

GOVERNMENT ACCOUNTABILITY PROJECT

Institute for Policy Studies
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Nunzio J. Palladino, Chairman
Victor Gilinsky, Commissioner
Thomas Roberts, Commissioner
James Asselstine, Commissioner
Frederick Berrthal, Commissioner
U.S. Nuclear Regulatory Commission
1717 H Street, N.W.
Washington, D.C. 20555

Re: Diablo Canyon Nuclear Power Plant, Units 1 and 2
Docket Numbers 50-275 and 50-323

Dear Commissioners:

This letter and enclosed affidavits is to provide the Commission with notice of a potentially serious discrepancy at the Diablo Canyon nuclear power plant, Unit I. The issue was not discussed by the staff in its recent Commission briefings but if correct must be addressed prior to criticality. The alleged problem concerns violations of minimum wall thickness on reactor coolant system piping. More specifically, the alleged deficiency exists adjacent to weld No. WIB-RC-2-16 on the safety injection accumulator (or core flood tank) line. This line ties into the line between the reactor coolant pump and the reactor vessel.

The significance of the issue is self-evident from a review of the public record. The licensee's five month delay from December 1982-May 1983 in reporting similar violations on an adjacent weld led to a citation, due to the necessity for "remedial action or corrective measures to prevent the existence or development of an unsafe condition." Indeed, the condition was so significant that it had to be reported in 24 hours. See Board Notification 50-275/83-83 (June 24, 1983). In theory, this serious condition was resolved through a corrective action plan approved by NRC Region V inspector Dennis Kirsch. See IE Report 50-275/83-26 (August 5, 1983).

GAP's introduction to the issue was a March 21, 1984 affidavit from an anonymous witness who disclosed problems with what turned out to be weld RC-2-16, on pages 5 and 6 of the statement. The affidavit originally was submitted to the Commission as Attachment 12 to a March 23, 1984 supplemental petition under 10 C.F.R. 2.206. The affidavit is enclosed as Exhibit 1.

On the April 11, 1984 plant tour the witness confirmed to NRC inspector Kirsch and GAP investigator Richard Parks that the problems with weld RC-2-16 were still uncorrected. See Mr. Parks' April 17, 1984 affidavit, at pp. 1-3, enclosed at Exhibit 2, quoting inspector Kirsch's "Problem Description." The conditions confirmed by Mr. Kirsch's Problem Description obviously violate ASME Section III and are symptomatic of minimum wall thickness violations on the piping.

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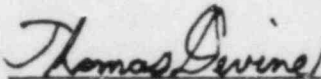
The significance of the findings from the plant tour is clear. Initially, under the regulatory requirements quoted in IE Reports 83-20 and 83-26, the condition must be corrected due to its extreme safety significance. As pointed out in IE Report 83-20, at p. 5, the minimum wall thickness violations "if left uncorrected could have resulted in degradation or loss of integrity of the reactor coolant pressure boundary." Quite possibly, they still could.

Second, on April 13 Mr. Martin directly misinformed the Commission by concluding that the plant tour had not uncovered any code violations. Other examples that demonstrate the false nature of his statement also are discussed in Exhibit 2.

Third, the licensee's 1983 remedial program on this issue -- approved by the staff, including Mr. Kirsch -- failed to correct the full extent of discrepancies. The licensee was on notice, since the anonymous witness had identified weld RC-2-16 on-site over a year ago, in March or April 1983. (Exhibit 1, at p. 5).

Counsel planned to raise this issue next week as part of a new petition under 10 C.F.R. 2.206 for corrective action prior to commercial operation of Diablo Canyon. Mr. Parks' ongoing review of previous Region V inspection reports, however, revealed that the issue is so urgent it must be disclosed immediately. Mr. Parks and counsel are at your disposal to help expeditiously resolve this potentially serious hazard.

Respectfully submitted,



Thomas Devine
Counsel
Mothers for Peace

Attachments

AFFIDAVIT

My name is _____ I am submitting this affidavit freely and voluntarily, without any threats, inducements or coercion, to Mr. Thomas Devine, who has identified himself to me as the legal director of the Government Accountability Project. I am submitting this statement to evidence my concern about the effects of quality assurance violations during 1983 by the HP Foley Corporation that ~~routinely~~ occurred at the Diablo Canyon nuclear power plant.

I was employed at Diablo Canyon for a period of approximately four months, (January 1983 until April 1983), as a Civil Quality Control Inspector. As a Civil QC Inspector I routinely inspected welding and performed non-destructive testing of welds performed on Seismic Category I structures in both the Fuel Handling Building and inside containment.

Even though I have over thirteen years welding experience and am a certified ~~six inch~~ ^{STRUCTURAL STEEL AND} pipe welder I was only qualified to a Level I inspector. In accordance with the Quality Assurance/Control procedures that I read as part of my indoctrination, I was not allowed to accept work based on my inspection. The procedures required a Level II (senior) Inspector to sign for acceptance. I complained on numerous occasions about the fact that I was inspecting welds that I was not certified to inspect. The interim response was to have a Level II inspector cosign my work after I turned in the inspection although he had not looked at the welds. This illustrates a widespread problem of falsified inspection records. The final response of supervision was to upgrade my certification to that of a Level II inspector.

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Most of the weld inspectors did not have my background in the trade. In fact, there only were isolated instances where the inspector knew how to weld at all. That can compromise the quality of inspections; it can't all be taught by books and pictures. You have to be able to understand the process. From my own observations, up to 30% of the weld inspectors weren't qualified. I base that conclusion on the poor quality of the work they accepted. This included welds where the slag hadn't been ^{COMPLETELY} chipped off, making it impossible to have actually visually checked the weld quality. In other cases they could not translate the blueprints. In still other instances the unqualified inspectors erroneously rejected acceptable work, and on the basis of unexplained vague terms such as "bad weld profile." This created a backlash from the production department.

On my shift, there were only five weld inspectors with Level II stamps. In my own case at least, however, that was bogus because they didn't have any paperwork. I know, because I would have been involved with filling it out.

When I first hired in with HP Foley, the Manager, V. Tennyson, had me spend the first ^{WEEK} ~~two or three days~~ reading the relevant procedures. I was then placed in the weld test booth. My responsibilities were to certify welders by performing various welding procedures in various positions and fit ups.

I took my duties seriously, even though by procedure I wasn't certified to certify other welders. On the average I "looked-out" -- or flunked before the exam even reached the stage of a destructive

test -- over fifty percent of the welders attempting to qualify, on at least one occasion. The flaws in their work were obvious and severe. They included excessive peewing, which involves beating up the weld trying to get the ~~beeps~~^{DRIPS} off; massive undercuts and failure to follow the steps of the welding procedure they supposedly were being tested on. In some cases, I "looked-out" welders because they took the plates out of position to get a better angle for the weld.

Even the welders who passed did not have unique stamps required to identify and trace their work, as required by the American Welding Society (AWS) code. A welder cannot receive electrodes to do the work, without his personal stamp. Instead, management instructed them to borrow one from the fabrication shop. I personally didn't tolerate this practice, and wouldn't let them go into the field or accept work until they obtained their own stamp. But the abuse went on all the time. When I told management that welders wanted to weld without stamps, the response was, "we don't have any."

The procedure prevented the welders from taking the requalification test until they had been adequately trained in the welding process. However, management routinely allowed them to take the test daily until they passed. In ~~some~~^{ONE} instances I flunked the same individual five times running.

To me this practice constituted nothing more than on-the-job training in the weld test booth under ideal conditions. After about a month of complaining about this practice I finally convinced my supervisors

to reassign me. I couldn't handle compromising my personal beliefs for the benefit of supplying welders that I felt were not qualified. I believed a reassignment to the field would no longer require me to compromise what I believed in. I was wrong.

Even though the QC Inspectors were supposed to participate in a continuing training program, I can only recall one instance where the inspectors were taken out of the field for a training seminar. That meeting was a fiasco, which suggests to me that personnel still may be reading the blueprints backwards. Round the end of January 1983 all Foley Inspectors attended a meeting to discuss the "interpretation of the Fuel Handling Building blueprints". This meeting was to clear up the confusion over whether they were to be viewed from the "inside looking out" or the "outside looking in." Nothing was resolved. In fact management conducting the meeting couldn't agree on how to view the blueprints. The inspectors were finally ordered back to work while the managers resolved the issue. I presume the confusion continued in the field, since training was not reconvened to resolve the question.

Another practice that greatly disturbed me was lack of material traceability. Before a piece of metal was cut from the steel plate in the Turbine Building Fab shop, the original heat number from the steel plate should have been stamped onto the piece cut from it. This is important. Without this ^{CORRECT} number on the material, the QC inspectors could not determine whether or not the steel had the metallurgical properties for the application on which it was used. Just one aspect of the significance is that welding by an improperly chosen process

could result in degrading the strength of the steel.

In practice, however, traceability was lost after the material was received. The heat numbers were not consistently transferred. As a result, there were heat numbers on the material without supporting documentation to verify accuracy. In the field traceability was further lost, due to modifications on flatbar structural steel. Traceability was lost for the steel in the process. In the fuel handling building, heat numbers were even swapped. This occurred for knee braces on columns providing seismic support to hold up the walls. In fact, in that case the traceability records are backwards. The south side heat numbers apply to their counterparts on the north wall. Even though I and others identified this problem ~~to V. Tennyson~~, no satisfactory solution was ever arrived at. Mr. Tennyson's efforts appeared half-hearted in that the "up to date" heat log we were supplied with had no control measures assigned to it. It would have been a simple task for anyone to alter this log. ^{I BELIEVE} V Mr. Tennyson also knew that some of the steel being used on the plant was foreign steel, ~~I know~~, because a fellow worker showed me proof of this practice. The use of foreign steel would have violated a company agreement to not use any in the facility.

Around March 1983, I was assigned to inspect the addition of I-beams and clips to one of the Reactor Coolant Pumps. These additions were necessary to provide seismic support for the pump. While I was inspecting the additions I noticed a stainless steel T-section of pipe, under the Reactor Coolant pump on the 125 foot elevation, that had a 4 inch linear undercut. Per the procedures in use at the time, there could be

no undercut on that piping. I brought this to the attention of my supervisor immediately. His response was "mind your own business..., it's Pullman's responsibility." This didn't wash with me, so I informed a PG&E employee whose responsibility was to document problems.

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IN PG&E

PG&E performed some Ultra-Sonic Testing of the pipe and found the wall thickness to be insufficient in the areas of the weld in question. However they decided not to fix it, perhaps because the weld was inaccessible from the outside. When I left in April 1983 the weld had never been repaired.

Prior to my leaving Diablo Canyon, I discovered that the "Guided-
~~Bevel~~ ^{Bevel} Test Machine" did not satisfy AWS requirements with respect to operating tolerances between "shoe and die" in the hydraulic jack. The rollers were also extremely sloppy. To some this may not seem significant; However, if this machine is not set-up properly it could artificially qualify "bad" weld test coupons. This machine was apparently worn out. I identified this to my supervisors and was told to "quit being picky."

The final insult to injury occurred during my exposure to the "Quick Fix" program. After I would inspect a ~~hanger~~, strut, or other item I would explain to a "Quick Fix Engineer" what I felt needed to be done. Ususally within half an hour he would be back with the requisite paperwork for the "quick-fix". Engineers approved such significant modifications as the addition of T bars and changes that effectively redesigned the wall plates. The expediency in which this paperwork appeared assured me that it could not have been reviewed by QA or had any serious engineering analysis.

Also, the professional codes that represent the legal basis for our conclusions frequently were not available. I attempted to research them, but routinely these documents were "lost" when I looked for them

In some cases I could not even find up-to-date copies of the "quality control procedures." When quizzed about their locations, my supervisors would reply that they were around somewhere and would promise to locate them for me. In the interim I was instructed to go back to work. ^{IN MANY CASES} They never found the documents for me. It was obvious to me they wanted me to know just enough to do my job and not enough to do it well.

~~These practices I have discussed finally led me to resign~~^{ED} in April 1983. I believe in quality of a man's work. Over the last 13 years, I have worked as a welder in oil fields, spiral and cement tread stairs, heavy equipment repair and structural steel ~~for the~~ ^{I THINK} ~~California Polytechnic Institute~~. Of these jobs, ^{I THINK} from a quality perspective Diablo Canyon ~~represents the bottom of the line.~~
~~NEEDS TO BE REINSPECTED~~

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

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

On March 21, 1984, before me, the undersigned, a Notary Public in and for said State, personally appeared

 : or proved to me by satisfactory evidence to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

WITNESS my hand and official seal.



Susan Hawkins
Notary Public in and for said State.

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

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

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

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

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

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

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

(a)...

(b)...

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

(d)...

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(e)...

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

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

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

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

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

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retaining part."

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

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

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

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

8.15.1.1 -The weld has no cracks

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

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

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

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

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

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

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

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

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

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

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

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

Code Violation: American Welding Society (AWS) - A2.4 - 79

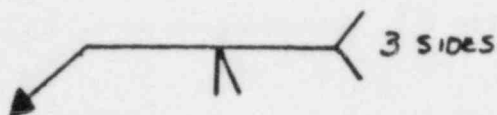
"Symbols for Welding and Non-Destructive Testing," paragraph 9.0

"Groove Welds," subparagraph 9.2.2 "Complete Joint Penetration Required." "When no depth of groove preparation or effective

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throat is shown on the welding symbol for single-groove and symmetrical double-groove welds, complete joint penetration is required."



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

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

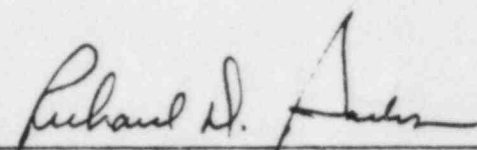
The welds in question were incorrectly performed because of lack of proper interpretation of the weld symbol utilized on the design drawing. It is the concern of this particular anonymous witness that this discrepancy provided an example of code compliance violation due to a lack of intimate knowledge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

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

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

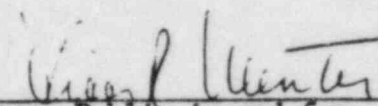

RICHARD D. PARKS, Declarant

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

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

WITNESS my hand and official seal.




Notary Public in and for
said County and State

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