

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of )

PACIFIC GAS AND ELECTRIC )  
COMPANY )

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

Docket Nos. 50-275  
50-323

(Construction Quality Assurance)

AFFIDAVIT OF D. GESKE, J. GUYLER, A. ECK, M. MacCRAE, AND H. KARNER

STATE OF CALIFORNIA )

COUNTY OF )  
SAN LUIS OBISPO )

ss.

The above, being duly sworn, depose and say:

I, Al Eck, am currently employed by Pullman Power Products as Director of Quality Assurance in the Quality Engineering Group.

I, Michael MacCrae, am currently employed by Pullman Power Products as a Training Officer.

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I, Harold Karner, am currently employed by Pullman Power Products as QA/QC Manager.

I, John Guyler, am currently employed by Pullman Power Products, as a Lead Auditor.

I, Donald Geske, am currently employed by Pacific Gas and Electric Company, as Lead Maintenance QC Inspector in the Nuclear Plant Operations Department.

1. The purpose of this affidavit is to address the allegations in Joint Intervenor's February 22, 1984, motion to reopen the record which relate to quality assurance/quality control inspections and auditing performed by Pullman Power Products Corporation (Pullman). These allegations are contained in paragraphs 44, 52, 90-98, 100-101, 115-119, and 121 of the motion. Nearly all of the allegations are incorrect, none raises any significant safety concerns, and none is indicative of a significant or generic deficiency in the Pullman QA/QC program.

JI #44, Motion at 17-18.

It is alleged that:

The integrity of weld inspections is compromised by cheating on the qualifications tests. From at least 1979-80, prospective welding inspectors who failed their tests received copies of the answers so that they would pass the next time. In at least one instance, a welder who unknowingly failed the test performed inspections anyway. When the error was discovered and he eventually passed with coaching, the test was backdated so that work he had performed in the interim would not have to be done over. (citing Hudson Aff. at 28.)

2. The motion alleges cheating, but the Hudson affidavit upon which the allegation is based cites only two allegations of irregularities, neither of which involved "cheating."
3. The affidavit states that Mr. Hudson failed an initial test and was later given a copy of the test (not the answers, as alleged in the motion). Mr. Hudson does not state whether he took exactly the same test the second time. It has been common practice to allow a person to review his corrected test (whether he passed or failed) in order to help him understand and recognize his strong and weak areas. A discussion of his weak areas and/or remedial study by the individual, as appropriate, would occur. Following this, the weld inspector is retested (if he failed on the first attempt), usually with a different test.
4. In any event, a review of Mr. Hudson's personnel file does not confirm his statement. It shows two periods of employment with Pullman. The first was from September 1978 through February 1979 and the second began in May 1979. During his first period of employment, he tested for, and was certified as, a weld inspector in December 1978, scoring 97% on his test. Upon rehire in May, he retested for certification as a weld inspector by way of a different test, scoring 92%.
5. In the second part of the allegation, Mr. Hudson alleges that, in 1980, a test was backdated to cover work performed earlier. The tested individual is not identified. We know of no instances of backdated tests and a search of personnel files produced no indications whatsoever of backdating tests. Backdating tests would be an extremely difficult, if not impossible, task which would require the knowledge and active

participation of at least three individuals. The individual tested enters his name and the date on the examination. The examiner enters the test grade, date of examination grading, and his name or initials. Lastly, the individual responsible for certifying the tested person reviews the test results and signs and dates the test record and certification documents.

JI #52, Motion at 19.

It is alleged that:

Procedures for inspections may have been as uncontrolled as for the welds themselves. To illustrate, in 1978 a supervisor instructed a new welding inspector to measure fillet welds by the throat, when the AWS Code requires the measurements from the leg of the weld. For approximately two months, he inspected welds to the wrong standard, because the supervisor gave him a makeshift gauge not designed to measure fillet welds. The same supervisor has changed the rules on the spot for equipment anchor modifications in the containment through instructions to work to a "relaxed" engineering specification ESD 243. (citing Hudson Aff. at 8.)

6. The Motion takes the statements of Mr. Hudson out of context by alleging the procedures for inspections were uncontrolled. Mr. Hudson made no such allegation; a complete citation to paragraph 14 at pages 7-8 of his affidavit shows that he was only attempting to cast aspersions on the qualifications of his supervisor.
7. The affiant's reservations about the qualifications of his supervisor, Virgil Casey, are unfounded. In 1978, Mr. Casey's background and experience had included twelve years in the aerospace industry with emphasis in weld inspection and destructive and nondestructive testing, and then five years experience with Pullman in the area of weld



inspection, nondestructive examination, and documentation review. He was fully certified in weld inspection by both Pullman examination and extensive experience.

8. The two examples cited by Mr. Hudson simply do not support his "reservations" about Mr. Casey's qualifications. The AWS Code specifies that the "size" of the weld shall be measured, using "suitable" gauges. There are acceptable methods of measuring the size of the weld by measuring the legs, or the throat, or both. We know of no instances where a gauge not suitable under AWS Code requirements was used to measure fillet weld size. There would be no reason to do so, since suitable gauges for measuring fillet welds are available to the QC inspectors. Nothing stated by Mr. Hudson would have resulted in his inspecting welds "to the wrong standard."
9. Procedures for weld inspections are documented and controlled by approved procedures. We know of no instances of "rules" being changed "on the spot" in an uncontrolled or otherwise inappropriate manner, and Mr. Hudson identifies no such instances. ESD 243 was modified, formally and in accordance with procedures, to be applicable to equipment anchor modifications. The formal modification of the ESD was issued by the Field QA/QC Manager, not Mr. Casey, and did not constitute a "relaxed" specification. (See Exhibit 1, attached.) The allegation that the procedures have been "uncontrolled" is incorrect and unsupported in Mr. Hudson's affidavit.

JI #90 and 91, Motion at 26.

It is alleged that:

QA Manager Karner deliberately failed to provide reasonable prompt corrective action for IA #101. Although the official time limit for corrective action is ten days, the audit was not closed out for over a year—despite the internal auditor's repeated memoranda and attempts to formally notify Mr. Karner of his obligation to address the issue of unqualified NDE procedures. (citing Hudson Aff. at 23.)

The internal auditor notified Pullman Corporate QA Director A. Eck of the failure to take corrective action through a June 14, 1982 memorandum. Mr. Eck improperly refused to help. He failed to respond. On July 6, 1982, Mr. Hudson performed and submitted Unscheduled Internal Audit #31 to Mr. Eck on the lack of corrective action. In response both Mr. Eck and Mr. Karner reprimanded Mr. Hudson for submitting the audit to Mr. Eck directly, rather than letting it proceed through the chain of command. Neither gentleman discussed the lack of corrective action. The audit was voided. (citing Hudson Aff. at 23-24.)

10. Internal Audit #101 (IA #101), conducted by Mr. Hudson, included three Audit Action Requests AAR #1, AAR #2, and AAR #3. The audit procedures require a corrective action response within ten days, not, as claimed, a closure of the audit in that time period. For each AAR, the corrective action response was made by Mr. Karner, the Pullman Field QA/QC Manager, within the required time period. AAR #1, AAR #2, and AAR #3 were presented in late March 1982 with due dates, as specified by Mr. Hudson, of April 5, March 29, and March 29, 1982, respectively. In each case, Mr. Karner's corrective action response was made on or before the specified due date. However, one of them, AAR #1, was subsequently reopened on the basis of new information which indicated that part of the AAR #1 corrective action response was based on incorrect information.

11. The closure of reopened AAR #1 did indeed require a longer time than would normally be expected. The lengthy resolution period occurred primarily because of the nature of Internal Audit #101. The audit dealt with activities which had taken place nearly ten years earlier. Consequently, the closure of AAR #1 was unusually time consuming. In addition, the audit action request dealt with NDE procedures which were not then being used, which indicates that it was not necessary to assign a high priority for rapid closure of AAR #1. Thus, AAR #1 was satisfactorily resolved on an "as-needed" basis, with no impact on the quality of ongoing work.
12. Beyond that, the specific facts alleged by Mr. Hudson are incorrect. Mr Eck did respond to Mr. Hudson's memorandum and Mr. Hudson was not reprimanded for performing Unscheduled Internal Audit #31.
13. As stated in Mr. Hudson's allegation, AAR #1 findings were formalized on March 22, 1982. The findings were acknowledged by the QA/QC Manager, Mr. Karner on March 23, 1982. The initial corrective action response was timely initiated on April 5, 1982. Mr. Hudson's allegations concern the actions taken after the reopening of AAR #1, and prior to the time the AAR was closed on March 22, 1983. Mr. Hudson indicates that he notified the Pullman Corporate QA Director, Mr. Al Eck, of the QA/QC Manager's failure to take corrective action through a June 14, 1982, memorandum, but that Mr. Eck did not respond. This is not true. Mr. Eck responded to Mr. Hudson's memorandum by interoffice correspondence dated June 29, 1982, to Mr. Karner with a copy to Mr. Hudson. (See Exhibit 2, attached.) Mr. Eck's response specifically emphasized the

need to respond to AARs in a timely manner.

14. On July 6, 1982, Mr. Hudson performed Unscheduled Audit #31 and submitted it directly to Mr. Eck in Williamsport, Pa. This direct submittal to corporate headquarters was not in accordance with established procedures, and Mr. Eck responded with a memorandum dated July 16, 1982, directing Mr. Hudson to follow the provisions of the approved Internal Audit Procedure, ESD 263, when reporting audit findings to proper levels of site management. (See Exhibits 3 and 4, attached.) Whether Mr. Hudson actually perceived the July 16, 1982, memorandum as a reprimand can be known only by Mr. Hudson. Mr. Eck intended the memorandum to say what it says and not as a reprimand for conducting the audit.
15. Finally, Mr. Hudson states that, "My audit (Audit #31) was voided." Indeed it was, but not by Mr. Hudson's superiors, as is implied. It was voided by Mr. Hudson himself, on his own initiative, without any direction to do so from Pullman QA/QC management. In any event, the ultimate closure of AAR #1, with acceptable corrective action, satisfied the findings of Unscheduled Audit #31.

JI #93, Motion at 26-27.

It is alleged that:

The bottom line is that Pullman was not committed to 10CFR50, Appendix B. The internal auditor informed Mr. Karner that he had violated 10CFR50, Appendix B. Karner responded twice that Pullman was not committed to

10CFR50, Appendix B, and that it was "O.K." for him to violate the Code of Federal Regulations and related contract specifications. (citing Hudson Aff. at 24.)

16. The characterization of Mr. Karner's response to Mr. Hudson is inaccurate and deliberately misleading. At no time did Mr. Karner say it was acceptable to violate NRC requirements or contract specifications.
17. Pullman Power Products QA Program was implemented in accordance with PGandE Specification 8711, Section 4, "Contractors Quality Assurance Program." Specification 8711 does not specifically reference 10 CFR 50 Appendix B. Instead, it specifies the criteria to be met. These criteria address the 18 elements of 10 CFR 50, Appendix B.
18. It is to a discussion of this point which Mr. Hudson misleadingly refers in his affidavit. Mr. Karner did not indicate that it is "ok" to violate the Code of Federal Regulations, or any other quality assurance requirements.
19. Mr. Karner is fully aware of Pullman's obligation to meet quality assurance program requirements, and knows he is responsible for their implementation. The fact that Pullman's program meets the quality program requirements is evidenced by successful completion of PGandE, ASME and NRC program audits. Additionally, onsite audits are conducted by Pullman corporate audit teams to assure continued implementation of 10 CFR 50, Appendix B.



JI #94, Motion at 27.

It is alleged that:

The procedures for hydrostatic tests conducted before January 27, 1975 are fundamentally inadequate due to their failure to include documentation requirements, lost pages, and the inability to even entirely reconstruct the procedure requirements. (citing Hudson Aff. at 25.)

20. Paragraphs 94-98 of the Motion are related to the general allegation that there was a "generic breakdown" in the QA requirements for hydrostatic tests. In fact, these items relate primarily to the findings of a single internal audit which was properly closed out in a manner consistent with the Pullman QA procedures, and with results that clearly involve no significant safety considerations. The audit and subsequent corrective actions demonstrate a properly functioning QA program, not a "breakdown" of the QA process.
21. The allegation in paragraph 94 of the Motion that there was a "failure to include documentation requirements" in the procedure for hydrostatic tests conducted before January 27, 1975, is not correct. The original procedure, ESD 229, issued on November 21, 1972, mandated specific documentation requirements, including the requirement to record all test requirements on a defined Hydrostatic Test Report form, and the requirement to prepare both a Process Sheet and a Specific Checklist for each operation. (See Exhibit 5, attached.)



22. The information in the Pullman QA files relating to hydrostatic testing procedure requirements is complete, and permits the determination of the pre-1975 procedural requirements. This information verifies the existence of documentation requirements in hydrostatic test procedures prior to 1975.

JI #95 and 98, Motion at 27-28.

It is alleged that:

Almost all hydrostatic tests and retests from 1975 onward are missing required QA documentation, such as evidence of QC, on the piping system closeout — F98 Department Release. QC is supposed to assure that departments performing the test comply with procedure checklists. Unfortunately, departments only sporadically completed and maintained the form which demonstrates compliance. In other cases, there is not backup documentation to support the conclusions in the F98 Release. (citing Hudson Aff. at 25.)

Post-1978 hydrostatic retests did not consistently have a signed QC field pipe release, despite other records claiming that QC had verified the results. (citing Hudson Aff. at 26.)

23. These two allegations involves results of a comprehensive audit (Pullman Internal Audit No. 106) performed by Mr. Hudson on hydrostatic and/or pneumatic testing. The audit was closed out on August 9, 1983, with corrective action completed and approved as required by Pullman Procedure ESD 263. Mr. Hudson's recommended corrective action for part of the audit included the initiation of Discrepancy Reports 5148 and 5149 identifying the conditions referred to in the audit. These reports were approved and closed out on October 14, and October 31, 1983, respectively.

24. The acceptance of the dispositions to DR 5148 and DR 5149 was based on the fact that while some checklists (Form F98) were missing at the time of Mr. Hudson's audit, the documented walkdowns by Pullman Engineering and PGandE, as well as Pullman QA participation in the hydrotests, verified that these tests were indeed reviewed by appropriate experienced personnel. Form F98 is a checklist used as a guide to assure the equipment to be tested is ready for the test. (Form F98 is self-supporting and needs no "backup documentation.")
25. Thus, as verified by closeout and disposition of the internal audit and the resultant DR 5148 and DR 5149, the hydrostatic tests at Diablo Canyon have been properly conducted and adequately documented.

Jl #96, Motion at 27-28.

It is alleged that:

From December 1977 - April 1978, in 28 cases Pullman test requirement forms did not contain basic information such as the type of fluid, pressure and temperature for the hydrostatic tests. (citing Hudson Aff. at 25-26.)

26. The allegation is incorrect. All such information was recorded and maintained for the tests in question.
27. Each of the documentation packages for the 28 hydrostatic tests referenced in the allegation contained data recorded on a form entitled "Hydrostatic Test Procedure Data Report" (See Exhibit 6, attached). The information on these forms included, among other things, the "type of fluid, pressure, and temperature for the hydrostatic tests."

JI #97, Motion at 28.

It is alleged that:

In 28 cases, Pullman's hydrostatic test procedure data form is inconsistent with PGandE requirements. Since this form guides the test, the distinctions meant relaxed test conditions that disqualify Pullman's results. For example, in one test Pullman's procedure only had a pressure of 2485 PSIG, when PGandE's acceptable minimum was 2812 PSIG. (citing Hudson Aff. at 26.)

28. This allegation is somewhat confusing. Hydrostatic test requirements are established by ANSI Codes B31.7 and B31.1, not by PGandE. There were no instances where the Pullman data form was "inconsistent with PGandE requirements" and no instances of "relaxed requirements."
29. The Codes specify the requirements for both the "test pressure" and the "examination pressure." The test pressure is the maximum pressure to which the piping system is subjected during the tests. The examination pressure, lower than the test pressure, is the pressure at which the visual examination for leakage is conducted. In the example referred to in the allegation, an internal audit found that the test had been conducted at the correct Code-determined test pressure, but that the examination pressure had been too low. The test was successfully rerun under the correct conditions. The audit findings and corrective actions were all properly documented in accordance with established QA procedures, with the QA program and procedures effectively performing their intended functions.

JI #100 and 101, Motion at 29.

It is alleged that:

The reliability of Pullman's Approved Vendors List is indeterminate, due to acceptance of Microsurface Engineering, a firm with only a token quality assurance program, it had been approved and passed previous vendor audits. Microsurface calibrates micrometers, a precision measuring device for Pullman tools and the impact of weld repairs, among other functions. Mr. Hudson's October 1981 audit found that Microsurface

did not conduct audits, did not have a written procedure for calibration, conducted uncontrolled inspections, lacked traceability for use on Pullman tools, failed to disclose laboratory standards for calibration, and did not have required documentation for training of laboratory personnel. The violations were so ingrained and pervasive that it is not credible to conclude they only sprang up since the vendor passed an audit the previous year. (citing Hudson Aff. at 27.)

Corrective action on Microsurface was prospective only -- removing the firm from the AVL. This was inadequate, because the accuracy of measurements from Microsurface tools is indeterminate. The effects of previous violations will remain undisturbed, and the accuracy of measurements from Microsurface tools will remain indeterminate. (citing Hudson Aff. at 27.)

30. The Approved Vendor List (AVL) program used by Pullman fabrication shops and field sites is administered by the Senior QA Auditor at corporate headquarters in Williamsport, Pennsylvania. The program meets all the requirements of ASME Section III and 10 CFR 50, Appendix B.
31. The need for quality assurance programs, surveys and audits for suppliers of calibration services has been the subject of varying interpretations. In 1977, ASME, Section III, issued an interpretation (III-1-77-186) indicating that the ASME Certificate Holder (in this

case, Pullman) is responsible for test equipment and calibration and procedures used. Under the ASME interpretation, suppliers of these services did not need to have a Quality Assurance Program, nor did they need to be audited. As a result of this interpretation, supplier calibration services were removed from the Pullman AVL on February 1, 1979.

32. Later, a position statement by the NRC dated May 16, 1979, indicated that suppliers of calibration services should have a quality assurance program to the extent necessary to assure the quality of the safety related service and product provided. This was a subjective statement which, by necessity, left this matter to the judgment of the purchasing organization's auditor. As a result, Pullman issued a general policy for acceptance of calibration services, which included the requirement that suppliers of calibration services be audited and qualified for addition to the AVL.
33. In accordance with this policy, a pre-award evaluation of Micro Surface Engineering was made for Pullman by National Inspection and Consultants, Inc., in October 1980, for the purpose of qualifying Micro Surface for calibration work. At the first annual requalification audit on October 7, 1981, the Pullman Internal Auditor (Mr. Hudson) found the Micro Surface QA program to be deficient in several respects. As a result, Micro Surface was removed from the Pullman AVL by the Senior QA Auditor in accordance with established procedures.



34. During the preceding year, Micro Surface had calibrated five measuring devices for Pullman at Diablo Canyon: three micrometers, one precision level, and one dial depth gauge. Records of the instruments were checked to determine if Micro Surface's work was accurate and if traceability to the National Bureau of Standards (NBS) was provided. In each case subsequent calibrations of the instruments by other qualified organizations reported accuracy of the instrument within accepted standards. Additionally, each of the Micro Surface Calibration Certificates certified traceability to the NBS.
35. Thus, the matter was handled properly and expeditiously, entirely in accordance with established procedures, and the use of instruments calibrated by Micro Surface had no adverse impact on measurements conducted at Diablo Canyon.

Jl #115 and 116, Motion at 33-34.

It is alleged that:

Training for QC inspectors is inadequate, consisting of a crash course lasting approximately a week. Since most inspectors do not have previous experience, this program is inadequate to prepare them for their serious responsibility. A large portion of the training program consists of giving written materials to an inspector, who signs a form that he has read the information. (citing 1/12/84, Anon. Aff. at 8-9.)

Frequently the records demonstrating compliance with even these cursory requirements are misleading. With respect to the statements certifying review of training materials, a current inspector concluded that "very often the individual will sign these statements without having read the materials very thoroughly". (Id. at 9.) The result is that the qualifications of QC inspectors at



Diablo Canyon are indeterminate. Undoubtedly, many inspectors were sufficiently skilled when they came to the job that general QC training was not necessary. But if novice inspectors needed training, they did not get it.

36. The allegations in the motion that training of Pullman QC inspectors consists of a one-week "crash course," that "a large portion of the training course" consists of giving materials to an inspector, and that "if novice inspectors needed training, they did not get it," simply do not appear in the supporting affidavit cited. In addition, the allegations that the anonymous allegor actually did make are incorrect in all significant aspects. The training of Pullman QC inspectors is far more extensive and intensive than that described even by the allegor, let alone by the Joint Intervenors in their Motion.
37. The first phase of the training program required by all QC inspectors is a self study and testing program. The written material which the inspectors are required to read includes Pullman's written engineering specifications, Quality Assurance Manual, QA Instructions, the study modules such as "Fundamentals of Welding Inspection," "Introduction to NDE," and other documentation concerning welding inspection. The prospective inspectors are given a series of approximately a dozen written and practical examinations dealing with various job functions and areas of knowledge necessary to perform the job of welding inspector. A passing grade of 80% is required on these examinations to display an acceptable degree of proficiency. Each prospective inspector

is informed that if he or she cannot pass any particular test after the second time (which is usually a different test on the same subject), then termination will result.

38. In addition, other reading is required to be completed prior to going out to the field for the second phase of training. This reading includes other ESDs related to the welding inspector's job, applicable Code Sections, the Code of Federal Regulations, and sections of PGandE specifications. It is not expected that a welding inspector know these supplemental ESDs as well as those he or she was tested on. The intent is for the inspector to be aware of where specific information can be located in the field as the need arises.
39. The second phase of the training and qualification of all weld inspectors prior to certification includes assigning the prospective inspector to accompany certified weld inspectors in the field in order to complete the field practical training. This field practical training involves becoming familiar with and using the documents employed and includes participation in the various aspects of their inspection duties. These activities are witnessed and satisfactory completion is attested to by a certified welding inspector. This portion of the qualification program normally takes from two to three weeks. Certification is not conferred upon an inspector until he or she has completed this phase of proficiency training to the satisfaction of the supervising Pullman QC inspector and the Pullman QA/QC Manager. The anonymous allegation totally neglects to mention this portion of the training, qualification, and certification program.

40. There is no basis for the allegation that "most inspectors do not have previous experience." Before inspectors are hired, they are interviewed by the Pullman Assistant QA/QC Manager. Each prospective weld inspector is given a general quiz that asks basic questions about welding and inspection. In addition, sample pieces with various weld defects and technique problems are shown to the prospective inspector for identification. Typical drawings are also presented to determine the interviewee's knowledge of blueprints, weld symbols, code references, etc. All of these, plus the individual's resume, prior certifications (if available) and answers to other specific questions are used to determine the person's experience.
41. The testing program is also used as a "weeding out" process. Those who cannot pass the required tests with a grade of 80% are terminated. The fact that the average new hire takes only seven working days of an allotted three weeks to complete testing is an indication in itself that these individuals are in fact experienced to an acceptable degree. A person without previous experience would not be able to learn the material and pass all the tests in this time period, due to the broad range of materials.
42. A comparison of inspectors' hire dates, reading lists, testing, field practicals and certification dates shows the average actual time it takes to put an inspector through the training and certification program is approximately three weeks.

Jl #117, Motion at 34.

It is alleged that:

The practice of unapproved changes by QA Management to acceptance criteria in the contract specifications was so routine that an environment was created of "making up the rules as they go along." As one current inspector explained, "With the pipe supports, for example, there are more than 80 pages of ESDs with various acceptance criteria, but then there are a whole series of totally uncontrolled memoranda that we get through Mr. Karner that tell us to disregard certain portions of ESDs and work to different standards." (citing 1/12/84, Anon. Aff. at 9.)

43. The only allegation being made here by the anonymous allegor, as opposed to the author of the motion, is that the acceptance criteria against which QC inspections of pipe supports are made have been superseded by "a whole series of totally uncontrolled memoranda." This is not true, and the anonymous allegor neither identifies any such documents nor does he explain how or why they are "uncontrolled."
44. The specifications and standards against which pipe supports are inspected are contained in Pullman's Engineering Specification Diablo 223 (ESD 223), Rev. 08-23-83. The specifications are indeed subject to revision in accordance with formally approved procedural requirements. An examination of the revision documentation for ESD 223 shows that the revisions, including two which were implemented through formal memoranda, were all made and documented in accordance with the approved procedures. The examination also shows that all revisions were transmitted in a timely manner to the QC inspectors, also in conformance with the approved procedures. Thus, the inspection criteria were not established or superseded by "uncontrolled memoranda."



JI #118, Motion at 34.

It is alleged that:

In some cases the engineering specifications did not consider the possibility of failing the hardware; there were no rejection criteria. This was the case for the procedure covering installation of pipe rupture restraint bolts, as a QC Inspector learned in October 1983 when he inspected those bolts in Unit II. (citing Lockert Aff. at A9.)

45. Not only is the allegation in the Motion incorrect, it is not supported by the underlying Lockert affidavit. Mr. Lockert said nothing about "the procedure covering installation of pipe rupture restraint bolts." The affidavit refers to the criteria for accepting or rejecting the bolts, not the procedure for installing them.
46. The affidavit states that there were no rejection criteria for the bolts in ESD 243. This is correct. The criteria for accepting bolts are procurement criteria and, as such, they would not be found in ESD 243. The correct action for Mr. Lockert to have taken was to reject the bolts with the "visible forging laps" - which he did - and then refer the rejection to receiving QA personnel to determine whether the bolts met acceptance criteria, an action which he did not take. As a Pullman Field QC Inspector, checking procurement specifications was outside the scope of both his training and job duties. This was exactly what Mr. Lockert's supervisor told him. He was at no time told to accept the bolts because the rejection criteria were not in the ESD, as alleged in Mr. Lockert's affidavit.

47. The acceptance criteria for the bolts are properly specified in the procurement documents. The acceptance criteria for the installation of bolts are contained in the ESD. Thus, the allegation that there were no "rejection criteria" is simply not true.

JI #119, Motion at 35.

It is alleged that:

QA Management did not take prompt action to inform inspectors of changes in acceptance criteria. The result is that an unknown number of inspections were conducted to the wrong standard. An example involves hardened steel washers. On November 8, 1983 Mr. Lockert learned that the criteria had been changed and promptly notified QA manager, Karner. The result? As of December 15, 1983 the relevant engineering specification had not been changed, and the other inspectors had not been notified of the new criteria. (citing Lockert Aff. at A9.)

48. The allegation is that Mr. Karner failed to notify the QC inspectors of a change in acceptance criteria after he had known about it for a month. The allegation is untrue, and, even if it were, the situation described is of no significance.
49. When Mr. Lockert inspected rupture restraint 5-3RR on November 8, 1983, he discovered the washers in place were a larger size than permitted by ESD 243, Revision 6/9/81, Chart "D"; consequently, he stopped work. Mr. Lockert then went to the Pullman Engineering Group and to Pullman engineer, Dale Warren. Mr. Warren talked with, and wrote a memo to, the responsible PGandE General Construction Engineer for clarification.



50. The PGandE Engineer, Ken Morgan, determined that the source document, ESD 243, Chart "D", used by Mr. Lockert during the inspection, referenced the American Institute of Steel Construction (AISC) Manual. Further study showed that the original criteria upon which ESD 243, Chart "D", was based had been deleted from the AISC Manual and replaced by a reference to an ASTM material specification. This recently modified specification, ASTM A436, allows washers with a larger diameter hole. Consequently, requirements of ESD 243 were more stringent (i.e., more conservative than the industry standard). Based on this review by Mr. Lockert and those he contacted, the installed washers were obviously found to be acceptable, and the work was allowed to proceed on November 9, 1983, one day after Mr. Lockert's concern was raised.
51. In the allegation, Mr. Lockert said that he relayed this information to Mr. Karner, who then failed to notify other inspectors that the ESD was out of date and the new criteria were in effect. A review of the files has not located a written memo or other documentation of such a notification to Mr. Karner, and Mr. Karner has no knowledge or memory of any such notification. In any event, the item is of minor significance since the changed criteria are less conservative than those in the ESD, and, in accordance with QA procedures, the change is not of the type to have required immediate action. The change is being made in the pending revision of ESD 243 however.

JI #121, Motion at 36.

It is alleged that:

Pullman failed to adequately train its QC inspectors to report QA violations. The lecture portion of the program does not include preparation of DCN's. One veteran inspector still onsite reports that until the NRC came to interview workers in January 1984 he didn't even know that inspectors had the right to prepare NCR's. He added that "we never had been told, orally or in writing, about how to fill out a Non-Conformance (sic) Report..., nor would I have any idea where to get a blank form an NCR." (citing 1/12/84, Anon. Aff. at 8.)

52. The second portion of the allegation represents an apparent misunderstanding by the anonymous alleger in that there is no form or report entitled "Non-Conformance Report" or "NCR" in the Pullman QA Program. It is, therefore, not surprising that this Pullman QC Inspector was not told how to fill one out.
53. The term "NCR" in the allegation is apparently a reference to a PGandE "Nonconformance Report." As defined in the PGandE Quality Assurance Manual, Procedure 10.1, these documents are initiated by PGandE Departments or PGandE QC/QA, rather than by contractors such as Pullman.
54. The allegation that QC inspectors are not adequately trained to report QA violations is patently untrue; that is one of the most fundamental and emphasized aspects of the training program for QC inspectors. The document prepared by Pullman QC inspectors in the field is a "Deficient Condition Notice" (DCN). The Pullman program for training and certification of QC inspectors thoroughly addresses the method of reporting QA violations through the preparation of DCNs.

55. Pullman QC inspector trainees, once they have completed the self-study and testing segment of their training, are sent into the field with a certified inspector to obtain proficiency training specific to the types of inspection that each inspector will be expected to perform after being certified. Documentation is an integral part of this proficiency training of which initiating DCNs is included.

DATED: March 17, 1984

Donald Geske  
Donald Geske

Al Eck  
Al Eck

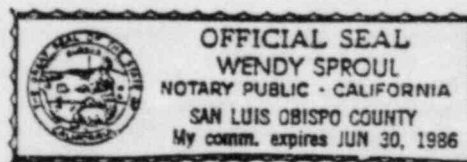
Michael MacCrae  
Michael MacCrae

John Guyler  
John Guyler

Harold Karner  
Harold Karner

Subscribed and sworn to  
before me this 17th day  
of March, 1984

Wendy Sproul  
Wendy Sproul  
Notary Public in and for the  
County of San Luis Obispo,  
State of California.  
My commission expires  
June 30, 1986



Exhibits

1. QA Instruction #126.
2. Memorandum from A. A. Eck to H. W. Karner, June 29, 1982.
3. Memorandum from A. A. Eck to Harold Hudson, July 16, 1982.
4. "Internal Auditing Procedure of Field QA Program by Field Staff,"  
ESD 263, 9/1/83.
5. "Hydrostatic Test Procedure (ANSI B31.7, ANSI B31.1, ASME Section 1),  
ESD 229, 11/21/72.
6. Hydrostatic Test Procedure Data Report.

Q.A. INSTRUCTION #126

Fabrication, Installation & Inspection Requirements for  
Vent Stack Support Steel and Equipment Anchor Modifications.

- I. The requirements of E.S.D. 243 shall be applicable for the above work except as follows:

5-80

- A. Para 2.1.4.2 is changed as follows:

Requirements to grind back to bright metal is applicable to vent stack steel, and equipment anchor modifications.  
Ref: ALSC para-1.23.2 and 1.23.3.

**VOID**

5-80

- B. Para 2.5.1 is changed as follows:

Inspection shall be performed and documented on the attached process sheet. Inspection points where required shall be material verification, clean, fit-up, preheat, after the root pass on multi pass fillets and when the weld is complete. Vent stack full penetration welds shall be U.T. inspected when the thinner member to be joined is greater than 1".

5-80

- C. Weld rod for shop welds will be drawn against the fabrication drawing number but does not have to be traceable to each joint. Weld rod control and storage is not changed.

5-80

- D. Weld numbers will be assigned to the fabrication drawings. Process sheets for shop welds (Form 74-70-213-29, Rev. 1) and field welds (Forms 74-70-213-27C and 74-70-213-27A) will be prepared by the Engineer and forwarded to Q.A. for review.

*Donald R. Geske*  
Donald R. Geske  
Field QA/QC Manager

PG&E Approval: *M. Z. Hughes*Date: 7-25-80



Date		Time	Weld No.	Weld Symbol				
No.	OPERATION	Instr. & Date Changes to Process Sht.	Hold for Insp. No.	Proc. Insp. No.	Oper.	Date Comp.	QA Insp.	Insp. Date
1.	VERIFY MATERIALS/LOCATION		*	ESD 243				
2.	CLEAN		*	ESD 243				
3.	MIN. PREHEAT = $\quad^{\circ}\text{F.}$ Maximum Interpass = 500 $^{\circ}\text{F.}$ (recheck form attached)		*	ESD 243				
4.	FIT-UP (includes tacks)		*	ESD 243				
5.	Special Instructions:			X				
5a.	YES Maintain preheat thru weld complete up to NO 25% (ref. QA Instruction #142)			X				
	Special Welding Instructions			X				
5c.	Weld Sequence:			X				
5d.	Maximum Electrode Size:			X				
6.	ROOT PASS			7-8				
7.	GRIND - REMOVE BACK STR. etc.			X				
8.	BACK WELD ROOT PASS (Single or double bev)			7-8				
9.	WELD COMPLETE (alternate on double bev)			7-8				
10.	WELD COMPLETE W/ $\frac{1}{8}$ " Radius or Fillet			7-8				
11.	FINAL VISUAL & PREP FOR NDEW/FINAL CONTOUR		*	ESD 243				
12.	H.T.		*	PCGE 3212				
13.	H.T. (48 hours after weld complete if HRJ)		*	PCGE 3523				

**VOID**

COMMENTS:

REMARKS: OFFICER'S SIGNATURE TO BE PLACED HERE WITH PHOTO.  
This form is for weldment work on full penetration welds only.



Gr. No.	OPERATION	Init. & Date changes to Process Sht.	Hold for QA Insp.	Proc. No.	Oper.	Date Comp.	Q.A. Insp.	Insp. Date
	VERIFY MATERIALS / LOCATION		*	ESD 243				
	CLEAN		*	ESD 243				
	MIN. PREHEAT = F.		*	ESD 243				
	MAXIMUM INTERPASS = F. (recheck form attached)			ESD 243				
	FIT-UP (includes tacks, Code 7-8)		*	ESD 243				
	Special Instructions:							
a.	YES Maintain preheat thru weld complete							
	NO (Ref. Q.A. Instruction #142)							
b.	Special Weld Instructions:							
c.	Weld Sequence:							
d.	Maximum Electrode Size:							
	ROOT PASS (Applies only if multiple pass)		*	7-8				
	WELD COMPLETE			7-8				
	FINAL VISUAL and dimensional check		*	ESD 243				
	H.T. (All partial pen and fillets $\geq \frac{1}{8}"$ )		*	PG&E 3212				
	COMMENTS:							

[illegible]

**VOID**

\*Preheat check is required prior to root pass welding.

## INTEROFFICE CORRESPONDENCE

DATE June 29, 1982  
TO H. W. Karner  
FROM A. A. Eck  
SUBJECT Management Personnel

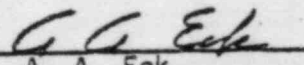
Reference: Memo from Internal Auditor, Dated June 14, 1982

The success of any organization is predicated on an adequate and qualified staff of personnel. Although the concerns of the Internal Auditor may be justified, I find nowhere in ESD-263 provisions for this type of auditing and reporting.

It would be my opinion that Messrs. Ryan and Karner are intelligent enough to realize their needs and ask for additional qualified personnel when required.

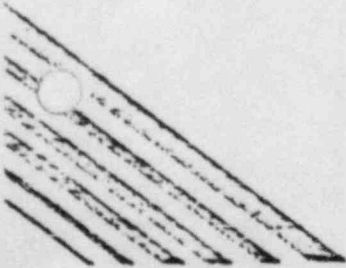
The Internal Audit Program should be restructured to the provisions of ESD-263 and reported accordingly.

The AAR's should be responded to by Supervision in writing within ten (10) calendar days. If this is an unrealistic time schedule, revise the procedure to read thirty (30) working days or some time schedule that can be met on an on-going basis.

  
A. A. Eck

AAE/lam

cc: J. W. Ryan  
H. Hudson  
File



## INTEROFFICE CORRESPONDENCE

DATE July 16, 1982  
TO Harold Hudson  
FROM A. A. Eck  
SUBJECT AAR's #1 and #2 of Audit Report #31

Reference: Your Memo Dated July 8, 1982

Gentlemen:

The organizational level addressed for unscheduled Audit #31, conducted 7/6/82, is incorrect due to incorrect application of ESD 263.10.1. The Supervisor that is referenced in ESD 263.10.1 is the same Supervisor that is included in ESD 263.8.1. It was never intended that the Director of Quality Assurance attend Post Audit conference at Diablo Canyon for review of Internal Audit Findings.

The original Audit Action Requests, from Internal Audit #101 and the unscheduled Internal Audit #29, were assigned for review of Audit Findings, determination of Corrective Action, and implementation of steps to preclude recurrence to the Field QA/QC Manager and should have been assigned to the appropriate Supervisor of the Audited Department. See NOTE of ESD 263.8.1 QUOTE, Recommended corrective action by QA is not mandatory. The supervisor is responsible for determining and initiating all corrective action. Corrective action will be subject to Field QA/QC Manager approval, end Quote.

- A. Therefore resolution of no formal Procedure Qualification Records for NDE Procedures should be assigned to the responsible NDE Supervisor.
- B. Resolution of improperly accepted Rupture Restraint Groove Welds should be assigned to the QC Supervisor.

It appears that the Administration of the Internal Audit Program has not complied with ESD 263.8.1 in that there is no evidence to suggest that a Post Audit Conference was held with the responsible Supervisor of the Audited Department. By eliminating the Supervisors from the administration of corrective action, the audit results have forced the QA/QC Manager to address all problems, major and minor, thus constituting a violation to ESD-263 as written and approved by PG&E for implementation on the Diablo Canyon Project.



DATE July 16, 1982  
TO: Harold Hudson  
SUBJECT: AAR's #1 and #2 of Audit Report #31  
PAGE NO. 2

RECOMMENDATION

A review of all outstanding Audit Action Requests be conducted by the Internal Auditor with assignment of responsibilities adjusted to be in complete compliance with ESD 263.8.1 and begin the cycle of response and review. The QA/QC Manager shall review and approve the Corrective Action upon satisfactory and timely implementation.

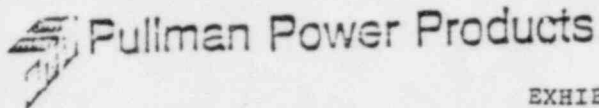
It is further recommended the Internal Auditor review ESD-263 in its entirety concerning administration to assure a realistic, viable program of Audit implementation within the scope of the procedure meeting the procedure objectives.

A. A. Eck  
A. A. Eck

AAE/lam

cc: H. W. Karner  
J. W. Ryan  
~~REDACTED~~





ESD 263

EXHIBIT NO. 4

ISSUE DOCUMENT NO.  
DATE: 6-26-78

PREPARED BY: R. Sneer

APPROVED BY: J. P. Runyan

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB# 7177PAGE COVER SHEET  
NO.LATEST REV. DATE  
9-1-83TITLE: INTERNAL AUDITING PROCEDURE  
OF FIELD QA PROGRAM BY  
FIELD STAFF

## APPROVAL (AS NOTED)

- ☐ Approved as to Substance  
☐ Subject to Notations Shown  
☐ Not Approved  
☐ Revised Drawings Required  
☐ Furnish Reproducibles  
☒ Approved for Construction

Resident Engineer

By \_\_\_\_\_ Date 10/21/83

PACIFIC GAS & ELECTRIC CO.  
Diablo Canyon

PREPARED BY

PULLMAN POWER PRODUCTS

HEADQUARTERS AT

WILLIAMSPORT, PENNSYLVANIA

PG&E G.C.  
QUALITY CONTROL

REVIEWED

DATE

10/21/83

REVISION	PREPARED BY	APPROVED BY	INITIALS	
9-1-83	J. Guyler	H. Karner	HK	Added Paragraph 10.5 & Appendix E Revised Appendix C
				FOR INFORMATION ONLY

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Pullman Power Products

ESD-263

SECTION NO.

PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANT

TO BE USED  
ONLY ON JOB # 7177

PAGE  
NO. 1 of 16

## 1.0 SCOPE

- 1.1 This procedure outlines the requirements for internal audit of the Quality Assurance Program implementation, for erection of Piping, Hangers and Rupture Restraints, by Pullman Power Products, Diablo Canyon Project.

## 2.0 DEFINITIONS

- 2.1 A.A.R. (Audit Action Request): Records audit findings, suspected cause of findings, recommended corrective action, corrective action taken, steps to prevent recurrence and follow-up activities.
- 2.2 Findings: These are the specific items discovered during an audit which shall be identified on A.A.R.'s as either Code 1 (nonconformance) or as Code 2 (item of concern).
- 2.3 Items of Concern: Items found during an audit that denote a possible deficiency in a program, or an activity bordering on nonconformity, which requires supervisory attention. (Code 2). No written response is required.
- 2.4 Nonconformity: Out of specification or out of code, piping or components. Damaged piping or components requiring repair. A discrepancy that might by itself or by its relation to other components, adversely affect performance, reliability or result in malfunction. Any departure from the specification or drawing that can't be corrected by the normal course of construction. (Code 1) Requires written response.
- 2.5 Observation Code: Numerical code assigned to a finding identifying seriousness of the finding. Code 1 findings indicates a deviation which requires corrective action, steps to prevent recurrence and written response. Code 2 items of concern which may require supervisory attention. Does not presently constitute a deviation and requires no written response.
- 2.6 Program Deficiency: Program does not adhere to applicable specifications or codes, or does not adequately define job requirements.
- 2.7 Quality Audit Summary Report: Is the report that compiles the A.A.R.'s and delineates the distribution of the report.

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PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 2 of 16

2.8 Recommended Corrective Action - Is action that may be used by the audited supervisor to correct the findings in an AAR. the audited supervisor may implement other corrective actions with QA approval.

2.9 Steps to Prevent Recurrence - Steps taken to assure that the discrepant condition does not recur.

### 3.0 RESPONSIBILITY

3.1 The Field QA/QC Manager or his designee is responsible for the implementation of this procedure. This includes audit scheduling, auditing, documentation of audit results, recommending corrective action, audit follow-up and maintenance of audit records.

3.2 The assigned QA auditor shall report his findings to the Field QA/QC Manager. The Field QA/QC Manager shall assure that appropriate action as indicated by this procedure, is taken. He shall report the audit finding and results to the corporate QA Manager.

### 4.0 PERSONNEL

4.1 The auditor shall not have direct responsibility for performance of the activities being audited.

4.2 The auditor shall have sufficient education, special abilities, training (if required), and/or prior pertinent experience to assure sufficient knowledge of the activity being audited.

4.3 Auditor training, indoctrination and qualification shall contain, but not be limited, to the following:

4.4.1 Review of governing documents

4.4.2 Indoctrination in applicable procedures and/or processes.

4.4.3 Participation in a minimum of two audits as Auditor-in-training.

4.4.4 Auditor qualification will be determined by the Field QA/QC Manager based on completion of the above requirements

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PREPARED BY: R. Sheer

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DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 3 of 16

## 5.0 OBJECTIVES

To perform a comprehensive audit of the following listed activities and to report the audit findings, and if required, make recommendations for corrective action, steps to prevent recurrence and perform follow-up audits to assure corrective action has been implemented and is effective.

5.1 Organization

5.2 Quality Assurance Program

5.3 Design Control

5.4 Procurement Document Control

5.5 Instructions, Procedures and Drawings

5.6 Document Control

5.7 Controls of Purchased Material, Parts and Components

5.8 Identification and Control of Material, Parts and Components

5.9 Control of Special Processes

5.10 Inspection

5.11 Test Control

5.12 Control of Measuring and Test Equipment

5.13 Handling, Storage and Shipping

5.14 Inspection, Test and Operating Status

5.15 Nonconforming Items

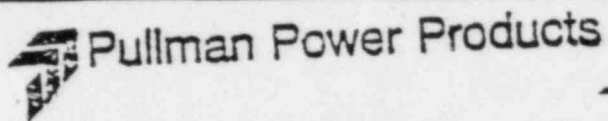
5.16 Corrective Actions

5.17 Quality Assurance Records

5.18 Audits

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ONLY**





ESD-263

SECTION NO.

PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 4 of 16

## 6.0 AUDIT SCHEDULE

2-9-82

- 6.1 Audits will be performed in such a manner that all objectives will be covered at least one time annually. (Reference: Appendix D).
- 6.2 This audit schedule is a minimum and the frequency may be increased at any time based upon past performance and/or increased utilization, or as directed by the Field QA/QC Manager.
- 6.3 The above requirement may be reduced, with the approval of the Field QA/QC Manager, due to diminished involvement of the activity within the Quality Assurance Program. If an audit frequency reduction is made, a letter will be filed indicating the reason for reduction and forwarded to the corporate QA Manager.

## 7.0 AUDIT IMPLEMENTATION

- 7.1 The auditor shall prepare a written audit checklist which shall outline the audit schedule, activities to be audited, department involved and applicable documents. (Appendix "A")
- 7.2 Checklists shall be developed and used to assure depth and continuity of the audits. The audits are not restricted to the checklists. The checklists shall be used as a minimum requirement guide only.
- 7.3 The audit schedule, procedures and checklists are subject to approval by the Field QA/QC Manager.
- 7.4 The audit process shall function as follows:
- 7.4.1 The Authorized Nuclear Inspector (ANI) shall be notified prior to each audit.
- 7.4.2 A pre-audit meeting shall be held by the Internal Auditor with the applicable supervisory personnel to advise them of the scope of the audit. The supervisor shall assign personnel as needed to provide adequate support and assistance to the auditor.
- 7.4.3 Objective evidence shall be examined for compliance with QA Program requirements.
- 7.4.4 When a nonconformance or program deficiency is identified, further investigation shall be conducted in an effort to identify the cause. Recommendations for corrective action will be made and recorded on an Audit Action Request (A.A.R.). (Appendix "B")

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PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 5 of 16

7.4.5 Nonconforming items shall be acknowledged by a responsible member of the department audited.

7.4.6 Those conditions requiring immediate corrective action, shall be reported promptly to the Field QA/QC Manager for implementation of the corrective actions.

7.4.7 The QA/QC Manager shall review all findings and, if required initiate a D.R. and/or NCR.

#### 8.0 AUDIT DOCUMENTATION

8.1 At the conclusion of the audit, a post audit conference shall be held with the responsible supervisor of the audited department. The findings, items of concern and recommended corrective actions will be presented in a preliminary form.

NOTE: Recommended corrective action by QA is not mandatory. The supervisor is responsible for determining and initiating all corrective action. Corrective action will be subject to Field QA/QC Manager approval.

8.2 The A.A.R.'s which report findings, will then be forwarded to the responsible supervisor with a written summary, Quality Assurance Summary Report (Appendix C). This summary will compile the A.A.R.'s, the findings and items of concern. Each item will be coded.

8.3 The Auditor shall be responsible for the consolidation of data and preparation of the written results of the audit assuring completion of the below listed items:

8.3.1 Audit Checklist - Appendix "A"

8.3.2 Audit Action Request - Appendix "B"

8.3.3 Quality Assurance Summary Report - Appendix "C"

8.3.4 Other pertinent documents

#### 9.0 DISTRIBUTION OF AUDIT RESULTS

9.1 The required distribution will be identified on the Quality Audit Summary Report by the Internal Auditor.

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PREPARED BY: R. Sheer

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DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 6 of 16

9.2 As a minimum this distribution will include:

9.2.1 The Resident Construction Manager (PPP)

9.2.2 The Director of Quality Assurance (Williamsport)

9.2.3 The Field QA/QC Manager

9.2.4 The Area Audited Supervisor

9.2.5 The Authorized Nuclear Inspector

9.2.6 PG&amp;E, Resident Mechanical Engineer

9.2.7 File

## 10. AUDIT FOLLOW-UP

10.1 Supervision of the audited department shall review the audit findings (A.A.R.'s), determine the corrective action, and implement steps to preclude re-occurrence, and respond in writing within ten (10) calendar days, after receipt of the report.

10.2 The Auditor shall review the response, evaluate its adequacy and assure that corrective action was implemented as scheduled. This shall be the form of a written report to the Field QA/QC Manager. The Field QA/QC Manager shall indicate his approval of the corrective actions or enter further recommendations as required. The response will be filed with the audit report.

10.3 If the audited supervisor does not respond by the due date, the Internal Auditor shall conduct follow up to determine cause.

10.4 Report the findings to the QA/QC Manager for further action.

10.5 In the event the A.A.R. cannot be answered within a ten (10) calendar day period, the responsible supervisor shall request an extension in writing indicating a timely completion date. The acceptance of this extension shall be at the discretion of the QA/QC Manager and/or the Internal Auditor. This will be documented under comments on the A.A.R. due list (Appendix E).

## 11. RECORDS

11.1 All audit records shall be collected, retained and stored by Field Staff Quality Assurance.

11.2 These shall include the audit reports, replies, corrective action records and any other supporting documents.

11.3 Records shall be kept of auditing personnel qualifications and training.

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Pullman Power Products

ESD-263

SECTION NO.

PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANT

TO BE USED  
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PAGE  
NO. 7 of 16

APPENDIX "A"

Pullman Power Products

DIABLO CANYON  
NUCLEAR POWER PLANT

FORM E-124 REV. 7/6/78  
REV. 3/30/79

PAGE OF

QUALITY AUDIT CHECKLIST

AUDIT NO. 1 (1)

DATE: (2)

AUDIT CRITERION

REFERENCE DOCUMENTS: (3)

ACTIVITY: (4)

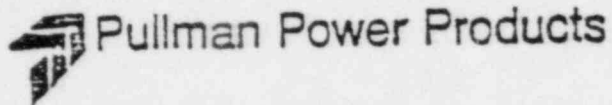
PROGRAM REQUIREMENT

OBSERVATION

(5)

(6)

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ESD-263

SECTION NO.

PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
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NO. 8 of 16QUALITY AUDIT CHECKLIST  
(Form F-124 Appendix "A")

The following instructions have been written to allow the individuals filling out this form, to be familiar with the appropriate information for each block or space.

## BLOCK

DESCRIPTION OF ENTRY

- 1 The audit numbers shall be a serialized number.
- 2 This shall be the date(s) of the audit, such as "12-12 to 15-77".
- 3 The governing documents that apply to this audit shall be checked or written in the appropriate block.
- 4 The objective audited will be written in this space.
- 5 Program requirements used to evaluate the Program.
- 6 — The observations shall provide objective evidence to substantiate the proficiency and implementation of the Program.

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Pullman Power Products

ESD-263

SECTION NO.

PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANT

TO BE USED  
ONLY ON JOB # 7177

PAGE  
NO. 9 of 16

APPENDIX "B"

FORM P-125 REV. 7/6/78  
REV. 3/30/79



Pullman Power Products

DIABLO CANYON  
NUCLEAR POWER PLANT

PAGE \_\_\_\_ OF \_\_\_\_

AUDIT ACTION REQUEST

FILE NO.: ①	AUDIT NO.: ②	A.A.R. NO.: ③
OBSERVATION CODE: ④	ACTIVITY AUDITED: ⑤	
AUDIT DATE: ⑥	⑦	
REFERENCE DOCUMENTS: ⑦		
FINDING: ⑧		
FINDING BY: ⑨	DATE: ⑨	ACK'D BY: ⑩ DATE: ⑩
SUSPECTED CAUSE:	⑪	
RECOMMENDED CORRECTIVE ACTION:	⑫	DUE DATE: ⑬
CORRECTIVE ACTION TAKEN: ⑭		
TAKEN BY: ⑮	APPROVED BY: ⑯	
STEPS TO PREVENT RECURRENCE: ⑰		
TAKEN BY: ⑰	APPROVED BY: ⑰	
FOLLOW UP: ACTIVITY COMPLIES WITH APPROVED CORRECTIVE ACTION IF NO - PLEASE EXPLAIN: ⑱ YES NO		
BY:	DATE:	
A.A.R. CLOSED BY: ⑲	DATE:	
APPROVED BY: ⑲	DATE:	

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PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 10 of 16Audit Action Request  
(Form #125) Appendix B

The following instructions have been written to allow the individuals filling out this form, to be familiar with the appropriate information for each block or space.

<u>BLOCK</u>	<u>DESCRIPTION OF ENTRY</u>
1	The file number indicates number of activity audited (Ref. Para 5.0).
2	The audit number shall be a serialized number.
3	The AAR Number shall consist of the audit number, a single sequential number followed by the number of total AAR's for each audit, such as: 1-1 of 5, 1-2 of 5, etc.
4	The applicable observation code shall be placed in this blank (Ref. Appendix "C", Item 8)
5	The activity name shall contain the name of the audited activity such as Control of Measuring and Test Equipment. (Ref. Para. 5.0)
6	The audit date shall be the date of dates that the audit was conducted.
7	The Reference documents shall be listed by Code or Procedure or QA Manual Section and paragraph.
8	The finding shall be written in clear and concise terms and to the point.
9	The originator of the finding shall place his name and date in this blank.
10	The party being audited shall affix his signature and the date.
11	The auditor shall enter his opinion of the reason for (cause) of the deficiency.

SF 1.06

FOR INFORMATION  
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PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 11 of 16

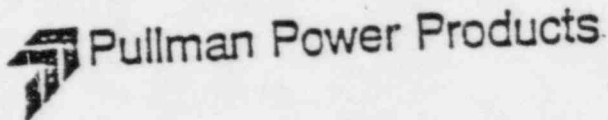
## -----APPENDIX B (Continued)-----

BLOCKDESCRIPTION OF ENTRY

- |    |   |
|----|---|
| 12 | Shall be initiated by the auditor and comprise a workable correction action.  |
| 13 | This date shall not be greater than ten (10) calendar days after the post audit conference.   |
| 14 | The corrective action taken shall indicate taken to correct the deficiency.   |
| 15 | Person responsible for taking corrective action.  |
| 16 | Field QA/QC Manager approval  |
| 17 | Steps to prevent recurrence shall show steps taken by the audited area supervisor to prevent recurrence of finding. He shall sign area indicated. |
| 18 | — The follow-up: Report by Auditor of effectiveness of implemented corrective action and steps to prevent recurrence, his signature and date.     |
| 19 | Closed by auditor after he assures all required actions have taken place.   |

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ESD-263

SECTION NO.

PREPARED BY: R. Sheer

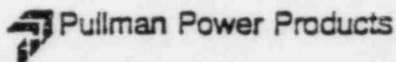
APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 12 of 16

9-1-83

## APPENDIX "C"

FORM F-125 rev. 7/6/78  
rev. 1/3/79  
rev. 3/29/79DIABLO CANYON NUCLEAR  
POWER PLANT

Page \_\_\_\_ OF \_\_\_\_

## QUALITY AUDIT SUMMARY REPORT

AUDIT NO.:

FILE NO:

NO.:

AUDIT DATE:

ACTIVITY AUDITED: ESD-263, Paragraph 5.  
CONTROL OF MEASURING AND TEST EQUIPMENT  
APPLICABLE DOCUMENTS

## DISTRIBUTION

PURPOSE OF AUDIT

OTHER

TITLE	NAME
VICE PRESIDENT QA	
DIRECTOR OF QA	
RESIDENT CONSTR. MGR.	
SUPER. AREA AUDITED	
A.N.I.	
FIELD QA/QC MANAGER	
V.P. MECH. CONSTR.	
PG&E	
FILE	

CODE

A.A.R.  
#

SUMMARY

RESPONSIBLE CONTACT: H. Karner  
TITLE: QA/QC ManagerPREPARED BY: J. Guyler  
TITLE: Internal Auditor DATE:

SF 1.06

FOR INFORMATION  
ONLY



Pullman Power Products

ESD-263

SECTION NO.

PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANT

TO BE USED  
ONLY ON JOB # 7177

PAGE  
NO. 12A of 16

APPENDIX "C" (Extra Sheet)

FORM F-126A REV. 7/5/72  
REV. 1/30/77



Pullman Power Products

DIABLO CANYON NUCLEAR  
POWER PLANT

PAGE \_\_\_\_ OF \_\_\_\_

7

QUALITY AUDIT SUMMARY REPORT		
AUDIT NO.:	FILE NO.:	AUDIT DATE:
CODE	A.A.A. #	SUMMARY
	1	

RESPONSIBLE CONTACT:	PREPARED BY:	DATE:
TITLE:	TITLE:	

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ONLY

PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 13 of 16Quality Audit Summary Report  
(Form #126) Appendix "C"

The following instructions have been written to allow the individuals filling out this form, to be familiar with the appropriate information for each block or space.

BLOCKDESCRIPTION OF ENTRY

- 1 The file number indicates number of Activity being audited (Ref. Para. 5.0).
- 2 The audit number shall be a serialized number.
- 3 This shall be the date(s) of the audit.
- 4 The objective that was audited, such as inspection.
- 5 The Governing Documents that apply to the audit.
- 6 The purpose of the audit shall be indicated, such as, "scheduled or un-scheduled."
- 7 The applicable personnel, indicated by name shall receive as many copies of this report as shown next to their name, such as "Mr. J.R. Jones-2."
- 8 The applicable observation code shall be placed in this block, as defined below:
  - Code 1 - Observation which require a written response.  
Deviations from requirements.
  - Code 2 - Observations which warrant monitoring to prelude deviating from requirements (These observations are not presently deviations); or closing of "Open Items" from previous audits. No response is required.

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PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

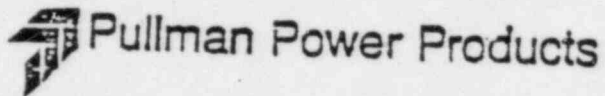
DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 14 of 16

## "APPENDIX C" (Continued)

BLOCKDESCRIPTION OF ENTRY

- 9 The Audit Action Request (AAR) number shall be placed adjacent to applicable comments in the summary, relating to it.
- 10 The summary shall contain the following, but it is not limited to:
- A: Purpose
  - B: Scope
  - C: Main Body - containing a general outline of areas audited, along with a satisfactory and unsatisfactory evaluations.
- 11 Shall be the Manager of the Audited Department.
- 12 Shall be the Auditor preparing the audit report.

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ONLY



ESD-263

SECTION NO.

PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 6-26-78

DIABLO CANYON  
NUCLEAR POWER PLANTTO BE USED  
ONLY ON JOB # 7177PAGE  
NO. 15 of 16

## APPENDIX "D"

2-9-82

AUDIT SCHEDULE TO

FILE NO.	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1. Organization	X											
2. Quality Assurance Program		X										
3. Design Control			X									
4. Procurement Document Control				X								
5. Instructions, Procedures and Drawings					X							
6. Document Control						X						
7. Controls of Purchased Material, Equipment and Services							X					
8. Identification and Control of Material, Parts and Components								X				
9. Control of Special Processes									X			
10. Inspection										X		
11. Test Control											X	
12. Control of Measuring and Test Equipment												X
13. Handling, Storage, and Shipping	X											
14. Inspection, Test and Operating Status		X										
15. Nonconforming Items			X									
16. Corrective Action				X								
17. Quality Assurance Records					X							
18. Audits						X						

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## Pullman Power Products

ESD-263

SECTION NO.

PREPARED BY: R. Sheer

APPROVED BY: J. P. Runyan

DATE: 9-1-83

DIABLO CANYON  
NUCLEAR POWER PLANT

TO BE USED  
ONLY ON JOB # 7177

PAGE  
NO. 16 of 16

9-1-83

## APPENDIX E

AAR DUE LIST

[illegible]

SF 1-06 FOR INFORMATION  
ONLY

HYDROSTATIC TEST PROCEDURE(ANSI - B31.7, ANSI B31.1  
& ASME SECTION 1)1.0 SCOPE

- 1.1 This procedure is written to cover Hydrostatic testing of systems or parts of systems.

2.0 REQUIREMENTS

- 2.1 Completed systems shall be subjected to a test pressure so that, at every point in the piping system, the pressure is not less than 1.25 times the lowest design pressure of any component in the system for B31.7 or 1.5 times for B31.1 and ASME SECTION 1.
- 2.2 The test pressure for the piping shall not exceed the maximum test pressure of any vessels or components in the piping system.
- 2.3 B31.7 Systems-Completed systems shall be subjected to a Hydrostatic test pressure that at every point in the piping system is not less than 1.25 times the design pressure multiplied by the lowest ratio (for materials of which the piping is constructed) of the allowable stress intensity value,  $S_m$ , for the test temperature of the system to the allowable stress intensity value,  $S_m$ , for the design temperature (See B31.7 Paragraph 1-701-3.2; for  $S_m$  values see B31.7 Table A.1 of Appendix-A).  
If the minimum test pressure defined above is to be exceeded at any point in the piping system by more than 6%, the upper limit shall be established by the design engineer using an analysis which includes all loadings that may exist during the test. The calculated primary membrane stress intensity shall not exceed 90% of the tabulated yield strength at the test temperature of a primary membrane plus primary bending stress intensity of 135% of the tabulated yield strength at the test temperature. Following the application of the Hydrostatic test pressure for a minimum of 10 minutes, examination for leakage shall be made of all joints and connections and of all regions of high stress, such as regions around openings, and thickness transition sections. This examination shall be made at a pressure equal to the greater of the design pressure or three-fourths of the test pressure.
- 2.4 ASME Section 1 requires a test pressure of  $1\frac{1}{2}$  times the maximum allowable working pressure to be stamped on the boiler. The pressure shall be under proper control at all times so that the required test pressure is never exceeded by more than 6%. Close visual inspection for leakage is required during this stage. The Hydrostatic test pressure may then be reduced to the maximum allowable working pressure to be stamped on the boiler and maintained at this pressure while the boiler is carefully examined.



- 2.5 B31.1 Piping-The test pressure for the piping shall not exceed the maximum test pressure of any vessels or components in the piping system. The Hydrostatic test pressure of a piping system shall be 1.5 times the design pressure unless a lesser pressure is indicated above.
- 2.6 The Hydrostatic test shall be maintained for a minimum total time of ten minutes.
- 2.7 All joints including welds shall be left uninsulated and exposed for examination during the test.

### 3.0 PROCEDURES

- 3.1 Before each test or series of tests the chief engineer and the Q.A. Manager shall prepare a Process Sheet and a Specific Check List for the operation. This list will be signed off by the chief engineer under prepared by, the Q.A. Manager under approved by, the Responsible Field Engineer, Q.A. Inspection and Authorized Inspector under accepted by.
- 3.2 The test pressure shall not be applied until the system and the pressurizing medium are at about the same temperature (+ or - 10°F).
- 3.3 Vents shall be provided at all high points of the system in the position in which it is to be tested to purge air pockets while the system is filling.
- 3.4 The test equipment shall be examined before pressure is applied to insure that it is tight and safe.
- 3.5 A pressure-test gauge shall be connected directly to the piping and shall be of the indicating type.
- 3.6 A pressure-test gauge must be visible to the testing equipment operator. If this is not possible, then a second gauge shall be used.
- 3.7 Indicating pressure gauge shall have a range of about double the intended minimum test pressure, but in no case shall the range be less than  $1\frac{1}{2}$  nor more than 4 times that pressure.
- 3.8 All gauges shall be calibrated against a standard dead-weight tester prior to each test or series of tests. Gauges shall be re-calibrated at least every six (6) months.





- 3.9 Following the application of the Hydrostatic test pressure, for a minimum of 10 minutes, examination for leakage shall be made of all joints and connection and of all regions of high stress.
- 3.10 Any leaks that are present, shall be eliminated, after which the system shall be retested in accordance with this specification.
- 3.11 If the test is acceptable, the system will be completely drained.

#### 4.0 REPORT

- 4.1 Test requirements shall be recorded on the "Hydrostatic Test Report" form (Appendix-A) by the Field Engineer. Test results shall be reported on this form by a Q.A. Inspector. All check lists and forms shall be filed in the Master Job File.

Gauge Number \_\_\_\_\_  
Calibration Date \_\_\_\_\_  
Test Media \_\_\_\_\_  
Test Pressure \_\_\_\_\_

[illegible]

ESD-223  
Final Q.A. Documentation Q. A. \_\_\_\_\_ Date \_\_\_\_\_  
A. I. \_\_\_\_\_ Date \_\_\_\_\_

Approved by: MWR Eng. \_\_\_\_\_ Date \_\_\_\_\_  
 MWR Q.A. \_\_\_\_\_ Date \_\_\_\_\_  
 A.I. \_\_\_\_\_ Date \_\_\_\_\_  
 P.G.C.E. \_\_\_\_\_ Date \_\_\_\_\_

EXHIBIT NO. 6

PACIFIC GAS AND ELECTRIC COMPANY  
STATION CONSTRUCTION DEPARTMENT  
DIABLO CANYON PROJECT

UNIT NO. \_\_\_\_\_

HYDROSTATIC TEST PROCEDURE DATA REPORT

Page 1 of 3

APPROVED

M. W. KELLOGG

Q. A.

P.G.E., Diablo Canyon Project

INITIALS

1. System Description: \_\_\_\_\_

2. Procedure Preparation (Refer to Section 6.1):

Applicable Code \_\_\_\_\_, Design Pressure \_\_\_\_\_ psig @ \_\_\_\_\_ °F,

Test Pressure \_\_\_\_\_ psig, Minimum Test Temperature \_\_\_\_\_ °F.

Valve line-up requirements: Prepare a valve position list as required for system test and record on Page 2.

List special test requirements on Page 3.

Test equipment: Test gauge S/N \_\_\_\_\_, Cal. Date \_\_\_\_\_  
Test relief valve setting \_\_\_\_\_ psig

**VOID**

3. System Preparations (Refer to Section 6.2):

(a) System walkdown completed by: \_\_\_\_\_ MWK \_\_\_\_\_ PG&E

(b) System record review completed by: \_\_\_\_\_ MWK \_\_\_\_\_ PG&E

(c) System Water Fill and air vent completed by: \_\_\_\_\_ MWK \_\_\_\_\_ PG&E

4. Pressure Test (Refer to Section 6.3): MWK Test Director \_\_\_\_\_

(a) Temperature of pipe \_\_\_\_\_ °F, Test Start: Time \_\_\_\_\_ Date \_\_\_\_\_

(b) Ten minutes (minimum) at test pressure comp. \_\_\_\_\_ MWK

(c) Leak examination completed at examination press. \_\_\_\_\_ MWK ( \_\_\_\_\_ PSIG)

(d) System pressure reduced to "0" psig \_\_\_\_\_ MWK

Hydrotest witnessed and approved by:

MWK Q.A.

Third Party Insp.

PG&E

**FOR INFORMATION**

Date \_\_\_\_\_

Date \_\_\_\_\_

Date \_\_\_\_\_

5. Securing (Refer to Section 7.0)

(a) Securing operations complete \_\_\_\_\_ MWK \_\_\_\_\_ PG&E

Remarks: \_\_\_\_\_

# HYDROSTATIC TEST DATA REPORT

SYSTEM \_\_\_\_\_

*did only*

Live line-up requirements: List all valves by either position number or function and indicate the required position to perform hydrostatic test. All valves to be tagged with yellow caution tag after valve is opened or closed according to this list. Initial and date to indicate task is complete.

MWK

PGSE

**VOID**

**FOR INFORMATION**

REMARKS: \_\_\_\_\_

SPECIAL TEST REQUIREMENTS

SYSTEM

*de'gun*

FOR INFORMATION  
ONLY

VOID