

PDR



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

OFFICE OF THE
CHAIRMAN

June 13, 1984

The Honorable Morris K. Udall
Chairman
Committee on Interior and Insular Affairs
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Pursuant to your February 22, 1984 request for answers to ten questions related to the functioning of the nuclear regulatory process at the Diablo Canyon Nuclear Power Plant, I have enclosed our responses.

I trust that these answers are responsive to your questions.

Thank you for your interest.

Sincerely,

A handwritten signature in cursive script, reading "Nunzio Palladino".

Nunzio Palladino
Chairman

Enclosures:
As stated

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PDR COMMS NRCC
CORRESPONDENCE PDR

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QUESTION 1: Please summarize the status of the staff's inquiry into allegations that pipe support calculations were not performed in accord with the requirements of the NRC regulations. Which piping systems, if any, will be modified as a result of errors in the pipe support calculations?

Answer.

As a result of the Independent Design Verification Program (IDVP) the piping and piping supports, both small bore (i.e., less than 2.5 inch diameter) and large bore were reviewed by Pacific Gas and Electric Company's (PG&E) Diablo Canyon Project (DCP). The results of that effort were reported in Supplement 18 of the Safety Evaluation Report (SSER 18). Resolution of some issues identified were addressed in SSER 19 and SSER 20. In late 1983 a number of allegations were made regarding the adequacy of design piping and piping supports, in particular for small bore piping. On March 19 of this year the NRC issued SSER 22 which summarized in Section 5.1 the status of the staff evaluation of allegations on small bore piping as follows:

"The principal technical finding is that the analyses performed by computer for small bore piping supports have been determined to have an unexpectedly large error rate, on the order of twenty percent as compared to ten or less percent that experience has shown is likely. On the other hand the error rate in the hand calculations for small bore piping supports was acceptably low. In light of these findings the staff will require that PG&E establish a program to review all computer analyses for small bore piping supports."

"In partial response to those staff findings the licensee has reported the results of a review of approximately 130 small bore piping support computer analyses including the analyses in which the staff has previously identified errors. The licensee reported that, with errors corrected where necessary, all completed calculations showed final acceptability of the supports. The staff concluded a special inspection to evaluate the process used to re-review the small bore piping calculations packages."

"We found with minor exception, that the review process was comprehensive, was being carried out by qualified individuals, and was conducted in a manner to assure that the results could be accepted with high confidence."

"Analyses of the type and significance of the deficiencies seen to date has led the staff to conclude that, although the design QA program for the OPEG is not up to acceptable standards, the impact in terms of design adequacy, has not been significant."

"Based on the results of the staff's review to date and the types of errors that have been identified it is very likely that modifications, if any, would be minor and only to fully meet seismic criteria with little or no impact on operability of systems under the full range of plant operations. Since some piping support modifications are normally required as a result of initial plant operation, due to unexpected thermal motions or operating requirements of attached or supported equipment, there is sound logic in conducting the required calculations review during low power operation so that any resulting modifications could be included in a orderly and consolidated program prior to full power operation."

On March 26 and 27, 1984 the staff briefed the Commission on a number of issues related to the reinstatement of the suspended low power license. Among other matters, the staff addressed the issue of small bore piping as presented in SSER 22 and stated above. At the meeting Mr. Isa Yin of the NRC staff informed the Commission of the results of his conclusions — regarding inspection and audit activities he performed at the Diablo Canyon site and at the PG&E engineering offices in San Francisco. A copy of Mr. Yin's prepared statement at the meeting is attached. He concluded that Diablo Canyon Unit 1 should not be permitted to go critical and perform low power operations until his concerns have been appropriately addressed.

We directed the staff to further review and evaluate these matters and in particular address each of Mr. Yin's concerns. Furthermore, we requested the Advisory Committee on Reactor Safeguards (ACRS) to review the area of disagreement and to provide us with their evaluation by April 10, 1984. On April 5 - 7, 1984, the ACRS reviewed the technical issues arising from the Diablo Canyon licensee's design control measures for small and large bore piping. During this review members of the NRC staff, including NRC Inspector Isa Yin, representatives of PG&E and of the IDVP organizations, and Mr. Charles Stokes, a member of the public, gave presentations. In a letter dated April 9, 1984 (attached) the ACRS provided their recommendations on this and the additional comments of three members. The ACRS recommended that low power operation be permitted and that the several actions proposed by the NRC staff for completion before operation above five percent power will provide a suitable basis for considering operation at full power. At this time we do not consider the issue of small bore piping and supports resolved. We have not determined that piping system modifications, if any, will be required as a result of these efforts.

The Commission approved a low power license for Diablo Canyon on April 19, 1984.

QUESTION 2:

It has been alleged that inspectors at Diablo Canyon were instructed that they should not inspect welds on materials supplied by vendors, even in situations where the welds appeared defective on the basis of visual observations. Has the Commission established whether such instructions were issued? If such instructions were issued, what was the purpose and did they constitute a violation of the Commission's QA requirements?

ANSWER.

The staff has established that instructions were issued in an April 3, 1980 memorandum to Pullman Power Products (PPP) stating, in part, that "Pullman need not report further test results on shop welds."

To put the memorandum in perspective, it is important to understand what was occurring at Diablo Canyon at the time. In late 1978, cracks were detected by visual inspection of pipe rupture restraint welds made by PPP in the Unit 1 pipeway structure. The welds in question involved high strength alloy steel not widely used. The welds were in thick sections and thus highly restrained. The weld defects in question apparently displayed a delayed cracking phenomena which was not immediately noticeable at the time of welding. This is sometimes a problem with high strength alloy steel. On May 3, 1979, PG&E issued a 10 CFR 50.55(e) construction deficiency report to the NRC.

A substantial repair and testing program was initiated to identify the type, cause and extent of the defects. The program included Ultrasonic Testing (UT) of a sampling of these Pullman high strength welds. Problems were found during the initial repair and testing program such that PG&E expanded the program in order to form a data base to establish the adequacy of these welds. The repair program was a large scale effort well known to PG&E and Pullman welding personnel. The effort was extensively reviewed by NRC. On December 9, 1980, PG&E issued their final 10 CFR 50.55(e) report for Unit 1, which summarizes the background, scope and results of actions taken.

During the evaluation and repair of field welds, a parallel program to examine pipe rupture restraint vendor welded materials (shop welds) was implemented. Vendor welds made with the self-shielded, flux core process were found to be a particular problem. PG&E reviewed all joints where these electrodes had been used. Discrepancies were found and repairs were made.

By April, 1980, PG&E had sufficient data on the other types of shop weld defects to make an engineering evaluation and concluded that the type of indications found were not a problem. They consequently notified Pullman that they had enough data.

Taken in proper context, it would appear that the April 3, 1980 memorandum was written with sufficient information to be understood by those involved in the large scale repair and test program. In fact, the April 3, 1980 memorandum stated that PG&E believed that sufficient data on shop welds existed to preclude the need for Pullman welding inspectors to report further inspection findings on shop welds.

Some in Pullman appear to have been concerned that this April memorandum meant that unless the shop weld defects directly affected their work they were to ignore the defect. Over time, while the repair program was completed on Unit 1 and continued on Unit 2, confusion crept in and prompted PG&E to issue a July 26, 1982 letter to Pullman to clarify the intent of the April 3, 1980 memorandum.

The July 26, 1982 letter states that unless a shop weld defect directly affects Pullman work, there is no need to address that defect because of the extensive engineering evaluation discussed above. The letter also states that shop weld defects not directly affecting Pullman's work should be reported separately and turned over to PG&E.

To address the issue of whether or not there were shop welds that were ignored between April 3, 1980 and July 26, 1982, the staff interviewed six welding inspectors. This represents an estimated 20 percent sample of welding inspectors on site during that interval. Five of the interviewees were on site during this subject time frame. All of the interviewees stated that they were aware of PG&E's engineering evaluation which accepted all shop welds. They also stated, however, that shop weld defects were reported when noticed by issuing a DCN (Deficient Condition Notices) and that final walkdown packages included this information.

In summary, it is the staff's opinion that the technical aspects of this issue were handled properly and that PG&E's April 3, 1980 memorandum was proper when taken in context. Later, confusion apparently spread so PG&E responsibly responded to that confusion in their July 26, 1982 letter to Pullman.

Finally, the April 3, 1980 memorandum which included instructions to Pullman to not report further results on shop welds did not violate the Commission's QA requirements.

QUESTION 3:

With respect to the findings of ongoing inquiries, SSER 21 (P. E-13,14) states that "...no direct evidence was offered by the interviewees concerning experiencing or knowing of any corner cutting, intimidation or harassment..." and that management was "responsive and supportive" of employee concerns. Does the NRC now possess substantial evidence that would cause the staff to change SSER 21's findings regarding harassment and intimidation?

ANSWER.

Based on the staff work in this area it appears that a few individuals feel strongly that they have been directly intimidated. Some have offered specific and detailed reports in support of their allegation. These cases are complex. The staff could not readily tell whether the cases involve intimidation, proper exercise of management prerogatives, or just poor communication. As appropriate, these few cases (eight total) are being addressed through the Department of Labor regulatory process, and/or review by the NRC Office of Investigations. A few additional individuals were concerned about intimidation but indicated their views stemmed from events not directly related to their own experience, such as: general perceptions that the pressure was on to get the job done; rumors of the layoff or firing of another employee as a result of writing a nonconformance report; or, media reports of intimidation. The staff does not detect any widespread company attitude to suppress employee concerns or corrupt the overall effectiveness of the Quality Assurance Program. The staff also found in the conduct of the vast majority of personnel interviews that employees were not afraid to identify and deal with quality problems in a responsible manner, both within their own organizations and with the NRC.

The staff concludes that a widespread suppression problem does not exist at Diablo Canyon, however, the staff is concerned with employee perceptions in this area. Licensee management shares this concern. The staff has reviewed this subject with licensee management and notes that the licensee has undertaken steps to make improvements. This effort includes such actions as the development of video tape presentations for all existing and new employees regarding surfacing of quality concerns; an "800" telephone number for receiving quality concerns; and a system for receipt and resolution of concerns. The licensee's activities in this area will be monitored by the staff.

QUESTION 4: What is the nature of ongoing investigations into allegations of intimidation and harassment?

ANSWER.

OI presently has eight investigative matters involving, either singularly or collectively, intimidation, harassment, and threats. These investigations involve allegations of threats of physical harm; firing of individuals, transferring of persons who raise questions to other jobs; oral reprimands to persons who raise issues; directing quality control inspectors to disregard violations on the grounds defects will be caught by other departments; persons who have used the hotline to report concerns have been contacted by a construction superintendent and either told directly he did not like the person's complaint or questioning the persons about their call giving them a definite chilling effect about using the hotline; and supervisors instructed not to discuss matters any further with management.

QUESTION 4: When did the Office of Investigations initiate its investigation into this matter?

ANSWER.

The Office of Investigations became involved with the series of allegations referred to in the referenced letter as "this matter" in early December 1983. Initially, the Investigators listened to the testimony of one of the allegeders to determine if any of his concerns came under OI's jurisdiction. Following this interview, 11 investigative matters involving Diablo Canyon were opened by the Office of Investigations.

As of March 23, 1984, the Office of Investigations has 17 pending investigative matters involving Diablo Canyon. In addition, the Office of Investigations is just beginning a review of approximately 54 allegations that may fall under the Office of Investigations jurisdiction. These allegations have to be further evaluated by OI as to whether or not they should best be investigated by the Office of Investigations.

QUESTION 4: How many Investigators have been assigned to the task?

ANSWER.

OI presently has two Investigators (OI's total investigative compliment based in OI's Region V Field Office) assigned to investigating allegations against a vendor who supplied fabricated steel to Diablo Canyon. Assisting these two investigators is a Vendor Inspector specialist from Region IV and a Reactor Inspector, who is a metallurgist from Region V. Two OI Investigators have been detailed initially for 90 days from OI's Region II office to work on the pending investigations at Diablo Canyon. The first of these two investigators reported to the OI Region V Field Office on March 5, 1984. They began their work as a team at Diablo Canyon on March 12, 1984. The majority of the OI Field Office Director's time for Region V has been dedicated to supervising OI's investigative efforts concerning Diablo Canyon since early December 1983.

QUESTION 4: When will the investigation be complete?

ANSWER.

OI is addressing the numerous allegations as individual investigative matters and not as one investigation as most of these matters are not interrelated. Because of the number and variety of investigative matters involved, it is impossible to forecast a completion date with any degree of accuracy.

QUESTION 5:

Does the Commission believe that PG&E fulfilled its commitment to comply with the Commission's regulations pursuant to Appendix B of 10 CFR 50 in the design and construction of the Diablo Canyon powerplant?

ANSWER.

The Commission believes that PG&E has sufficiently fulfilled its quality assurance commitments to allow restoration of the low power testing authorization. The Commission is aware that there have been instances of non-compliance with these commitments. The significance of this must be decided in reaching a decision on full power operation.

QUESTION 6: Were the QA requirements committed to by PG&E vis-a-vis Diablo Canyon significantly different from requirements committed to by utilities that received construction permits in 1972? In 1975?

ANSWER.

The QA requirements committed to by PG&E for the design and construction of Diablo Canyon generally reflected the evolving NRC regulations such that the PG&E commitments during 1972 were comparable to commitments of utilities that received construction permits in 1972.

Utilities whose Preliminary Safety Analysis Reports were reviewed after detailed NRC guidance on QA was issued in the 1973-1974 time period* were required to commit to meet the guidance or provide specific detailed alternatives. PG&E and other utilities with construction permits issued before the guidance were not required to commit to meet the guidance during the design and construction of their plants.

*Guidance issued during this time period included the following "WASH" documents:

- (a) "Guidance on Quality Assurance Requirements During Design and Procurement Phase of Nuclear Power Plants," June 7, 1973 (WASH-1283) and Rev. 1, May 24, 1974
- (b) "Guidance on Quality Assurance Requirements During the Operations Phase of Nuclear Power Plants," October 26, 1973 (WASH 1284).
- (c) "Guidance on Quality Assurance Requirements During the Construction Phase of Nuclear Power Plants," May 10, 1974 (WASH 1309).

QUESTION 7:

Was full documentation demonstrating compliance with the Commission's QA requirements turned over to PG&E by Pullman Power Products and the Foley Company prior to issuance of the low power Operating License in September 1981?

ANSWER.

No. Pullman Power Products and Foley had not turned over to PG&E all documents demonstrating compliance with the Commission's QA requirements prior to issuance of the low power Operating License in September 1981, because they were still on site and performing work.

QUESTION 8:

Does PG&E (as opposed to its contractors) possess now a comprehensive collection of the records (e.g. work packages) indicating that specific tasks (e.g. specific welds) were carried out in accordance with the NRC's quality assurance requirements? If not, when will such records be turned over to PG&E?

ANSWER.

PG&E (as opposed to its contractors) does not now possess a comprehensive collection of the Unit 1 records indicating that all specific tasks were carried out in accordance with the NRC's quality assurance requirements.

Some contractors who worked at Diablo Canyon have completed their contractual requirements, but are no longer engaged in work at the site. Prior to their departure, PG&E took custody of all quality records generated by that contractor.

PG&E does not currently have custody of all quality records generated by contractors currently engaged in quality related work at Diablo Canyon (Pullman and H. P. Foley). These Unit 1 records are in the process of being turned over to PG&E.

Prior to exceeding 5% power, all H.P. Foley and Pullman Power products quality related records will be turned over to PG&E with the exception that records for work in progress will be turned over within 60 days of work completion.

QUESTION 9: What specific rework has been required at Diablo Canyon as a result of inquiries, undertaken since September, 1983, into allegations of failures to comply with design or construction Q.A. requirements? What is the time schedule for completing such work?

ANSWER.

Post September 1983 review of allegations and NRC inspection items concerning allegations has resulted in the following minor modifications and repairs:

1. PG&E review of small bore pipe support number 100-111, identified for NRC review by an allegor, resulted in a modification. The support provides restraint of the valve operator and the pipe at the valve. The modification was the addition of an axial restraint at the pipe to prevent transfer of forces to the operator in the axial direction. This change was made for consistency with Project standard practices even though analysis showed the change was not necessary to meet acceptance criteria.
2. One 1/2 inch diameter electrical raceway anchor bolt was replaced during the audit of concrete anchor bolt embedment. The original bolt was removed to verify, by physical measurement, the depth of embedment as indicated by ultrasonic measurement. The replacement bolt was fully embedded; however, engineering analysis would, in all probability, have shown qualification of the initial installation. Thirty-nine similar installations were analyzed and adequate safety factors were demonstrated as reported in PG&E letter DCL-84-059, dated February 16, 1984.
3. The NRC review of allegations related to electrical wire traceability led to the following change: Approximately eighty-four feet of Continental HTR wire, installed in the Control Room Positive Pressure Ventilation System was replaced. The wire was documented to be qualified and of the proper type and color code, however traceability to the source (wire reel) was not established. This is discussed in PG&E letter DCL-84-066, dated February 17, 1984.
4. Eighty ASTM A325 bolts were welded to the Unit 1 containment fan cooler support structure in order to mount component cooling water pipe supports. Although these installations had been verified to be capable of meeting design assumptions, the licensee elected to weld the support plates to the fan cooler supports; thus, removing the welded bolts from the support loads. This was done to provide added assurance of pipe support adequacy throughout plant life.

In addition to the above listed items, the investigation of allegations has resulted in extensive records review and some engineering analysis and testing to demonstrate the acceptability of existing installations.

QUESTION 10: The following refers to the summary findings of the Pullman audit of Pullman Power Products conducted by Nuclear Services Corporation (NSC) in 1977.

(a) What is the Commission's assessment of these findings?

ANSWER.

The staff's assessment is provided in the following NRC Inspection Reports:

- a. Report Nos. 50-275/83-37, 50-323/83-25; paragraph 44
- b. Report Nos. 50-275/83-34, 50-323/83-24; paragraphs 4.a, 4.b and 4.c

NRC Inspection Report Nos. 50-275/83-37, 50-323/83-25 (paragraph 44) states, in part, the following:

"Although, the NRC has identified a potential violation (paragraph 17) during this inspection, regarding the qualification of Pullman visual welding inspectors, this item is of reduced significance since all but two of the inspectors had adequate backgrounds and experience in the areas of welding or quality control inspection. It does not appear that this problem was chronic or widespread.

It is the staff's opinion that the NSC audit findings do not provide a basis for concluding that the Pullman-Kellogg Quality Assurance Program suffered a major breakdown during the time period prior to the NSC audit. Furthermore, based on this significant sample of the most important NSC findings it is concluded that examination of the remaining items is not warranted."

The staff's findings, documented in NRC Inspection Report Nos. 50-275/83-34, 50-323/83-24, did not identify any instances of regulatory noncompliance on programmatic quality assurance deficiencies.

QUESTION 10(b): To what extent do these findings indicate significant violations of the NRC's QA requirements?

ANSWER.

NRC Inspection Report Nos. 50-275/83-37 and 50-323/83-25 identifies, in paragraph 17 and Appendix A, one violation regarding the qualification of Pullman visual welding inspectors. Paragraph 44 of that same report further states that "this item is of reduced significance since all but two of the inspectors had adequate backgrounds and experience in the areas of welding or quality control inspection. It does not appear that this problem was chronic or widespread."

Also, NRC Inspection Report Nos. 50-275/83-34, 50-323/83-24 documents that no items of noncompliance or deviations were identified in the area of compliance with QA requirements.

QUESTION 10(c): Please describe the nature of inquiries conducted to determine whether the NSC findings were valid and if so, what the implications might be? Please provide all reports prepared by NRC staff and contractors in conjunction with the staff's assessment of NSC's findings.

ANSWER.

The nature of the staff's inquiries and assessments are described in NRC Inspection Report Nos. 50-275/83-37, 50-323/83-25 and 50-275/83-34, 50-323/83-24. Additionally, Attachment No. 1 to NRC Inspection Report No. 50-275/83-37, 50-323/83-25 documents the work of an NRC consultant's (Parameter Incorporated) independent verification of field work and records for compliance with code requirements.

Based on the staff's inspection effort, as documented in the above referenced NRC inspection reports, the staff concluded that the Pullman Quality Assurance program did not suffer a major breakdown during the time period prior to the NSC audit.

The referenced NRC Inspection Reports 50-275/83-37, 50-323/83-25 and 50-275/83-34, 50-323/83-24 are enclosed.

QUESTION 10(d): The Pullman audit states on Page 22 under Item 10 that control of the welding process was inadequate in several respects. During what period, if any, did such deficiencies exist? If the deficiencies listed under Item 10 did exist, what is the basis for a determination that weld quality is that required by the Commission's regulations? Does documentation exist to demonstrate the adequate resolution of the alleged deficiencies listed under Item 10?

ANSWER.

The staff's assessment of the items referenced on page 22 under item 10 of the NSC Pullman audit are contained in NRC Inspection Report Nos. 50-275/83-37 and 50-323/83-25 paragraphs 34 and 18 through 30. One item, regarding welder BF (see second paragraph on page 23 of the NSC audit report) is addressed in paragraph 4.c of NRC Inspection Report Nos. 50-275/83-34, 50-323/83-24. The basis for the staff's determinations are provided in these two inspection reports, wherein the staff concludes that isolated welding discrepancies were identified and corrected by the Pullman welding program. However, the staff concluded that the aggregate of problem areas were not so pervasive as to support the NSC conclusion that "There is no confidence that welding done prior to early 1974 was performed in accordance with welding specification requirements."

The referenced NRC Inspection Reports, including Inspection Report 50-275/84-16, provide the basis for the staff's assessment and conclusions regarding the alleged deficiencies listed under Item 10 of the NSC Audit Report. The documentation reviewed by the staff in forming this conclusion is identified in Inspection Report 50-275/84-16 and those documents exist at the Diablo Canyon site.

QUESTION 10(e): The Pullman audit states on page 25 that "...there is no confidence that welding done prior to early 1974 was performed in accordance with welding specification requirements?" Does the Commission have documentation to refute this finding? If not, what is the basis for a finding that, for welds produced prior to early 1974, weld quality was that required by the Commission's regulations?

ANSWER.

The staff's documentation to refute the NSC finding is contained in NRC Inspection Reports No. 50-275/83-37, 50-323/83-25, and 50-275/83-34, 50-323/83-24. These reports clearly document the staff's basis and conclusions. Also, as a result of discussion at the March 26 Commission meeting, the staff reviewed the Pullman audits and the Pacific Gas and Electric Company audits done in the pre-1974 time period in more detail. The results are reported in Inspection Report 50-275/84-16 in which the staff confirms that the audit program met the requirements of Appendix B.

The documentation reviewed by the staff on forming their conclusion exists at the Diablo Canyon site.

QUESTION 10(f): Do the Commission's regulations require prompt reporting to the NRC of findings such as those listed in the NSC audit of Pullman Power Products? Did the failure to promptly report the NSC findings constitute a violation of the Commission's regulations?

ANSWER.

The question of the reportability of the NSC audit is addressed in the attached "Director's Decision under 10 CFR 2.206" which was issued by the Director of the Office of Inspection and Enforcement. The decision is currently pending before the Commission for its possible review in accordance with the provisions of 10 CFR 2.206(c).

