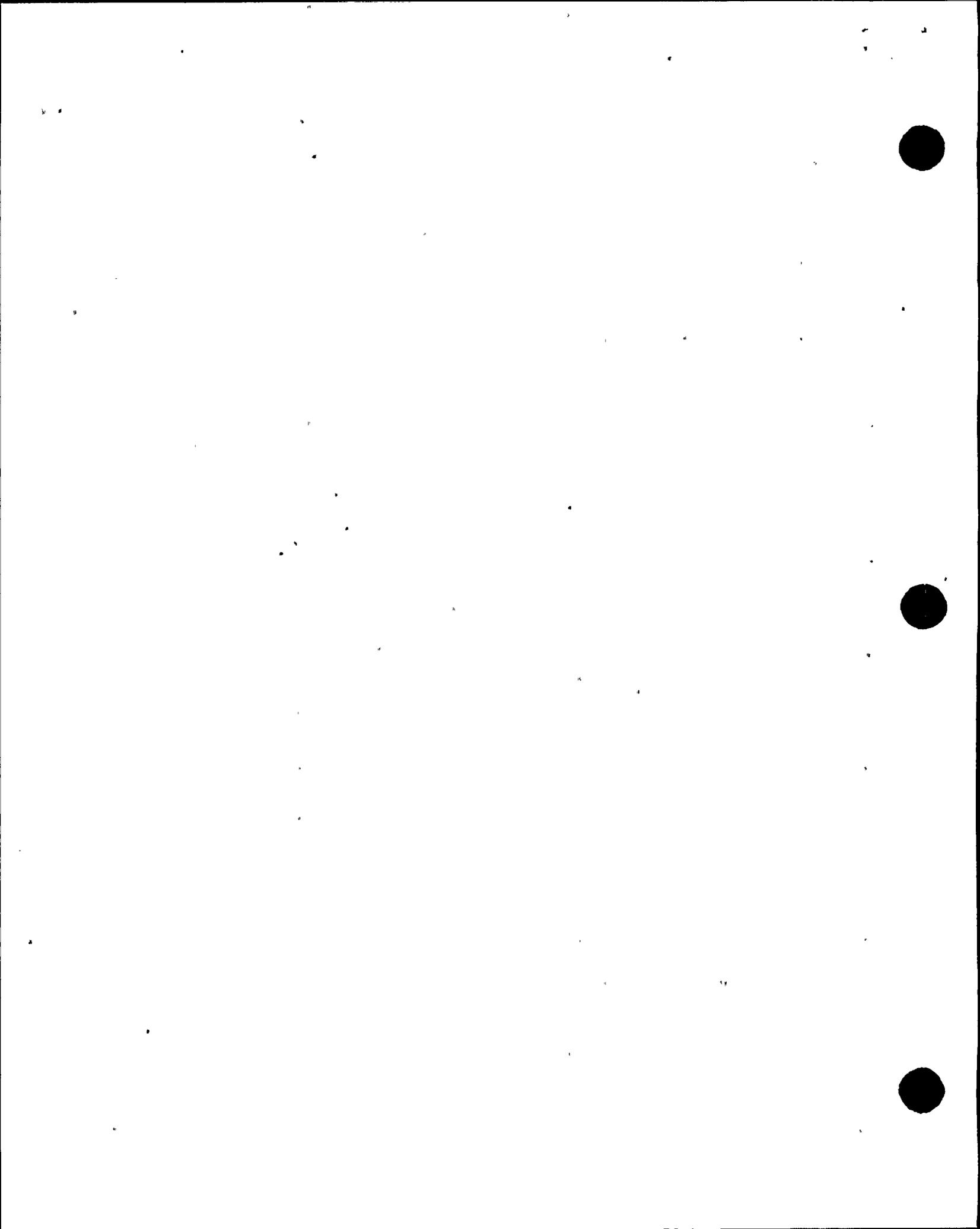


Subsequently PG&E would write a Minor Variation Report #M-4406 against Pullman. The discrepancy would identify that Pullman had procured calibration services from PG&E General Construction Department without written contract or specification which delineated Quality and Technical requirements. This calibration service had been going on as far back as 1974 without Quality and Technical requirements. (6/5/84 Hudson Aff. at 45-46.)

To document the concerns identified in the audit, PGandE did write a Minor Variation Report, as stated. However, contrary to the allegation of serious problems, the following paragraphs demonstrate that the problems identified were administrative in nature and did not effect the accuracy of tool calibrations:

1. Although there were no documented instructions from Pullman to NPO, NPO did have documented instructions (Maintenance Procedure (MP) M-86) for the calibration and subsequent documentation of torque wrenches. NPO used their procedure to calibrate Pullman wrenches.

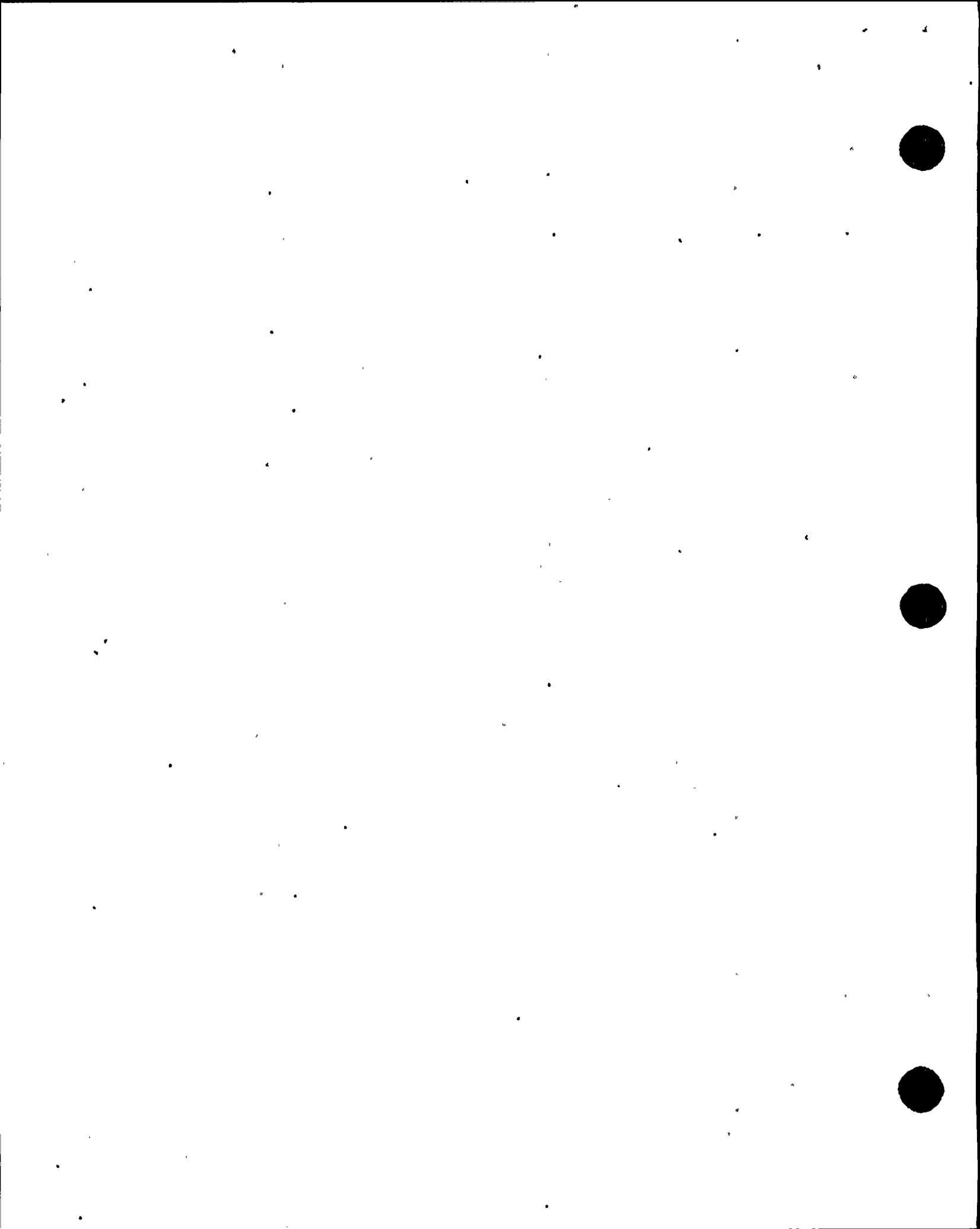
At the time of the audit, NPO calibrated Pullman's wrenches based on a request that did not include calibration requirements. NPO and Pullman's calibration requirements were essentially the same and there was no problem. However, the program has since been improved and requires that Pullman send calibration requirements with their calibration requests to alert PGandE to any change in requirements.



2. A subsequent PGandE audit (December 1982) determined that traceability was maintained and, therefore, assured for the torque wrenches. The inconsistency referred to was for a single torque wrench. PGandE identified the wrench on calibration records with a number stamped on the wrench by the manufacturer, while Pullman identified the wrench with a number they assigned, which is different from the manufacturer's number. Although two numbering systems were in use, traceability was maintained.

3. Mr. Hudson incorrectly states that a calibration standard had no documented calibration frequencies. The standard referred to had a calibration cycle of five years, which was documented on a "Tool Calibration Log," but not on the master tool list. This item has since been corrected.

Mr. Hudson misunderstands PGandE's use of calibration stickers. Each device is required to be positively identified by a permanently affixed label, sticker, or tag, if possible. In addition, each measuring device is labeled to indicate the date of last calibration, by whom it was calibrated, and calibration due date. The calibration sticker is a separate sticker that is not intended to provide positive identification but, rather, to conveniently identify calibration status only. The standard in question met these requirements.



It is alleged that:

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. (6/5/84 Hudson Aff. at 46.)

These allegations were addressed in PGandE response, dated March 19, 1984, to JI's Motion to Reopen on CQA, Breismeister, et al. Aff. at 1-6 and 16-17. These allegations present nothing new and have no significance.

His previous allegations and PGandE's responses thereto are stated below. Mr. Hudson has not refuted these responses which are, in fact, supported by the codes. The NRC has addressed this subject in SSER 21, page 2-208:

JI #19, Motion at 13.

It is alleged that:

Code 7/8 was improperly used for 11 pipe rupture restraint joint configurations beyond any possible scope of the procedure. Among other distinctions, the welding involved different thicknesses and techniques than covered by the approved procedures. (citing 1/16/84 Anon. Aff. at 3-4 [sic, actually citing Hudson Aff. at 6.]



[Response]

This condition was identified by Mr. Hudson in his unscheduled audit #35.

The fact that these 11 joint configurations are not explicitly described in WPS 7/8 is not significant. Nine of the joint configurations are acceptable and prequalified to the AWS D1.1 Code and therefore, required no corrective action. The tenth was also accepted and is discussed in JI #20 below. One other joint configuration was identified, removed, and repaired as part of the corrective actions.

No merit can be found in the allegation that differing thicknesses and techniques were used than those included in the procedure. The WPS clearly addresses that it is qualified for all thicknesses for rupture restraint welding. There has been no change in the welding technique from the description in the WPS (including the Technique Specification and the ESD).

The NRC investigated this allegation and determined that the use of WPS 7/8 for AWS application is acceptable. They found its use would have no adverse effect on safety. (Ref: Diablo Canyon SSER-21, page 2-208.)

JIR #20, Motion at 13.

It is alleged that:

In some cases pipe rupture restraint welding was conducted without even lip service to any weld procedure. 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. (citing 1/16/84 Anon. Aff. at 3-4 [sic, actually citing Hudson Aff. at 6.]

[Response]

This is the same issue as identified in JI #19 above. This discrepancy was identified by Mr. Hudson in December 1, 1982, Unscheduled Audit #35. DR 4899 was initiated to resolve the use of the square groove joint. A test coupon was welded and tested qualifying this weld configuration in accordance with AWS D1.1 requirements.



Since the audit finding has been closed, this allegation no longer has any merit. Contrary to the allegation, this is an excellent example of the QA program identifying and resolving a documentation deficiency. The hardware was acceptable as originally constructed.

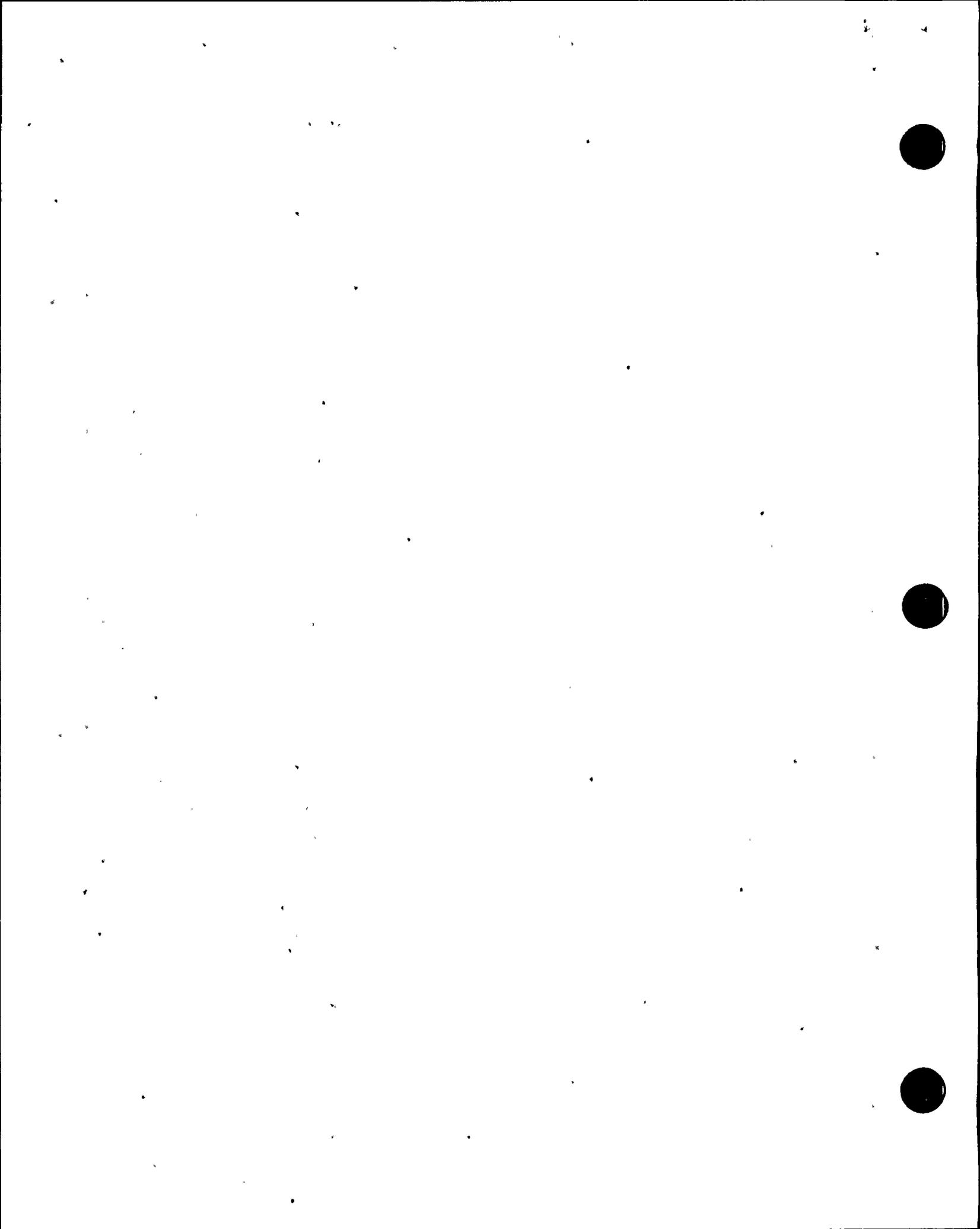


62

It is alleged that:

[M]y 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 bevel 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. (6/5/84 Hudson Aff. at 46.)

Mr. Hudson has repackaged his previous JI CQA allegations in a slightly different manner. This allegation, along with others in this series, is derived from Unscheduled Internal Audit #35 of December 12, 1982. This entire subject was responded to previously in the PGandE response, dated March 19, 1984, to JI Motion to Reopen on CQA, Breismeister, et al. Aff. at 1-6 and 16-17. The specific subject was adequately covered by Pullman's AWS 1-1 supplement to WPS 7/8. In the original CQA allegation and response, this subject was lumped with others in allegation JI #19. See the response to H-49 above. This allegation, as the original, has no merit.



It is alleged that:

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. (6/5/84 Hudson Aff. at 46.)

Mr. Hudson has reiterated a previous allegation without adding any substance to it or refuting the previous answer. As regards rupture restraints, this allegation is directly related to, and a part of, H-44 above. Just as he did previously, Mr. Hudson has broken a single issue apart.

This allegation regarding eight joint configurations is almost identical to a previous allegation regarding pipe supports, not rupture restraints as is alleged here. That was addressed in PGandE response dated March 19, 1984, to JI's Motion to Reopen on CQA, Breismeister, et al. Aff. at 1-6 and, specifically, at 13-14:

JI #16, Motion at 12-13.

It is alleged that:

Code 7/8 has been used to weld at least eight pipe support joint configurations, including flare bevel groove welds, and double groove welds, not covered by 7/8. Each configuration represents a unique essential welding variable and legally must have its own approved configuration. (citing 1/16/84 Anon. Aff. at 3-4 [sic, actually citing Hudson Aff. at 5] and Lockert Aff. at A10-11.)

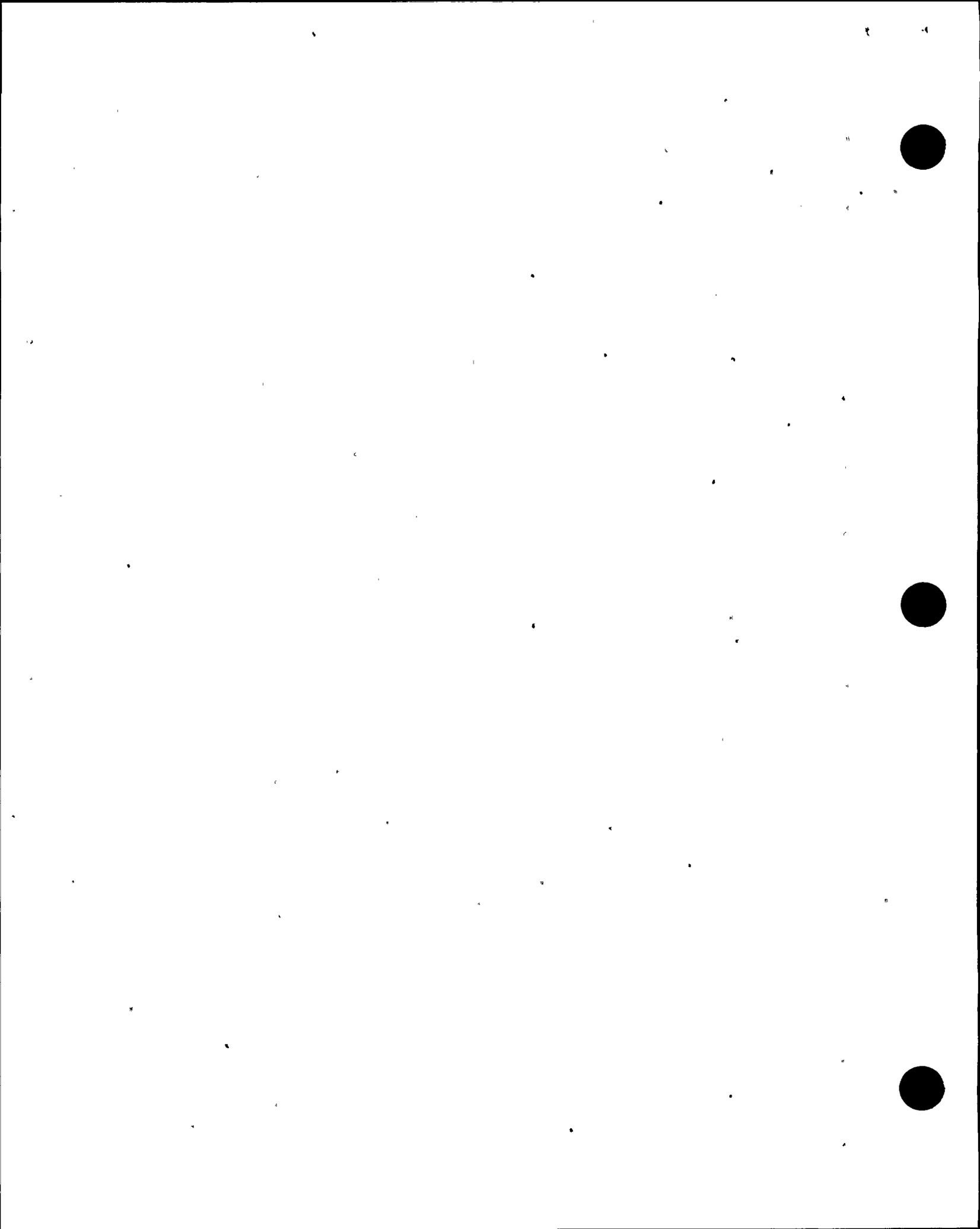
Contrary to the allegation, Mr. Lockert's concerns relate to the application of WPS 7/8 to rupture restraint welding, not to pipe support welding. This issue is discussed in response to JI #19, 21, and 25 below.



The allegation of the Motion is not supported by the facts and is, in fact, correctly contradicted by one of its own affidavits. Mr. Hudson's allegation is based upon a false premise: that joint configuration is an essential variable for pipe support welding. In fact, Mr. Lockert correctly notes that joint configuration is not an essential variable for ASME pipe support welding (see Lockert Aff. at A10).

For pipe support welding, WPS 7/8 is qualified per ASME Section IX for all the joint details listed by Mr. Hudson. Even though the joint details are not listed in the WPS, adequate control was exercised to assure that the WPS was not used beyond its qualifications. In all cases, acceptable pipe support welds were completed which met code and specification requirements. Each joint configuration is not an essential variable and there need not be a WPS for each configuration.

Since the audit finding has been closed, this allegation no longer has any merit. Contrary to the allegation, this is an excellent example of the QA program identifying and resolving a documentation deficiency. The hardware was acceptable as originally constructed.

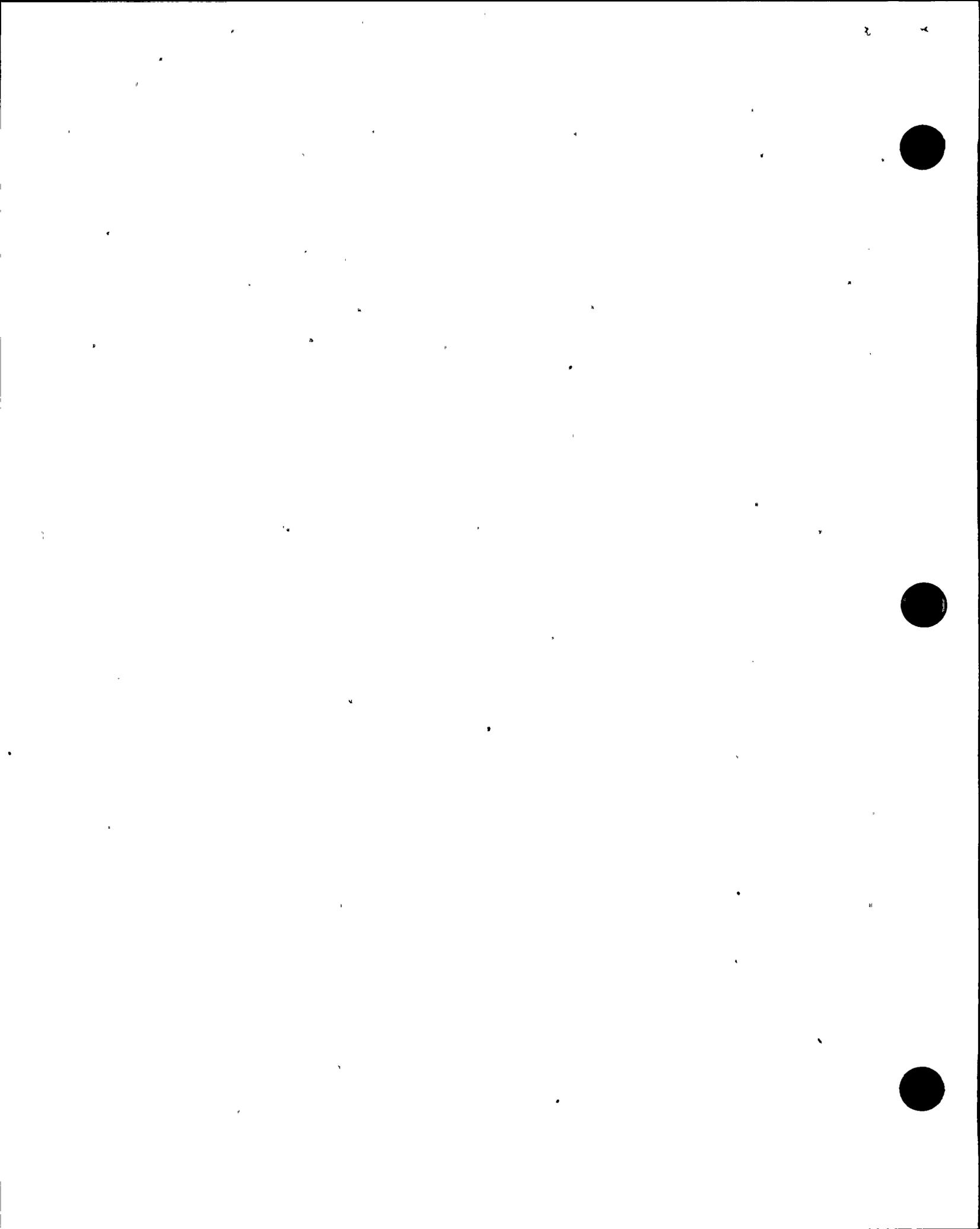


H-52

It is alleged that:

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. (6/5/84 Hudson Aff. at 47.)

The Pullman document AWS 1-10 essentially consolidates welding requirements related to rupture restraints into one document. Basically, there were no new requirements. Mr. Hudson apparently will not accept the fact that the previously used welding procedures were also appropriate and approved. However, he has not refuted the fact that the rupture restraints previously welded are technically acceptable. The welding procedures were adequate and the hardware has been inspected and accepted. Thus, there is no reason to readdress previously completed and accepted welds.

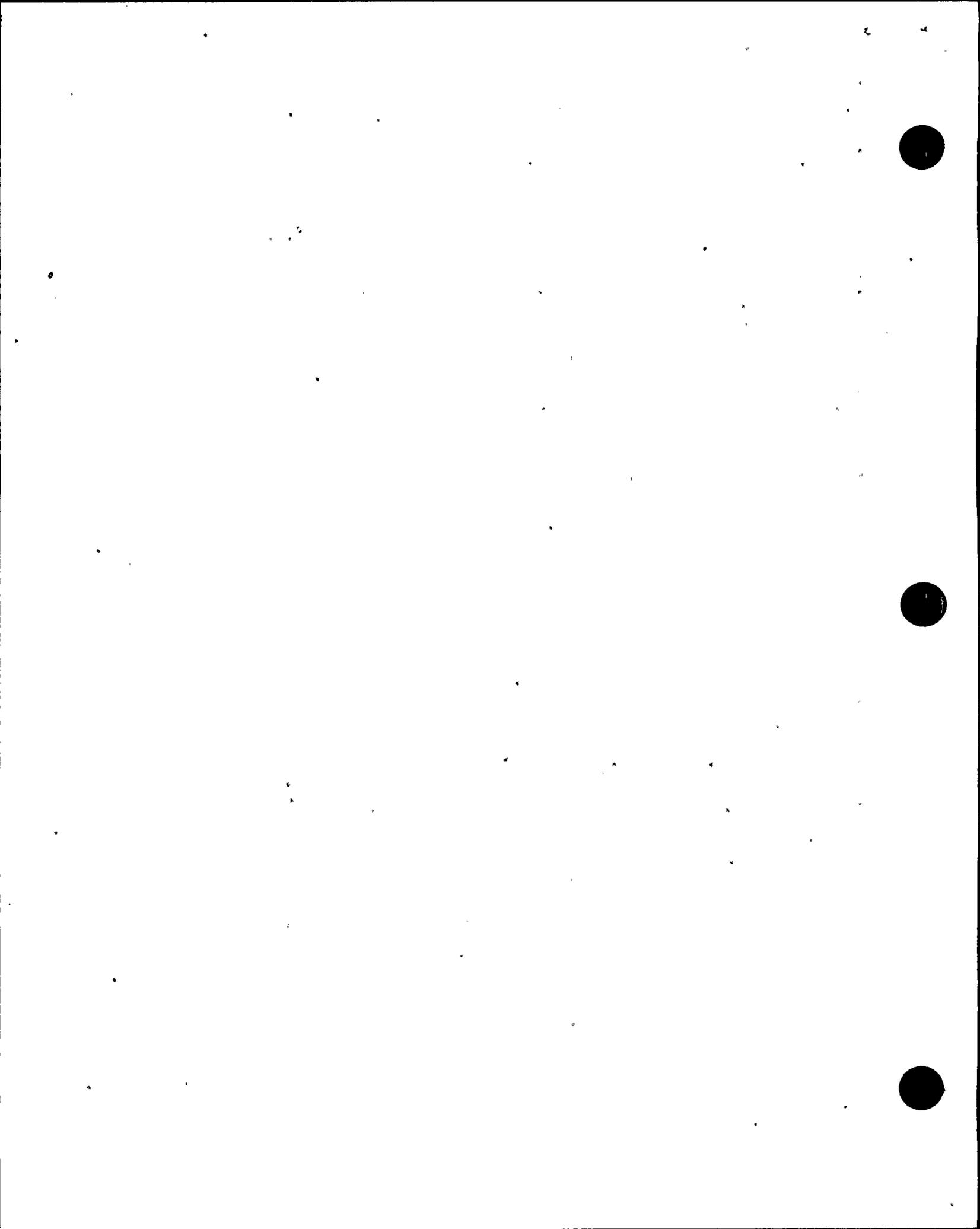


It is alleged that:

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 C.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 predetermined 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. (6/5/84 Hudson Aff. at 47.)

The emphatic answer to this allegation is that quality assurance at Diablo Canyon is not only relevant, it is necessary and it has been appropriately implemented. What Mr. Hudson has failed to acknowledge throughout is that, while the standard for a QA/QC program is to provide reasonable assurance that the plant is designed, constructed, and will operate safely, there is no requirement for absolute perfection in a QA program.

The record at Diablo Canyon clearly reflects an ongoing program which sought out and addressed the real issues of safety significance, not manufactured ones. The Diablo Canyon project reflects adequate confidence, based on sound practices and long experience, that the plant can be operated without endangering the health and safety of the public and in accordance with Commission regulations.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

PACIFIC GAS AND ELECTRIC
COMPANY

(Diablo Canyon Nuclear Power
Plant; Units 1 and 2)

Docket Nos. 50-275
50-323

AFFIDAVIT OF H. W. KARNER

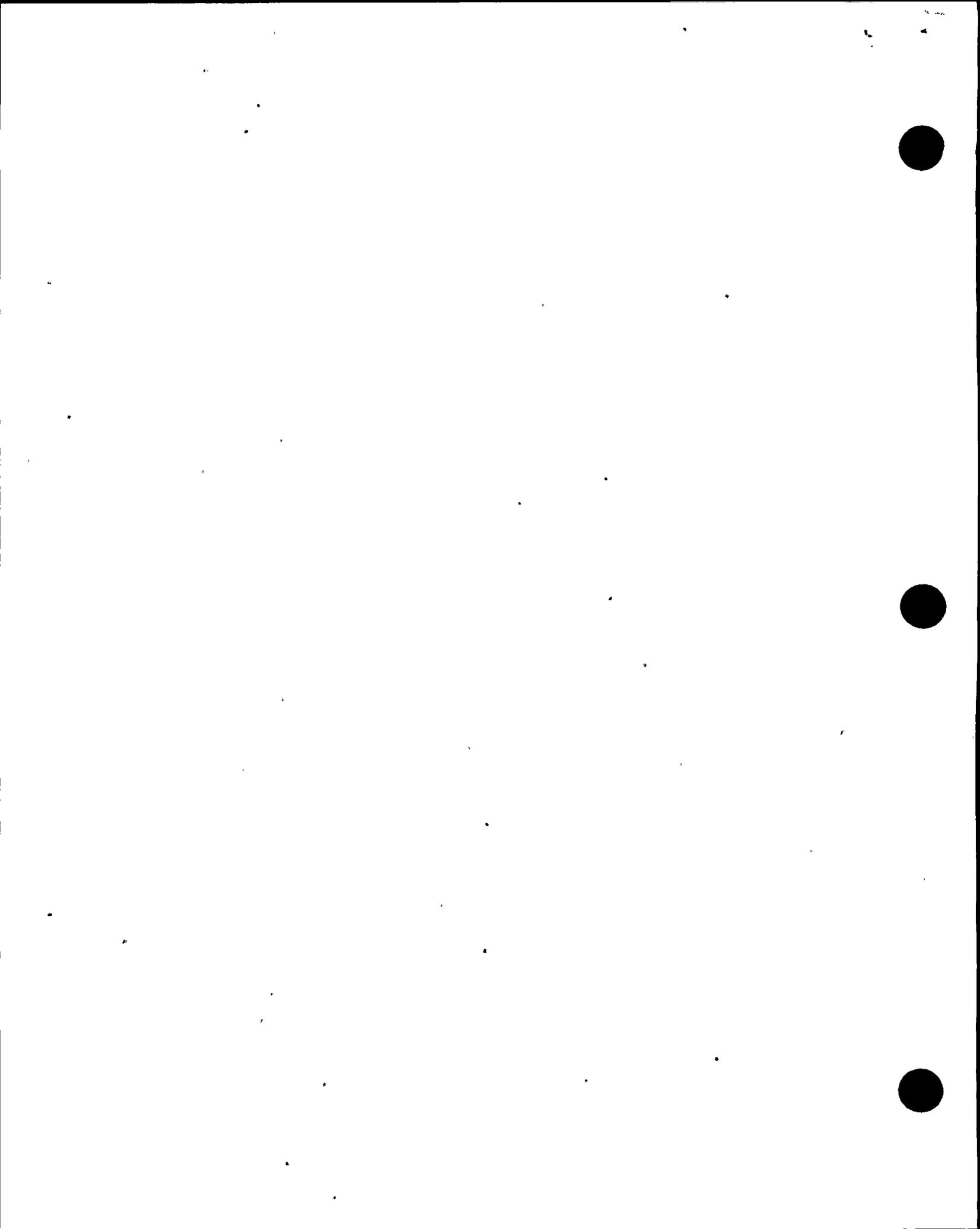
STATE OF CALIFORNIA)

CITY AND COUNTY OF SAN FRANCISCO)

ss.

The above, being duly sworn, deposes and says:

My name is Harold W. Karner. I am employed by Pullman Power Products as
Manager, Quality Assurance/Quality Control at Diablo Canyon Power Plant.



The statements contained in PG&E letter No. DCL-84-256, dated July 6, 1984, providing supplemental responses to the following paragraphs of the June 5, 1984 affidavit of Harold O. Hudson are true and correct to the best of my information, knowledge, and belief:

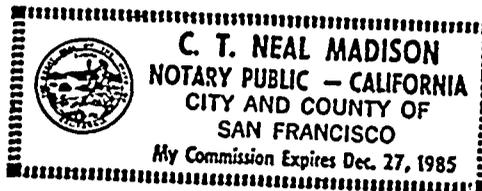
H-1, H-4, H-5, H-10, H-11, H-12, H-13, H-15, H-16, H-17,
H-18, H-19, H-20, H-21, H-22, H-23, H-24, H-25, H-26,
H-27, H-28, H-29, H-30, H-31, H-34, H-35, H-36, H-37,
H-38, H-39, H-40, H-41, H-42, H-43, H-44, H-45, H-46,
H-47, H-48, H-49, H-50, H-51, H-52.

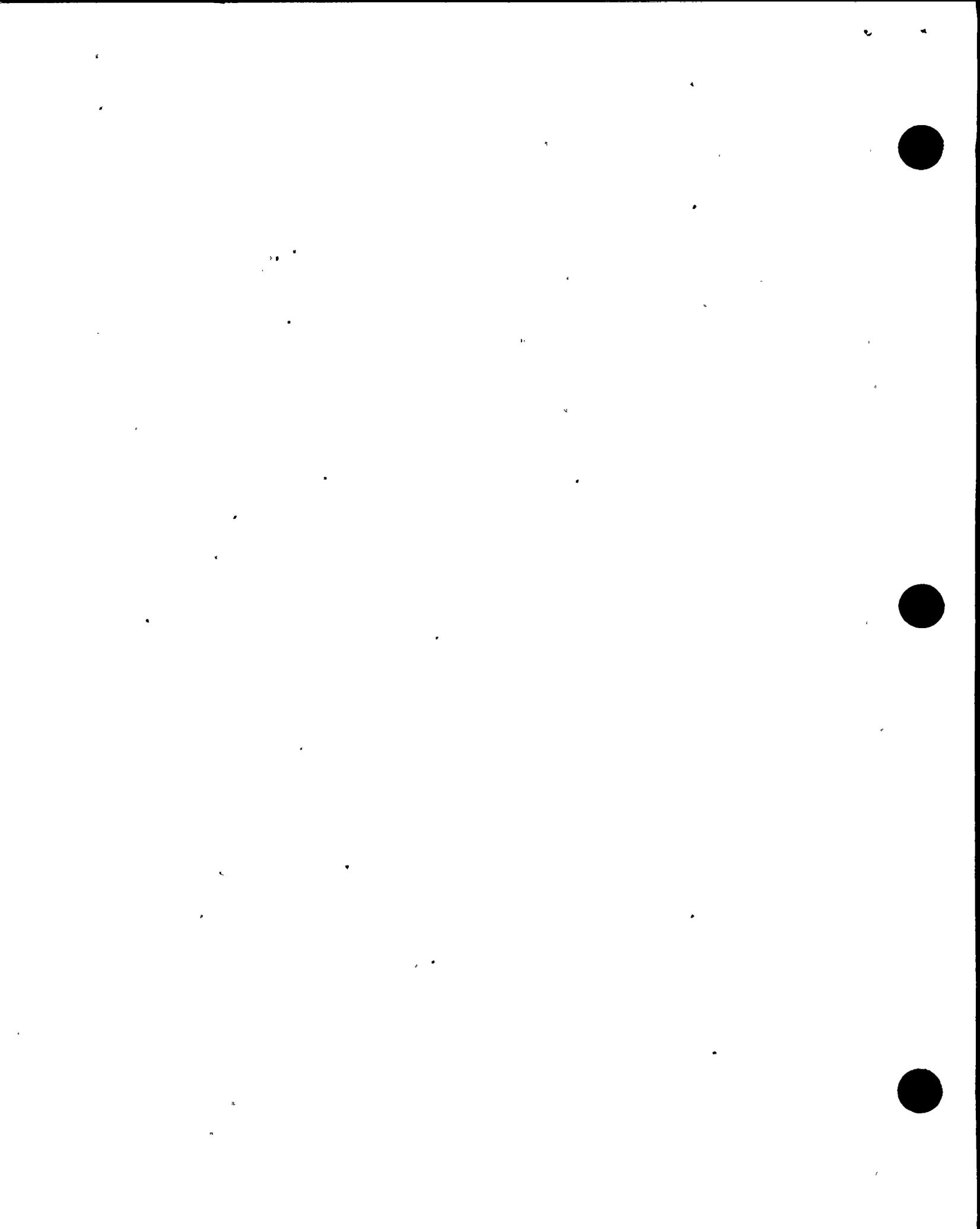
Dated: July 6, 1984


H. W. Karner

Subscribed and sworn to
before me this 6th day
of July, 1984

C. T. Neal-Madison
Cynthia Neal-Madison
Notary Public in and for the
City and County of San Francisco
State of California
My commission expires
December 27, 1985





UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

PACIFIC GAS AND ELECTRIC
COMPANY

(Diablo Canyon Nuclear Power
Plant, Units 1 and 2)

Docket Nos. 50-275
50-323

AFFIDAVIT OF F. C. BREISMEISTER

STATE OF CALIFORNIA)

CITY AND COUNTY OF SAN FRANCISCO)

ss.

The above, being duly sworn, deposes and says:

My name is F. C. Breismeister. I am Manager of the Research and Engineering Materials and Quality Services Department, San Francisco Area Office, for the Bechtel Group.

The statements contained in PG&E letter No. DCL-84-256, dated July 6, 1984, providing supplemental responses to the following paragraphs of the



June 5, 1984 affidavit of Harold O. Hudson are true and correct to the best of my information, knowledge, and belief:

H-9, H-10, H-11, H-12, H-13, H-14, H-15, H-16, H-17, H-18,
H-21, H-23, H-24, H-25, H-26, H-27, H-33, H-34, H-38, H-39,
H-49, H-50, H-51, H-52.

Dated: July 6, 1984

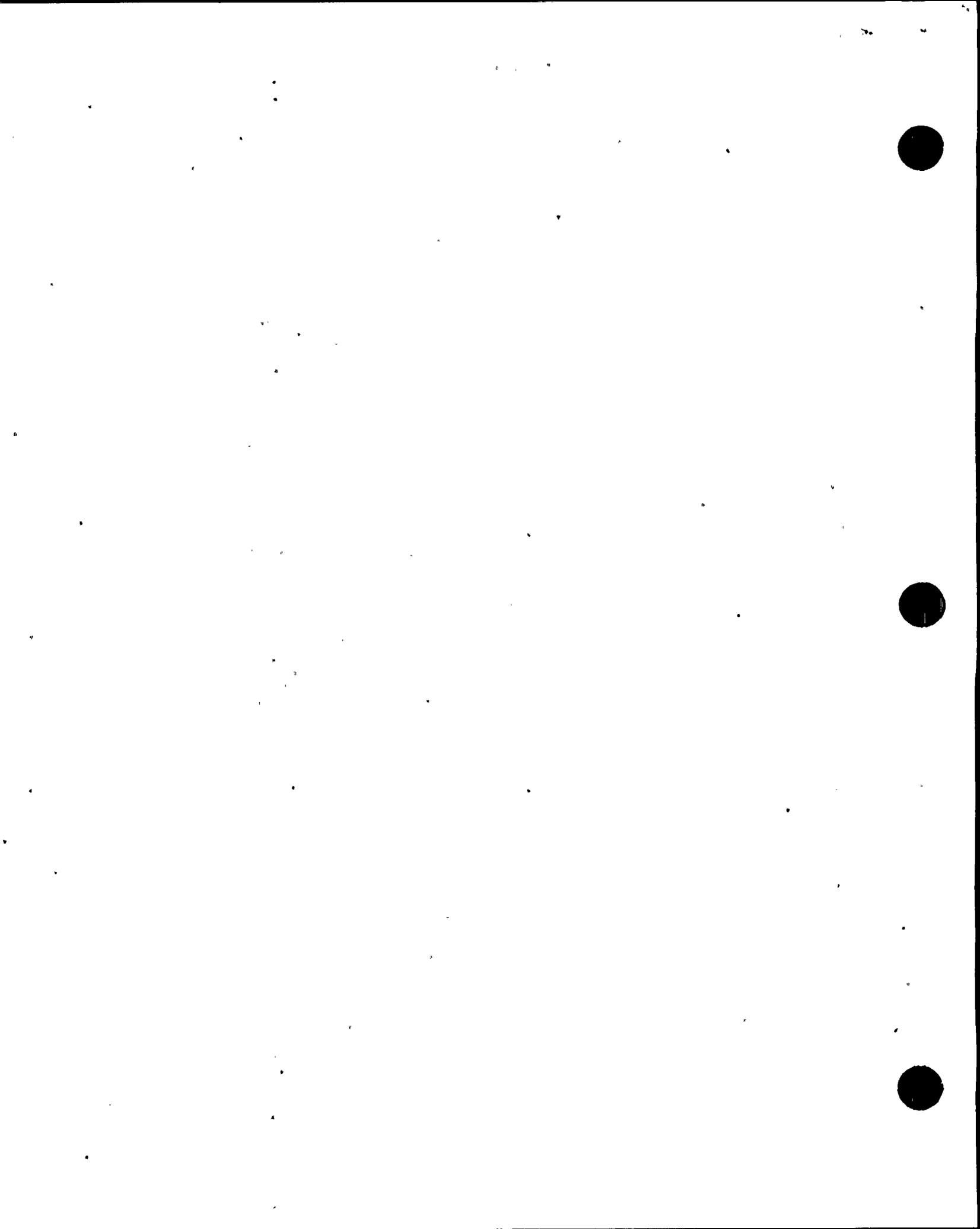

F. C. Breismeister

Subscribed and sworn to before me this 6th day of July, 1984

C. T. Neal-Madison

Cynthia Neal-Madison
Notary Public in and for the
City and County of San Francisco
State of California
My commission expires
December 27, 1985


C. T. NEAL MADISON
NOTARY PUBLIC - CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires Dec. 27, 1985



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)

PACIFIC GAS AND ELECTRIC)
COMPANY)

(Diablo Canyon Nuclear Power)
Plant, Units 1 and 2))

Docket Nos. 50-275
50-323

AFFIDAVIT OF D. A. ROCKWELL

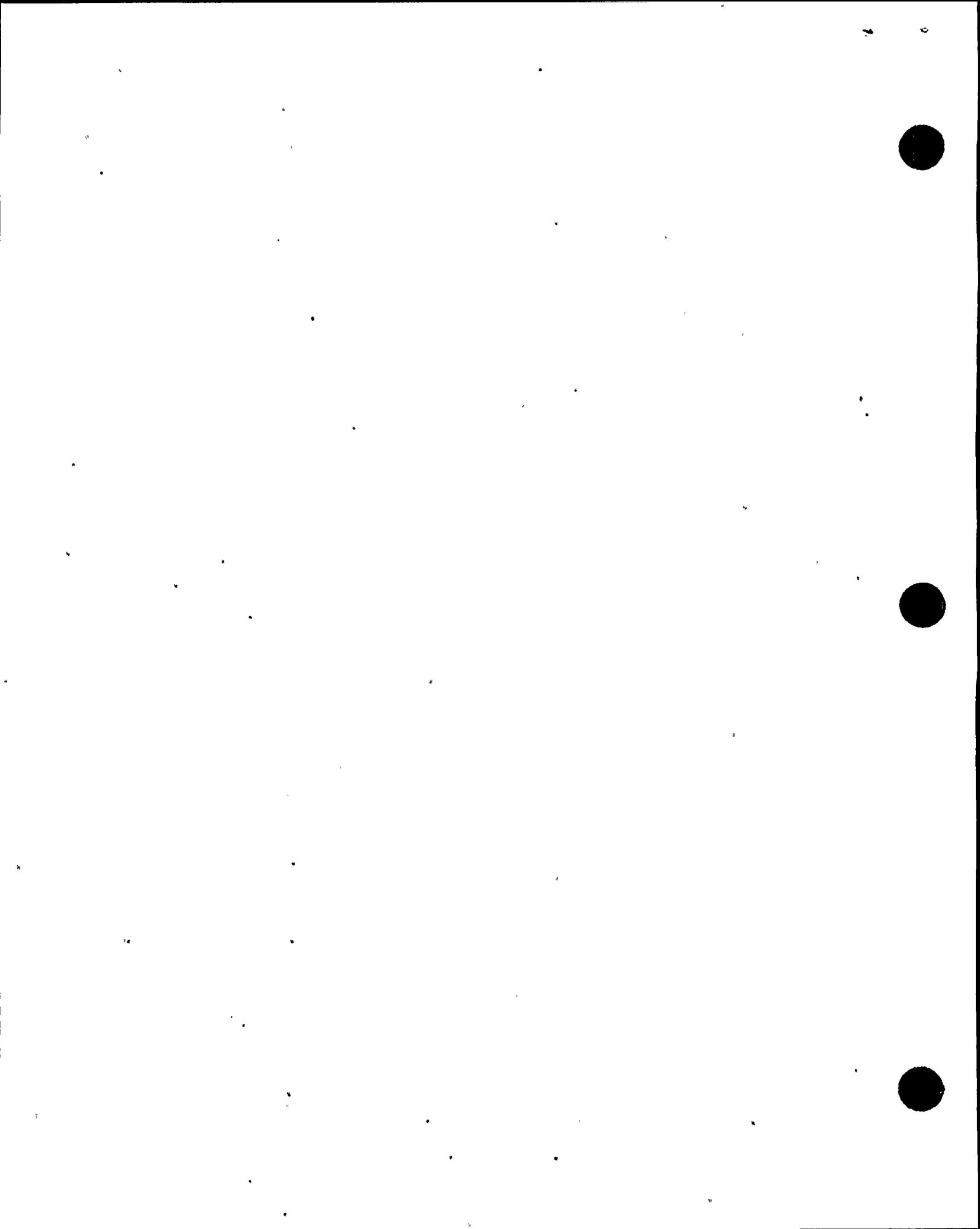
STATE OF CALIFORNIA)

CITY AND COUNTY OF SAN FRANCISCO)

ss.

The above, being duly sworn, deposes and says:

My name is D. A. Rockwell. I am employed as the Special Projects
Engineer at the Diablo Canyon Project for the Pacific Gas and Electric Company.



The statements contained in PG&E letter No. DCL-84-256, dated July 6, 1984, providing supplemental responses to the following paragraphs of the June 5, 1984 affidavit of Harold O. Hudson are true and correct to the best of my information, knowledge, and belief:

H-27, H-32, H-33, H-35, H-36.

Dated: July 6, 1984

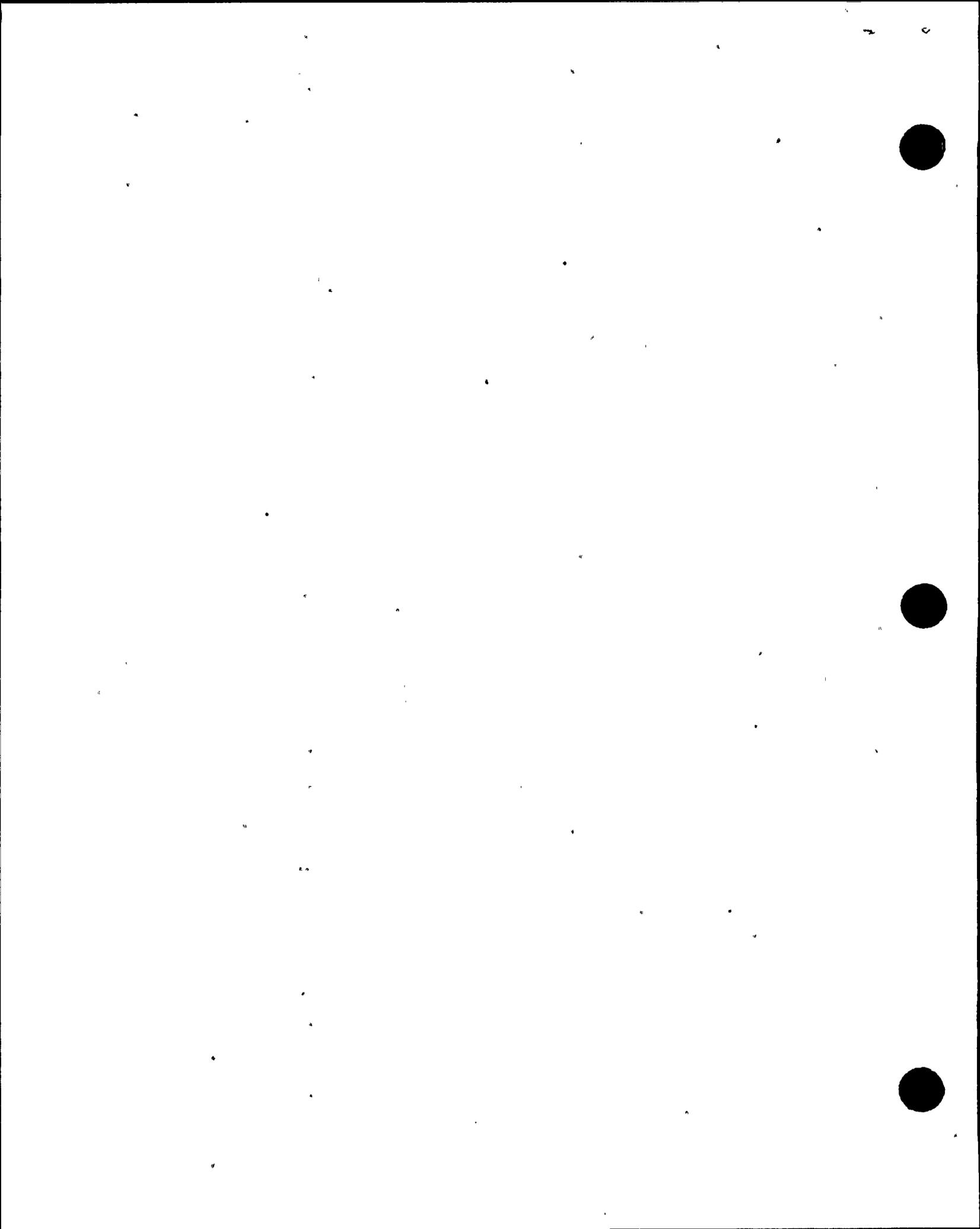

D. A. Rockwell

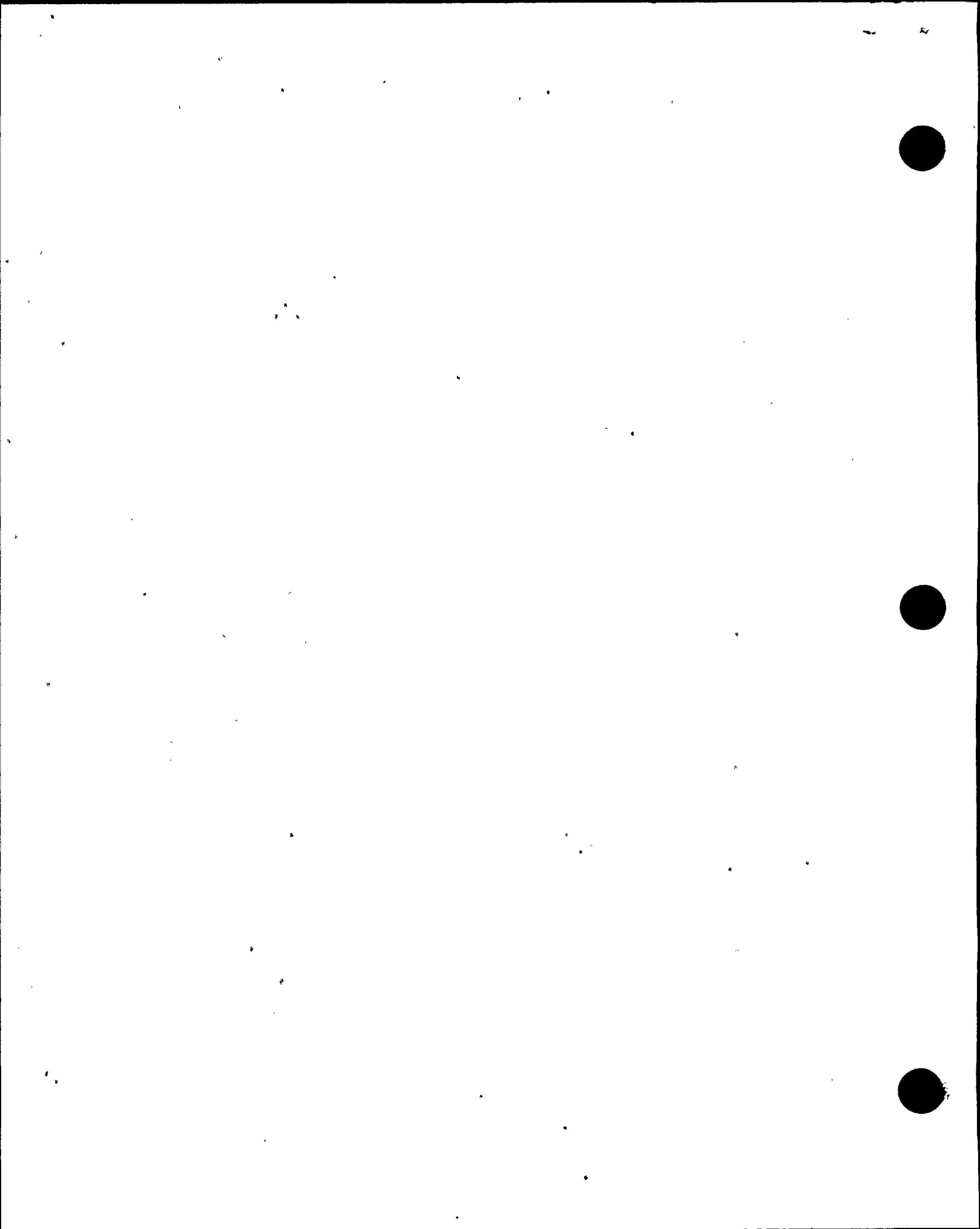
Subscribed and sworn to
before me this 6th day
of July, 1984



Cynthia Neal-Madison
Notary Public in and for the
City and County of San Francisco
State of California
My commission expires
December 27, 1985







The statements contained in PG&E letter No. DCL-84-256, dated July 6, 1984, providing supplemental responses to the following paragraphs of the June 5, 1984 affidavit of Harold O. Hudson are true and correct to the best of my information, knowledge, and belief:

H-1, H-2, H-3, H-4, H-6, H-7, H-8, H-39, H-40, H-42, H-43, H-44, H-53.

Dated: July 6, 1984


E. R. Kaifer

Subscribed and sworn to
before me this 6th day
of July, 1984

C. T. Neal-Madison

Cynthia Neal-Madison
Notary Public in and for the
City and County of San Francisco
State of California
My commission expires
December 27, 1985

