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GOVERNMENT ACCOUNTABILITY PROJECT

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Nunzio J. Palladino, Chairman
Thomas Roberts, Commissioner
James Asselstine, Commissioner
Frederick Bernthal, Commissioner
Lando Zech, Commissioner
U.S. Nuclear Regulatory Commission
1717 H Street, N.W.
Washington, D.C. 20555

OFFICE OF LEGAL
COUNSELING & COMPLIANCE
BRANCH

Re: Diablo Canyon Nuclear Power Plant, Units 1 and 2
Docket Numbers 50-275 and 50-323 (2206)

Dear Commissioners:

Pursuant to 10 CFR 2.206, the San Luis Obispo, California Mothers for Peace (Mothers) petition the Commission to take six minimum steps legally necessary to assure public safety before any commercial licensing decision at the Diablo Canyon nuclear power plant. The scope and basis for each item is summarized within the request.

Specifically, before the commercial license vote the Mothers petition the Commission to --

(1) provide sufficient organizational freedom for Inspector Isa Yin to return to the Diablo Canyon case and complete any further factfinding he believes necessary.

This step is necessary to honor the staff and the Commission's previous public statements. Essentially, Mr. Yin agreed not to interfere with the low-power test vote if he were permitted to participate in a full review and resolution of the most significant safety issues. In effect, the staff reneged on its part of the bargain. As Mr. Yin stated in a news interview, "The crux of it is I wasn't allowed to follow up the questions I had . . . The investigation has never really been carried out." See July 12, 1984 Washington Post news article, enclosed as Exhibit 1.

Unfortunately, the staff's doublecross was not a private affair. As recognized when his inspection findings were the basis for licensing conditions, the issues have the highest significance for public safety.

The response from already-disillusioned whistleblowers was to boycott further interviews "until Mr. Yin decides the process is honest enough to merit his return. . . ." See July 16, 1984 affidavit of Charles Stokes, enclosed as Exhibit 2, at 15. In particular, the whistleblowers will not

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play any more games about a plant tour with Region V, which will not agree to change its groundrules and assure a reliable record. Region V is currently under investigation by the Office of Inspector and Auditor (OIA) for alleged material false statements at the last plant tour. Part of this petition is for Mr. Yin to be assigned responsibility for any future plant tours. See July 10, 1984 letter from Thomas Devine to Lewis Shollenberger, enclosed as Exhibit 3.

(2) appoint an independent organization to replace the Advisory Committee on Reactor Safety to arbitrate the debate between Mr. Yin and the peer review team.

As seen after the July 11, 1984 meeting, the ACRS subcommittee assigned to this task had neither the desire nor willingness to seriously consider Mr. Yin's technical concerns or to keep looking for any problems at Diablo Canyon. See July 16, 1984 affidavit of Thomas Devine enclosed as Exhibit 4, at 4-7. Under those conditions, there is no legitimacy for any current ACRS recommendations on Mr. Yin's concerns.

(3) expand the limited scope of the current OIA investigation into alleged material false statements by the staff, and permit OIA to make findings of fact, and publicly release its report.

It is heartening that OIA is investigating 16 allegations of misconduct such as false and/or misleading statements by the NRC staff in connection with the Commission's decision on low-power testing. Unfortunately, OIA is interviewing all of the individual defendants but has not yet spoken with a single whistleblower. They represent both the witnesses closest to the evidence, and the victims of the staff's deception. Surely in a criminal case the police would not merely interview the lawyer for the victim, and the defendants. That is what is happening at the NRC, however.

Even worse, OIA is not permitted to make findings of fact on its own investigation. This restriction violates the minimum standards for any government investigation, a finding which OIA ironically made to the staff at Zimmer nearly three years ago.

Currently the ACRS has rejected any responsibility to determine whether Mr. Yin's investigation improperly was obstructed. (Exhibit 4, *supra*.) This issue also must be addressed by OIA before the Commission can adequately assess Mr. Yin's current dissent.

(4) provide a forum to resolve the 1050 outstanding material disputes of fact on issues significant to public safety.

It long has been Commission policy that public hearings are required for all material disputes of fact on issues significant to public safety.^{1/} At Diablo Canyon there are over 1000 such issues, introduced in 46 affidavits and dozens of interview transcripts.

^{1/} Indeed, at October 1, 1982 congressional hearings, the NRC General Counsel testified that "a formal adjudicatory hearing is required [by the Act] on issues on which there is a genuine issues of material fact. . . . For revocation of a license, it is not as clear. For the license itself, it seems to be clear." In response to questions from Congressman Ottinger, there was unanimous agreement among the Commissioners in support of this interpretation.

There should be no question that the issues are sufficiently significant. In addition to Mr. Stokes' concerns, the design allegations include such basic issues as routine design changes through memoranda; and operator drawings that still may be inaccurate, due to a management decision last December to stop reporting that deficiency.

The construction quality assurance (QA) allegations include the same problems that led to a record \$200,000 fine (Exhibit 5) at Zimmer; suspension of construction at Zimmer (Exhibit 6); and postponement of fuel loading at Waterford (Exhibit 7).

At Diablo Canyon the Atomic State and Licensing Appeal Board has neither seen fit to reopen hearings, make findings on the disputed facts, or even address the specific alleged problems. Similarly, Region V has met with whistleblowers to follow up on their original allegations just once since the April 13 low-power test vote. Region V has not conducted any interviews with whistleblowers for affidavits submitted since April 13. In June Region V did not even attempt to contact the alleged after Mr. Bishop was informed through counsel that 60% of hydrostatic test results in Unit II failed due to over or underpressurizing, and a similar condition may well have existed in Unit I.

In short, neither the public nor the alleged have had any forum to resolve bitterly-disputed debates about the facts of serious safety issues. The public and the whistleblowers have conscientiously attempted to work within the NRC's system. In response to their painstaking efforts, the staff has responded with the equivalent of a form rejection letter. This result is incompatible with the due process clause of the Constitution.

(5) conduct a detailed Commission briefing by the Office of Investigations on issues relevant to determine corporate character and competence.

At a minimum, the OI briefing should include a public report whether reasonable assurance yet exists that the licensee has acted within the law on the following issues: destruction of documents during the seismic design review; material false statements in response to 1983-84 whistleblower allegations; falsification of records on-site since the April 13 low-power licensing vote; 1984 management instructions not to write quality assurance reports; and harassment and intimidation against QA/QC personnel. A public assessment is mandatory, because these issues all are material to any licensing decision. 2/ In some

and NRC Safety Procedures, Hearings before the Subcommittee on Energy Conservation and Commerce Committee (October 1, 1982), at 395. See also Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), DD-81-1, 13 NRC 45, 46 (1981; Carolina Power and Light Co. (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, and 4), CLI-79-10, 10 NRC 675, 676 (1979).

2/ See Houston Lighting and Power Company (South Texas Project, Units 1 and 2), CLI-80-3212, NRC 281 (1980). For the relevance of retaliation to the licensing decision, see 10 CFR 50.7 and Union Electric Co. (Callaway Plant, Unit 1), ALAB-740, 10 NRC 343, 366 (1983).

cases, as with Mr. Stokes, they have been languishing for nearly eight months. (Exhibit 2, at 16-17). The issue of retaliation was just litigated at the Department of Labor for Mr. Steve Lockert, a QC inspector who challenged nearly the entire welding program at Diablo Canyon over a three-month period last fall before his December dismissal. Witnesses have informed OI that false statements, harassment and intimidation have intensified steadily without letup. Management and craft intimidation has become uglier as the licensing vote nears and inspectors attempt to document the increasing violations.

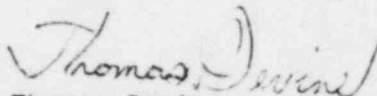
On April 13 the Commission did not consider these issues. Under the law, the loophole in the licensing review must be filled before the final vote.

(6) order a public report from the staff explaining the basis and significance of its decision to permit postponement for approximately a year of PG&E compliance with some 6,000 licensing commitments.

These commitments involve issues such as the post-Three Mile Island reforms and even include one of the licensing action items from Mr. Yin's inspection. They all involve minimum conditions necessary for issuance of the license. But in some 6,000 cases the rules were waived when PG&E failed to comply. (Exhibit 2, at 7-8). It appears that it does not matter if PG&E meets its licensing conditions. The staff's routine response to failure has been to temporarily waive the rules.

In short, there is little public confidence left in the integrity of the NRC's licensing review, or the safety value of an NRC license for Diablo Canyon. Unless the Commission exercises leadership promptly, for the public the Diablo Canyon license will not be worth the paper it is written on.

Respectfully submitted,



Thomas Devine
Counsel
Mothers for Peace

NRC Engineer Resigns From Diablo Task Force

By Dale Russakoff
Washington Post Staff Writer

A veteran Nuclear Regulatory Commission engineer has resigned from a special federal investigation of the controversial Diablo Canyon nuclear power plant, complaining that his superiors obstructed his inquiry into extensive alleged design flaws in the \$4.1 billion California facility.

The resignation of Isa Yin, a mechanical engineer who has received several NRC awards, is significant because his findings of design problems at Diablo prompted the commission in April to call for the special investigation as a precondition to licensing the plant.

"The crux of it is I wasn't allowed to follow up the questions I had," Yin said in a telephone interview.

Yin told an NRC technical panel yesterday that the investigative team spent only three days reviewing records even though they needed "a few weeks." He said he was denied the time he needed to review design records.

"The investigation has never really been carried out," Yin said.

Richard Vollmer, the NRC official in charge of the investigation, yesterday defended the proceedings and denied interfering with Yin's inquiry. He said Yin was unable to review records because of his own schedule conflicts.

Vollmer said all other members of the investigative team, engineers from NRC and the Energy Department, have concluded the plant is safe and ready for full-power operation. The NRC is scheduled to vote on the matter on July 26.

Diablo has been one of the nation's most controversial nuclear plants since the NRC discovered in 1981 that its builders accidentally had reversed the blueprints for the plant's two units. The foul-up meant that the plant, located on the central California coast 2.5 miles from an earthquake fault, was vulnerable to seismic stresses. Diablo's owners agreed to a major design overhaul.

Earlier this year, the NRC staff recommended that the commission issue a start-up license for Diablo. But in a surprise dissent on the day that the commission was scheduled to vote on the license, Yin announced that he had documented a "breakdown" in plant design procedures involving structural supports for miles of pipes essential to safety and cooling systems.

As a result, the commission created a special investigative team to review Yin's concerns, and assigned him to take part in the case.

However, according to an affidavit filed yesterday at the NRC, Yin said it would "compromise his integrity" to remain on the case. He said that he was not allowed to follow up employee allegations of design errors, and that Vollmer allowed him only one and a half days to review key design records.

The affidavit was filed by Thomas Devine, attorney for the Government Accountability Project, which represents several "whistle blowers" at the plant who had given Yin evidence of several hundred alleged design problems. It recounts a conversation between Devine and Yin following Yin's resignation two weeks ago. Devine said Yin approved the affidavit as accurate.

Vollmer confirmed that the investigative team had spent only three days reviewing design records, but he said this was enough time to determine that the plant's design was sound.

"I don't view our activity as giving the matter short shrift," Vollmer said. "If we had found something that led us to believe there were inadequacies in the plant, we would have raised these, but we didn't find them."

Devine called Yin's concerns "evidence of an agency-wide cover-up" of problems at Diablo, asserting that "the integrity of the government is the issue." He said that he and other groups will press the NRC to reopen licensing hearings based on Yin's concern.

AFFIDAVIT

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This statement is given freely and without inducement by Charles C. Stokes in response to the PG&E presentation to the NRC on July 2, 1984 in Bethesda, Maryland, on the seven licensing conditions resulting from Mr. Isa Yin's inspection of my allegations and other issues. This affidavit also challenged the NRC staff's willingness to license the Diablo Canyon plant despite significant, unresolved questions material to the license. Through tactics including delay of compliance for some 6,000 licensing commitments; delay in investigating my allegations of document destruction; failure to provide necessary data to verify or rebut Pacific Gas and Electric's (PG&E) asserted conclusions; and obstruction of Mr. Yin's work, the staff has guaranteed that we will not adequately know whether Diablo Canyon is safe if the Commission votes July 30 on a commercial license. This is intolerable, since I have learned of still more false or misleading information in PG&E's previous denials to the NRC of any significant problems at the plant.

Initially, at the May 9 meeting between PG&E and the NRC, PG&E gave the staff a large volume of new information in response to the licensing action items: This information was not supplied with the transcript, as is the usual procedure for attachment to the proceeding. I would like to quote Mr. Knight on this issue from the end of the transcript.

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One last thing. This just suddenly occurred to me and I just want to say it for the record. We have a pile here. It's somewhere between 18 and 24 inches width of procedures that were provided, with regard to condition 6. It is impractical to attach it to the transcript. I

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do believe, however, that all other paper that has exchanged hands here today, the staff questions, and some portions of the PG&E responses that were given to us by slides or in writing, none have been made available to the reporter.

Is my understanding correct?

The exception being these ^{CCS} procedures, and due to their size and quantity, I think it's impractical to attach it to the transcript. And I presume that any party who required further understanding of what was contained there could request that information.

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On May 22, I told Mr. Knight that I needed the materials to prepare my analysis. Project Manager Hans Scherling said to put the specifics of my request in writing. On my behalf, Mr. Devine forwarded the request. (Exhibit 1). Since that time, Mr. Devine or I have called Mr. Scherling at least a dozen times about these documents.

We still have not been supplied with the information. It appears that we will not receive it before the Commissioners vote on the license for Diablo. That vote will be based on an incomplete record that is unverifiable for the public, due to the fact I and the interventors have not been able to check the basis for PG&E's denials. In other words, the NRC has said that we'll have to accept the results on blind faith. I didn't know that was legal under the Atomic Energy Act. I find it appalling that the same tactics are being used by the NRC as were used by PG&E to prevent my attempts to verify that the plant is safe before it operates. After learning of the obstruction faced by Mr. Yin, however, at least I know I'm in good company. The NRC gave the public the same runaround in reviewing the public record that it gave Mr. Yin in reviewing the evidence.

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Last December 8, Mr. Bishop of Region V told me that the NRC does not have -- (1) sufficient manpower or (2) financial resources to ensure that one plant much less all those under construction are being built in compliance with the Codes, NRC Regulatory Guides, or Final Safety Analysis Report (FSAR) ^{CCS} Requirements. He said that the NRC depends on concerned workers such as myself to let them know when a plant is being built incorrectly. It is a terrible day when the allegeders who risk their careers by raising these questions are prevented by the NRC from following through with the issue until it has been resolved.

In PG&E letter No. DCL-84-223 dated June 11, 1984, pages 1-6, Mr. Shipley states, "Warping normal and warping shear stresses were present in only a few cases due to the preponderance of angle and tube steel shapes that do not exhibit the warping phenomena." (Emphasis added.)

The emphasized statement is ^{CCS} ridiculous. Any second-year civil engineering student who has taken a basic Strength of Materials course knows that all shapes ^{CCS} undergo warping when subjected to torsional load. The only accurate, professionally responsible statement which can be made is that closed sections exhibit a greater resistance to warping, because their torsional strength is greater than an open section.

The fact that angle steel (open section) is included in PG&E's response with with tube steel (closed section) creates two questions: (1) How were angles checked for torsion effects? and (2) Were angles reviewed for warping normal and warping shear stresses? This information has not been made available to me. On May 9, 1984, the NRC peer review team received it.

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The July 2, 1984 transcript states on page 9 at line 16, CCS
"[T]he review of small bore rigids and snubbers adjacent to anchors will include all cases other than will exclude decouple branch connections for piping qualified by span rules." (Emphasis added).

It is significant to know why these were omitted, if they exist. I believe the argument by PG&E for omitting them was that the span rule piping ~~is~~ ^{CCS} as defined was at temperatures less than 200° F. This would leave an additional question: Why would a snubber need to be used on such a low temperature line? If snubbers do exist they should not have been excluded from the review.

On page 10 at line 11, Mr. Shipley announced completion of "the review of all the small bore analyzed pipe supports, analyzed by ~~completing~~ ^{CCS} ~~the~~ ^{CCS} ~~as~~ ^{CCS} required by ^{CCS} license ^{CCS} condition 1 and no physical modifications have resulted from these additional reviews."

PG&E and the staff have made it impossible to provide specific responses, since I do not have access to any of these documents. Therefore, neither has fulfilled its burden of proof to demonstrate the validity of Mr. Shipley's assertion and the quality of the review process. There are serious reasons not to take him on faith at face value. Mr. Yin commented in April that the review would take six to nine months. Instead, PG&E tried to redo in weeks the work that originally took two years.

On page 16 line 24, Dr. Cloud states, "The next point is that there were several revisions of the seismic spectrum, the thermal operating modes and an ~~early~~ ^{CCS} revision of methodology when the

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project was formed. This led to the piping and pipe supports being revised several times here in, the design process. The IDVP came to the conclusion that this was a strength of the design." On page 25 at line 12, he added, "It was repeatedly found that outdated inputs and minor mathematical and modeling errors were updated and subsequent revisions (inaudible) given calculation."

I must say I find it unbelievable to offer credit for not performing the design work correctly the first time . . . it is even more unbelievable that Dr. Cloud can say that the errors were updated in subsequent revisions, since not only I but Mr. Yin and the rest of the staff have admitted the large number of errors found during this last review. The NRC found even more errors in their audit of this last review.

I question whether or not the serious errors were found in light of the fact the NRC has only audited 21 of the 357 supports, of which only 191 were complete at the time of the audit.

On page 26, line 6, Mr. Vollmer informed Dr. Cloud, "It wasn't clear from what you just said exactly how you made the judgment that something generic was a deficiency." On line 13 Dr. Cloud responded that

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in order for [us] to conclude that [we] had a generic deficiency, it required that [we] find the same item, either on a cost basis or at least in the number of, in the number of repeated instances and that we, we felt that we must conclude that it would be possible if that item were represented in the, the degree that, that it appeared to be that, that it would be possible for licensing criteria to be exceeded.

Mr. Vollmer queried on line 25, "So, that the deficiency would not likely lead to a violation of licensing criteria, then

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it wouldn't necessarily be pursued? On ^{CCS} page 27, line 5, Dr. Cloud responded further: "If, in our judgment, we concluded that, that based upon the reviews that we made, if we felt that there was no chance that licensing criteria would be exceeded, then as far as we were concerned, it was essentially irrelevant unless, there was some (inaudible) consideration where it coupled with something else and we carefully considered that." (Emphasis added).

I include this narrative between Mr. Vollmer and Dr. Cloud for several reasons: (1) I agree with Mr. Vollmer's first comment on page 26, line 6, that it wasn't clear, nor is it clear what ^{IS MEANT} ~~he~~ ^{CCS} means after Dr. Cloud's evasive answers. (2) Following this narrative I had more questions than before. I wondered who the (we) and (us) were to which Dr. Cloud referred and what the (something else) was at the end of this statement.

Dr. Cloud's subsequent statements on page 28, line 12, illustrate the lack of independence in the IDVP better than any allegation.

We, in the, in the, in describing a given question as an error, we, we, we learned, we learned very quickly early on in the, in the progress of this program to be very careful about how we characterized the given issue.

It is obvious that PG&E controlled completely this portion of the "Independent" Design Verification Program. How much more of it did PG&E control, for example at Teledyne, Westinghouse, and other IDVP contractors.

On page 65 at line 23, Mr. Skidmore states that "a quality problem report tracking system was developed in the quality

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assurance department to address timely closure of quality assurance findings and departmental and contractor quality (inaudible) reports. This system developed to demonstrate the (inaudible) commitments made previously to the NRC prioritizes (the) outstanding quality problem reports and establishes estimated completion dates." On page 65 at line 12, he added, "To date we've identified some 6,000 quality commitments to be (inaudible)." (Emphasis added).

On page 78, line 11, Mr. Vollmer asked, "I was wondering exactly, if you could give me an idea of what type of commitments there are. It sounds like a rather large number."

On line 20, Mr. Skidmore answered, "They're commitments that we've made through various licensing submittals over the years, commitments made in the transcript of hearings, FSAR Chapter 17." At line 24 he added, "These are line items."

On page 19 at line 3, Mr. Vollmer asks, "Not quality attributes or something like that? ^{CCB} These are line items that you need to meet the requirements of the plant." ^(EMPHASIS ADDED) Mr. Skidmore's response? ^{CCB} "Yeah."

This narrative is quite important, to say the least. It appears that the NRC has granted extensions on the time to meet their requirements. These requirements are necessary for the plant to be safe. An example of one such item is on page 5 of the Draft SSER for License Condition 2.C.(11), Item I, given to the ACRS on July 6, 1984. "A re-analysis will be performed for those supports, where the effects of self-weight excitations has not been considered. PG&E committed to complete this program by October 1, 1984." (Emphasis added). Another example even more serious is on page 3 of the same document, License Condition 2.C

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(11), item 4. "To resolve this concern, PG&E proposed to undertake a program to qualify the piping system supports for loads obtained with the gaps ignored in the thermal analyses. This program will be undertaken only for the piping ^{with} service above 200° F during normal and upset conditions. ^{CCS} The program will be completed by the end of the first refueling outage and may result in some support modifications."

I would like to say that my allegations include the use of gaps incorrectly to pass failing systems (both pipe and pipe supports). Mr. Yin found this to be true and his findings became one of the seven licensing items the Commissioners required the review to look into. Now the NRC has even recommended waiving that licensing requirement for a year which the plant operates, before requiring PG&E to comply. Can ^{you} ~~you~~ imagine 6,000 line items ^{CCS} such as the one above? In reality there are many thousand more repairs needed than 6,000. Each line item represents many individual problems. The one line item ^{detailed} ~~covered~~ above on gaps covers 11 piping systems, involving many supports. ^{CCS}

On page 4 of the proposed SSER for Licensing Condition 2.C.(11), item 1, I found one reason for Mr. Yin's comments on the NRC review. During the audit of 21 supports out of 191 which had been reviewed, the NRC found "deficiencies due to lack of proper documentation," and "deficiencies related to some calculational errors were identified regarding assumptions of member properties and geometry input in STRUDL computer code." (Emphasis added). These are the same things they were supposed to be looking for in this review. The things they were to catch. I am troubled by the NRC's use of the word assumption above. No assumptions should be made as to

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member properties or geometry. These must be hard, cold factual data, not assumptions. This casts serious doubt as to what PG&E has not done during this review, as well as the staff's standards.

On page 1 under Background and Origin of Concerns to License Condition 2.C.(11), items 2 and 3, it is stated that "the Diablo Canyon Plant was initially designed for a 0.2 g peak ground acceleration seismic event which was called the Design Earthquake (DE) and a 0.4 g peak ground acceleration seismic event which was called the Double Design Earthquake (DDE)." (Emphasis added). "The proximity of the Hosgri fault resulted in the site's peak ground acceleration for a postulated seismic event increasing to the 0.75 g level." (Emphasis added).

I find it absurd for any engineer to believe that the original supports which were designed with a 1.4 Factor of Safety (F.S.) Dead Load (D.L.) and 1.7 F.S. Live Load to be able to take twice the load and the additional stresses from warping (up to 50% of the allowable amount) without more modification than PG&E has made on Unit I since the 1981 verification program began. For any competent, objective engineer, the question would not be whether the modifications are necessary, but how and where. I myself, who worked at the plant, find it even more ~~ridiculous~~ ⁱ to believe the changes were ^{NOT} necessary. CCS

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At the ACRS subcommittee meeting on Wednesday, July 11, 1984, I requested that Mr. Voller follow up on several issues for which the discussion had jogged my memory. These were first discussed on December 8, 1983, at the Diablo site, with the NRC staff team, then headed by Mr. Bishop of Region V, which included Mr. Yin. I

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should note these particular issues were not assigned to Mr. Yin for review. To my knowledge, due to the lack of a meeting transcript, I inadvertently failed to raise them again in affidavits.

I requested Mr. Vollmer to ask PG&E several questions about these issues, at the meeting.

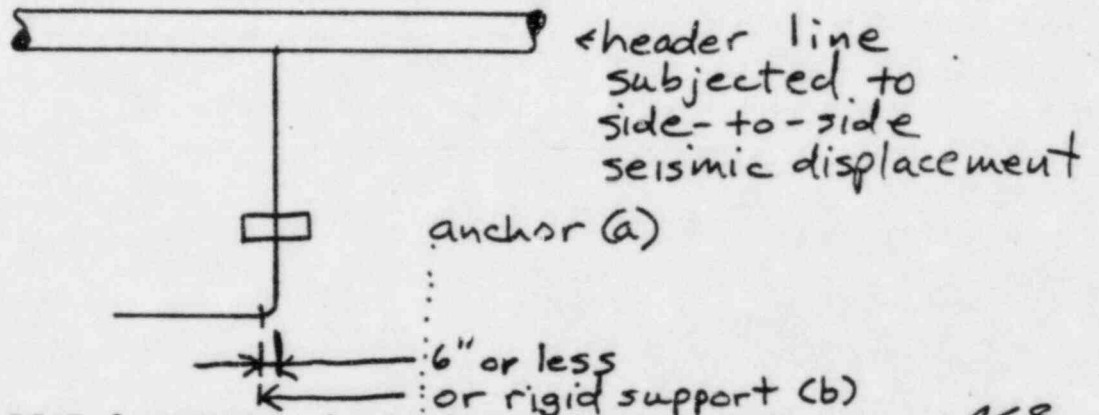
Therefore, I will put the allegations in writing.

The first of my concerns involves the placement of rigid supports near elbows. Two cases come to mind --

(1) A branch line being subjected to axial buckling, or tensile stress.

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Figure 1

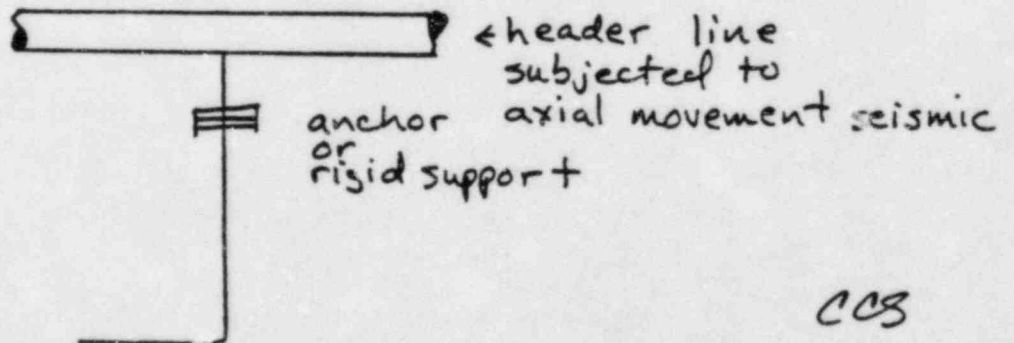


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From the NRC and PG&E documents, it is impossible to tell if NRC or PG&E looked at this potential problem.

(2)

Figure 2



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I am concerned about the 15,000 feet of pipe qualified ^{SOLEY} ~~solely~~ by span rule. (Reference page 5 of IDVP re-evaluation in proposed

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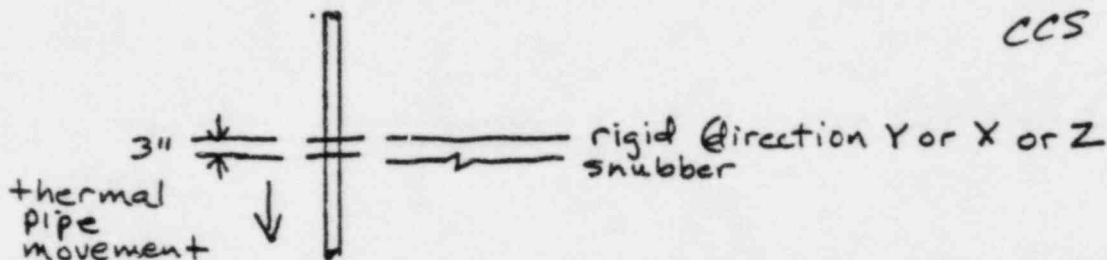
SSER). This appears to have been overlooked.

The second concern is placement through the construction tolerance of six inches for the location of a pipe support on piping. This factor must be considered in combination with the special support configuration. But the pipe stress group had separated the two ^{SUPPORTS} ~~factors~~ ^{CCS} when we received them at the pipe support group. As a result, they improperly were considered in isolation. I am aware of this happening at least once because I corrected it:

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Figure 3

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This pair of supports are usually shown on the stress isometric drawings as being at the same location. It is a special case where the pipe must be seismically restrained but allowed to move for thermal reasons. It is possible by using the six-inch construction tolerance to place the snubber (see above) on the opposite side of the rigid restraint. As a result, when the pipe moves, the snubber clamp binds on the rigid restraint, either causing the restraint to fail or the pipe to overstress. This is also applicable to a spring-can and a rigid restraint in the lateral direction.

Issues which the ACRS discussed on Friday, July 13, 1984, involve the radial expansion of large bore lines. There is a construction tolerance of 1/16-inch on a side with a 1/6-inch tolerance, for a total gap of 3/16-inch maximum. Many of the large bore lines, such as Main Steam, Residual Heat Removal (RHR), and Reactor Coolant System (RCS), which are subjected to high pressure and temperature, will expand more than the 3/16-inch maximum (zero-

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inch possible) and bind up in the support, rather than slide through as intended.

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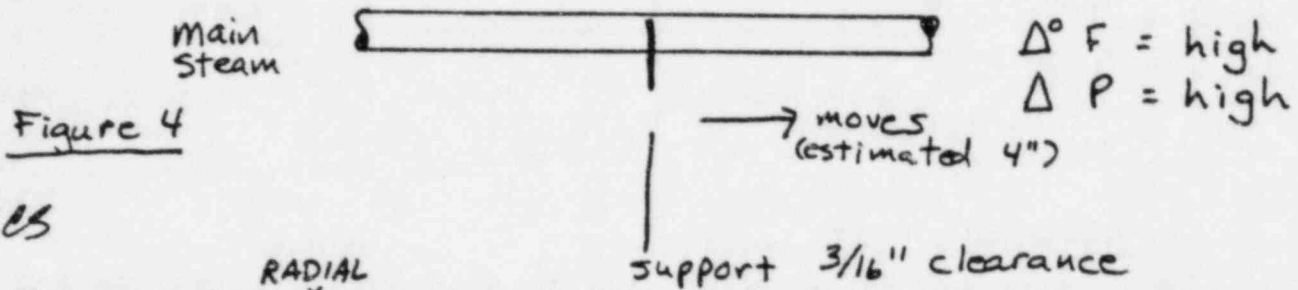


Figure 4

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The approximate expansion of this line can be one inch. This line will grow in length and diameter roughly at the same uniform rate. It will therefore lock up at approximately only one inch of the axial growth. It still has three inches more to go. I estimated four inches movement as a conservative assumption in Figure 4, because at the meeting on Friday Mr. Shipley admitted movements of six inches in some lines. Two possibilities are likely. -- (1) the pipe stronger than the support - support fails, (2) support stronger than pipe - pipe fails.

Continuing with the ACRS subcommittee on Wednesday, July 11, 1984, I agree with Mr. Yin concerning the adequacy of the stress walkdown. It is only partly acceptable. The typical industry practice, including Bechtel, is to decide what the clearance should be between the lines in the walked-down and stationery items, such as building steel, and non-stationery items, such as other pipe. Usually this clearance is one-inch, two-inch, three-inch, etc. It is determined based on the thermal and seismic envelope of movements which the line can deflect. The program at Diablo only accounted for the thermal clearance. It did not include the seismic clearance. Checking thermal clearance was important to ensure that the pipe and supports function and move as designed, but so far no program has checked the lateral clearance necessary to prevent the

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pipes from slapping against each other and being damaged during an earthquake.

I also agree with Mr. Yin in that the sample of PSDTC's (Pipe Support Design Tolerance Clarification) reviewed by the NRC team was inadequate. It was so inadequate that it was pathetic. It only comprised 43 out of the 15,000 PSTDC's written.

Further, PG&E only reviewed 2,000 of these 15,000 Quick Fixes. See page seven, License Condition 2.C.(11), item 6.

PG&E's tiny sample was illegal. It is impossible on the basis of screening 2,000 Quick Fixes out of 15,000 and then only looking at 43 in-depth, to determine that "all design changes and modifications have been resolved and documented in an appropriate manner," as theoretically is now required for the license in action item ^{COB} 6.

On page 5 of the proposed SSER for Licensing Condition 2.C.(11), item 7, it is stated, "Provided this minimum radius is present, the American Welding Society ^{COB} D1.1 requirement regarding the size of the weld effective throat in flare bevel welds to steel tubing as specified by PG&E on their drawings is acceptable."

Dr. Hartzman, who gave this dissertation, and I discussed this statement and I found out that he had only read my affidavits and the responses of PG&E. He had been told that the piece of tube which we had obtained was only one 20-foot pice, and that no more existed. I asked him if he had looked at the purchase order or traced this steel back to the documentation, using the number which was on the steel. He said no.

PG&E's reassurance is not persuasive, in light of its state-

COB

CCS

ment the last time I made the allegation. In PG&E letter No. DCL-84-083 (February 29, 1984), response to Question 2a "Tube Steel Radius", PG&E stated, "Pullman purchase orders indicate that material shall be domestically manufactured, as required by the contract. PG&E has researched all structural steel mill certificates to determine origin and have confirmed that no Japanese tube steel has been received. A simple purchase of a small amount (3,000 feet) of Canadian tube steel has been used; however, the manufacturing was in accordance with U.S. requirements."

Recently a worker at the plant who was aware of my allegations that foreign steel was being used at Diablo despite contract and FSAR requirements for domestic steel, brought me a piece of plate which had a ^{STAMP} ~~stampa~~ on it. A few days later he brought me the documentation on this steel, including a letter dated March 11, 1983, from PG&E to Foley Co. and Pullman Power Products. This letter states that "whenever domestic supplies cannot meet PG&E's material quality requirements or required delivery date, PG&E will, upon approved request, provide authorization to purchase foreign material." (See attachment ² ~~1~~).

The documentation on the plate indicates that 50 sheets of 1" X 4' X 8' carbon steel was ordered. Field requisition - purchase order - receiving report states under H6, "materials shall be domestically manufactured." The Mill Test Certificate indicates that the steel originally came from the Pohang Iron and Steel Co., Ltd., located at "5 Dong Chon Dong Pohang City Kyeong Sang Duk Do Kore", which I think means South Korea. The inspection report indicates the vendor Ducommun steel and that item A was on hold due to a foreign manufacturer, and that a DR (Discrepancy

CCS

CCB

Report) is in ^P progress. The DR simply states that the vendor has failed to comply with the special requirements of our purchase order. No ^{CCB} ~~appeared~~ ^{APPROVAL} for its use is indicated; however, on the inspection report a note says "Item A released per memo from PG&E 2-7-84." The documentation is stamped Class I material.

I question why this was not reported to the NRC on February 29, 1984. The documentation for this steel is enclosed as Attachment ³ ~~3~~. The steel will be submitted at a later date following a ^{CCB} metalurgical examination.

In closing I would like to say for myself and all the allegers requested by GAP, that we regret having to boycott further interviews with the NRC technical staff. At this time we have not seen sufficient evidence that the NRC personnel are committed to doing their jobs. We all have been betrayed by the NRC. Some of us who were anonymous have had our identities divulged to PG&E. We have been threatened and fired for doing our jobs and attempting to ensure the public's safety by pursuing the construction and design deficiencies existing at Diablo. See the text of an open letter we published last Friday in the San Luis Obispo newspaper, enclosed as Attachment ⁴ ~~4~~.

We will continue any discussions which are possible with Mr. Yin, the Office of Investigation or the Department of Justice. If Mr. Yin decides the process is honest enough to merit his return, then we will reconsider as well.

I would like to finish the discussion which was started last December 8, 1983, at Diablo with the Office of Investigation, before it opened a case. At that time there was a lot of interest in the destruction of documents at Diablo but no action. That was

CCB

CS

nearly eight months ago. This was not an issue that could be resolved by the technical staff. It involved potentially criminal acts during the last "reform", by the same organizations whose statements of fact again are being accepted at face value by the NRC.

I have read the above 16-page affidavit, and it is true, accurate and complete to the best of my knowledge and belief.

CS

Charles C. Stokes

Charles Stokes

DISTRICT OF COLUMBIA

Subscribed and sworn to before me this
16th day of July, 1984.

Albert H. Sater
Notary Public, D.C.

My Commission Expires 3-14-86

GOVERNMENT ACCOUNTABILITY PROJECT

Institute for Policy Studies
1901 Que Street, N.W., Washington, D.C. 20009

Attachment 1

(202) 234-9382

May 31, 1984

Mr. Hans Schierling
U.S. Nuclear Regulatory Commission
Washington, D.C.

Dear Mr. Schierling:

Enclosed are copies of two affidavits which were promised at our May 21, 1984 meeting. Please excuse my oversight in not meeting you at the airport before your departure from San Luis Obispo, California.

Also enclosed is the list of additional reference materials which Mr. Stokes needs to complete his evaluation of the licensee's corrective action on Mr. Yin's findings. As you will recall, the May 9, 1984 transcript identifies this information, which is part of the transcript and available upon public request. As you will also recall, on May 21 Mr. Stokes requested the data. You asked that he put the specifics in writing. We delayed sending this list until a legal intern forwarded additional materials available at the Public Document Room, which reduced the number of items in the attached enclosure.

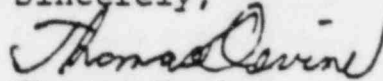
Third, have you obtained approval from counsel for Mr. Stokes to review necessary non-public materials under Mr. Yin's supervision, as he offered at the May 21 meeting? You will recall that Mr. Yin explained that he has followed this procedure successfully in other cases. Further, the Office of Investigations already has made an identical agreement for GAP witnesses at Diablo Canyon. As a result, I assume that counsel's approval is a formality. But it should be obtained before Mr. Yin's return, so that Mr. Stokes can complete his research.

Fourth, the witness from May 21 wants to receive and review his transcript as soon as possible. He also requests the opportunity to swear under oath to the accuracy of his statements and to receive a copy of his transcript.

Finally, I have nearly completed extensive preparations with the May 21 witness, and several others, to organize data on Unit I Quick Fixes that raise significant engineering concerns. On May 21 this was Mr. Vollmer's request. The witnesses request the opportunity to meet

with Mr. Yin and any other team members to continue the disclosures. On May 21 you estimated that the team would return in approximately two weeks. I will call your office tomorrow to follow up on this letter.

Sincerely,

A handwritten signature in cursive script that reads "Thomas Devine".

Thomas Devine
Legal Director

Enclosures

Enclosure 3

DOCUMENTS LIST REFERENCED AT MAY 9, 1984 NRC-PG&E MEETING

The May 9, 1984 transcript pages where these documents are referenced are in parentheses after each item.

1. Criterion M-9. (p.52)
2. Project engineering construction procedure PEI-12. (p.201)
3. "Last three procedures written for control of DP's within engineering." (p.217)
4. ESD-223. (p.218)
5. GC-PI-17. (p.220)
6. I-37. (p.220)
7. I-40. (p. 220)
8. D-16. (p.220)
9. All of the procedures referenced by Mr. Tressler on p. 227 for items already referenced in #1-8 above.
10. The 19-24 inches of procedures referenced by Mr. Knight pages 247-248, except for items already referenced in #1-9 above.

KARNER

PACIFIC GAS AND ELECTRIC COMPANY

PG&E + 245 MARKET STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

March 11, 1983

HOWARD P. FOLEY COMPANY
Attention: A. E. Moses

PULLMAN POWER PRODUCTS
Attention: J. W. Ryan

The following is clarification of the Pacific Gas and Electric's Foreign Supplier and Material Procurement Policy.

Whenever domestic suppliers cannot meet PG&E's material quality requirements or required delivery dates, PG&E will, upon approved request, provide authorization to purchase foreign material.

When critical schedules dictate, verbal authorization can be obtained for purchases of foreign material from the responsible Resident Engineer. These requests should be routed through the site Expediting Department so that the appropriate immediate action is obtained. This authorization must be followed with a written request and the appropriate PG&E authorized signature obtained. This action complies with the required PG&E policy to justify and document all purchases of foreign material.

If there are any further questions regarding this subject, please contact the responsible Resident Engineer.

R. D. Etzler
R. D. ETZLER

Reply requested: No
KAOliver:klh

cc: J. Arnold
W. Coley
C. Rood
E. Meyers

M. Norem
R. McInerney
K. Oliver
P. Heilman

F. Russell
J. Hoch
J. Shryock
J. Manning

INDEXED BMS



INSPECTION REPORT

APPLICABLE TO:
(CHECK)

RECEIVING

SUBCONTRACTOR

HOLD

MILL TEST REPORTS

X-RAYS

OTHERS

VENDOR Ducommun Steel

P.O. NO. 7177-14423

DATE 1-6-84

MANUFACTURER

INSPECTED BY Don B

DATE 2-8-84

ITEM PART NAME

QUANTITY

MATERIAL

A	1"X4'X8' C/S R	50	A-36
B	1/8" X 4 X 10	1	Shim PLATE 304
C	1/6 GA. X 4" X 10' SS	1	Shim PLATE 304

ITEM OR DRG. NO.	QUANTITY	HEAT NO. OR SYMBOL	IDENTIFICATION VERIFIED	DOCUMENTATION VERIFIED	RADIOGRAPHS APPROVED	REMARKS
A	50	576830 (35) 71112805	DB 1-7-84	DB 2-8-84	N/A	ON HOLD FOREIGN MFG. (REPORT ATTACHED) DR. IN PROGRESS
B	1	877760	DB 1-7-84	DB 1-7-84	N/A	
C	1	778317	DB 1-7-84	DB 1-7-84	N/A	

NOTE:
ITEM A RELEASED
PER MEMO FROM PGHE
2-7-84

CLASS I

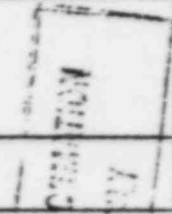
FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

18-38 412 2/15/78

NO. 7177	DATE 12-20-83	SHEET NO. 2 of 2	SHIPPING ADDRESS: PULLMAN POWER PRODUCTS c/o Pacific Gas & Electric Co. Diablo Canyon Power Plant 7 Miles North of Avila Beach, CA 93424	REQ.- P.O.- NO. F- 7177-14423 R.R.-
COUNT TERMS	SHIPPING TERMS		VENDOR: DUCOM IUM	JOB COST CODE: SUBCONTRACT NO. 4148
				MAIL 4 COPIES OF INVOICES TO:

SPECIAL REQUIREMENTS FOR STRUCTURAL MATERIALS FOR HANGERS:

12. Supplier shall furnish three copies of a Manufacturers' Certificate of Compliance signed by manufacturer indicating that materials furnished are in compliance with this Purchase Order or specifications.
13. Certificate of Compliance shall be traceable to our Purchase Order and Item No.
14. All required documentation shall be sent the day of each shipment to PULLMAN POWER PRODUCTS, P.O. Box 367, Avila Beach, CA 93424 Attn: Q.A. Dept. In addition, a copy shall accompany each shipment.
15. Any nonconformance to the requirement of the Purchase Order will be considered just cause for return of materials without cost to buyer.
16. Materials shall be domestically manufactured.



CLASS I

ORDERED FOR:		
QUANTITY NEEDED:	DATE ORDERED:	DATE PROMISED:
(S) ATTACHED:		
PREPARED BY: <i>JOM</i>	APPROVED BY: <i>[Signature]</i>	PURCHASED BY:
IMPORTANT: THIS ORDER IS SUBJECT TO ALL OF THE TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE HEREOF.		
ORDER NUMBER MUST APPEAR ON ALL INVOICES, BILLS OF LAD		

REMARKS
SOURCE DOCUMENT REQUIREMENTS

All Hanger Cl I, etc. Sprinkler
Spec M
8724 Cardox

RECEIVING DEPARTMENT	
CARRIER:	
COMPLETE <input type="checkbox"/>	PARTIAL <input type="checkbox"/>
PREPAID: \$	COLLECT: \$
RECEIVED BY:	

계약번호 KPP30096
 CONTRACT NO. KPP30096
 주문번호 CDP-565
 ORDER NO. CDP-565
 품명 P.ATE
 COMMODITY: P.ATE
 제품규격 ASTM A36/A6
 SPECIFICATION: ASTM A36/A6

63607241
 영업검사증명서
 MILL TEST CERTIFICATE

포항종합제철주식회사
 POHANG IRON & STEEL CO., LTD.
 8 DONG CHON GONG POHANG CITY KYEONG SANG BUK DO KOREA

수요가
 CUSTOMER: CUP-1.5
 검사일지
 DATE OF INSPECTION: OCT. 12. 1983
 검사일지
 DATE OF INSPECTION: OCT. 12. 1983

제품 치수 DIMENSIONS	수량 QTY	중량 WEIGHT K.G	재검번호 CHARGE NO.	제품번호 PRODUCT NO.	인장시험 TENSILE TEST		충격 IMPACT °C	입도 GRAIN SIZE	HEAT TREATMENT -T (°C)	화합 성분 CHEMICAL COMPOSITION (%)										비고 REMARK				
					Y P	T S				E L	Z	%	C	Si	Mn	P	S	Ca	Al		Ni	Cr	Ti	Fe
1"X96"X240"	3	8,889	576330	6514150	29.9	43.6	26.9			1723	94	1617	2											19597
"	3	8,889	"	6514160	"	"	"			"	"	"	"											19597
"	3	8,889	"	6523790	31.4	44.6	27.0			"	"	"	"											19597
"	3	8,889	Y77128	6583370	29.1	45.4	26.4			1426	100	1710	2	40										19597
"	3	8,889	576330	6612930	30.9	48.4	26.4			1723	94	1617	2											19597
** SUB TOTAL **	25	74,075			GL 1	200 MM																		
1-1/4"X96"X240"	1	3,706	561606	6493550	28.0	47.8	26.9			1429	93	1813	1											8170
"	1	3,706	"	6493560	28.2	47.6	26.9			"	"	"	"											8170
"	3	11,118	Y66972	6493600	26.6	41.9	30.3			1327	85	1914	1	27										24511
"	2	7,412	Y74556	6493610	28.9	47.1	26.1			1924	94	2512	2											16340
** SUB TOTAL **	7	25,942			GL 1	200 MM																		
1-1/4"X96"X331"	2	9,370	564390	6501510	28.6	43.5	26.6			1423	90	1613	1											20657
"	2	9,370	"	6501520	27.8	43.0	26.5			"	"	"	"											20657
"	2	9,370	Y74938	6501530	28.2	43.8	26.4			1324	87	1712	1											20657
** SUB TOTAL **	6	28,110			GL 1	200 MM																		
1-1/2"X96"X240"	2	8,892	Y69880	6506210	31.1	48.2	26.5			1625	85	2020	2	40										19603
"	2	8,892	Y74158	6506220	30.4	47.3	26.4			1724	101	1517	2											19603
"	2	8,892	Y77128	6587270	29.1	45.4	26.4			1426	100	1710	2	40										19603
** SUB TOTAL **	6	26,676			GL 1	200 MM																		
1/2"X72"X240"	4	4,444	572683	6482290	27.4	45.0	26.1			18	5	78	1515	1										9797
"	5	5,555	572751	6482300	26.0	41.0	26.3			16	4	65	1212	2										12246
** SUB TOTAL **	9	9,999			GL 1	200 MM																		
** GRAND TOTAL **	140	275,934																						

APPROVED
 ASTM 1979
 PULLMAN POWER PRODUCTS
 QA
 PAGE DATA CENTER
 INITIALS
 1032854

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR BY THE ABOVE ORDER.

Gal Moon. Cho

4140

THE M.W. KELLOGG COMPANY

A DIVISION OF FULLMAN INCORPORATED

10 CFR-21
(IS) or (IS NOT)
ATTACHED

D.R. NO. _____
ISO. NO. _____
UNIT NO. _____
CODE NO. _____

DISCREPANCY REPORT

CUSTOMER: Pacific Gas & Electric SPEC. NO.: 8711 DATE: 1-6-84
PROJECT: Diablo Canyon JOB NO.: 7177 INSPECTOR: Don Bill

DISCREPANT ITEM: 1" A-36 PLATE IT.A PO. 7177-14423 Ducommun Steel

EXPLANATION OF DISCREPANCY:
VENDOR HAS FAILED TO COMPLY WITH THE SPECIAL REQUIREMENTS OF OUR PURCHASE ORDER. ALL INDICATIONS ON THE MATERIAL AND ON THE TEST REPORTS SHOW THE MATERIAL TO BE FROM A FOREIGN MANUFACTURE.

2853140A01 RP53009G 0400&E 100X H&A 013 25.40X2938X 16096 29637

RECOMMENDED DISPOSITION:

1. RETURN TO VENDOR
2. ACCEPT MATERIAL AS IS.
3. PAGE TO DISPOSITION

Approved By: M.W.K. Field Q.A. Mgr. _____ Date _____ Customer _____ Date _____

FINAL DISPOSITION: <input type="checkbox"/> In Accordance With Above Work Completed Insp: _____ Date: _____	<input type="checkbox"/> Other (explanation and approval required)) Work Completed Insp: _____ Date: _____
--	---

EXPLANATION (IF NECESSARY):

FOR INFORMATION ONLY

M.W.K. Field Q.A. Manager _____ Date _____ Customer _____ Date _____

STEPS TO PREVENT RECURRENCE Not Applicable

CLASS I

Field Q.A. Manager _____

DISTRIBUTION: Master Q.A. File Auth. Insp. Engineering Dept. Other _____
 Customer Receiving Field Inspector (_____)

Aux 2

413/591R

Pullman Power Products Corporation
FIELD WAREHOUSE REQUISITION

ITEM 2-05 LINE SPEC. 2-K-82-20-C DATE 6-22-84

DRAWING NO. — DETAIL DWG. NO. 500923 DDR. NO. — ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
4	4	FISH PL'S 1" X 4" X 4" W/ (1) 15/16" d HOLE EACH C.S. A36	14403		

CLASS I UGR MATERIAL

UNIT #2 LAY DOWN

RCM 1/96 6072081

APPROVAL JW Robertson

QA APPROVED Richard [Signature]
FILED BY 2116
364

COPY - QA COPY - WAREHOUSE COPY - FIELD ENGINEERING COPY -

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

34-78-38 REV 6/16/78

JOB NO. 7177	DATE 12-20-83	SHEET NO. 1 of 2	SHIPPING ADDRESS: PULLMAN POWER PRODUCTS c/o Pacific Gas & Electric Co. Diablo Canyon Power Plant 7 Miles North of Avila Beach, CA 93424	REQ. NO. NO. F- 7177-14423
DISCOUNT TERMS	SHIPPING TERMS FOB L.A.	VIA Mike 213-588-0160	VENDOR: Ducommun 4890 S. Alameda Street Los Angeles, CA 90051	JOB COST CODE: 121
				SURCONTRACT NO. 4148
				MAIL 4 COPIES OF INVOICES TO: P.O. Box 367 Avila Beach, CA 93424

ITEM (LETTER)	QTY. REQ/O.	DESCRIPTION	UNIT PRICE		TOTAL		DATE REC'D.	QTY. REC'D.
A	50	Plates) 1" X 4' X 8' C.S. plate, A-36	20	50	13396	75	CLASS I	
B	1	Plate) 1/8" X 4' X 10' S.S. Shim Plate, 304 2B 202K	1	09	220	18		
C	1	Plate) 16 GA. X 4' X 10' S.S. Shim Plate, 304 2B 302K	1	11	335	22		
SEE SPECIAL REQUIREMENTS ATTACHED								
TOTAL PRICE						13952 15		

NEEDED FOR:
Unit II, Stock

DATE NEEDED: _____ DATE ORDERED: _____ DATE PROMISED: _____

DWG(S) ATTACHED: _____

PREPARED BY: *GPM* APPROVED BY: *[Signature]* PURCHASED BY: _____

IMPORTANT: THIS ORDER IS SUBJECT TO ALL OF THE TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE HEREOF.

OUR ORDER NUMBER MUST APPEAR ON ALL INVOICES, BILLS OF LADING, EXPRESS RECEIPTS AND CORRESPONDENCE. MARK ALL SHIPPING TAG.

REMARKS
Herbst

REIMBURSABLE

RECEIVING DEPARTMENT

CARRIER: _____

COMPLETE PARTIAL

PREPAID: \$ _____ COLLECT: \$ _____

RECEIVED BY: _____

4890 S. ALAMEDA
LOS ANGELES, CA

90058

STANDARD ORDER
EXPEDITE

4890 S. ALAMEDA
LOS ANGELES, CA

90058

01/04/84 004118 03 01/06/84 01/06/84

PULLMAN POWER PRODS
X P G & E DIABLO CNYN POWR PL
7 MILES NORTH OF AVILA BEACH
AVILA BEACH CA 93424

pullman 1-6-84
DDMM

TRANS 029603 01 OK 01/04

PULLMAN POWER PRODS
PO BOX 367
AVILA BEACH CA

CUSTOMER ORDER NO
F7177-14425

ORDERED BY
BRIAN

CONDITIONS OF SALE: All claims for defective material are waived unless made in writing within ten days from date of shipment. Our liability is limited to replacing the material or refunding the invoice value of the material sold. Cut material, when furnished correctly cannot be returned for credit. Salesman cannot authorize the return of merchandise.

INSIDE 88 OUTSIDE 72 STATE CA PFT OK 22 PRINTER 9 SEQ NO 9

ACQUISITION RELEASE NO

PHONE NO
805-541-7579

DUCOMMUN A INVOICE NUM 0041

QUANTITY SHIPPED	QUANTITY ORDERED	INV UNIT	ITEM CODE	TOL	AEC	TYPE	DESCRIPTION	UNIT PRICE	SELL UNIT	MARKS	TAKE	QUANTITY ON HAND
<i>116</i>	121	LB	723213005 NONE		A	N X	166A-.060 48X144 T304 2B FIN 0001 SHT	111.0000	CWT		K	CLASS I

FOR INFORMATION ONLY

item "C"

APPROVED
ASPM 1979
PULLMAN POWER PRODUCTS
QA
P.G. SE Diablo Canyon Project
DB 10 7 84

TEST REPORT MW

HEAT NUMBER 1 **778317** 2
HEAT NUMBER 3
HEAT NUMBER 4
HEAT NUMBER 5

CASES COILS BUNDLES (LENGTHS) LENGTHS CARTONS
BUNDLES (BOARDS) PIECES PACKAGES

FILLED CHECKED SHTG. APD. BY
CONT. XND DATE RECEIVED BY

ALLEGHENY LUDLUM STEEL CORPORATION

Special Steels for Industry

CARD TYPED RR 4148
DATE 9-27-83 ORIGINAL INVOICE



DIRECT CORRESPONDENCE REGARDING THIS INVOICE TO
2000 OLIVER BUILDING, PITTSBURGH, PENNSYLVANIA 15222

MESSAGE DATE	INQUIRY NUMBER	INQUIRY DATE	SHIPMENT REQ'D.	NOT BEFORE	NO. ITEMS	ORDER ENTRY DATE	MILL ORDER NUMBER	DATE SHIPPED	
GOVT. CONTRACT NO.	CUST. ORDER NO. & DATE			NO.		CUST. CODE	ACCEPTING MILL		
	72L-09124			19 20 88		337680	NEW CASTLE		
DESTINATION	INDUSTRY	SIC	PRODUCT CODE		MAT'L	SLS'M.	DIST.		
04 037 1900	160	5051	13020102060000		1121	263	36		
PRODUCT					SHIPPING LOCATION		INVOICE NUMBER & DATE		
					LOS ANGELES				

DUCOMMUN METALS
P.O. BOX 2117 T.A.
LOS ANGELES, CA. 90051
ATTN: ACCOUNTS PAYABLE

APPROVED
ASTM 1979
PULLMAN POWER PRODUCTS
Q.A.
P.G. BE. Diablo Canyon Project
DB 1-7-84
INITIALS

TERMS - 10 DAYS. NET 30 DAYS
UNLESS OTHERWISE INDICATED.
F.O.B. SHIPPING POINT SAME AS ACCEPTING MILL
UNLESS OTHERWISE INDICATED.

DUCOMMUN METALS
4890 SO. ALAMEDA ST.
LOS ANGELES, CA. 90054

REMIT TO:
FILE #9656
LOS ANGELES, CA. 90074

ALLEGHENY STAINLESS STEEL TYPE 304 SHEET CR ANNEALED #2B FINISH #3 EDGE
QQ-S-766C MIL-S-5059C EXCEPT PRODUCT CHECK AMS 5513C ASTM-A-240-82C ASME-SA-240
1983 ED WAIVE CLM 7213-304 REV 5

WEIGHT CHARGES	VIA	CAR INITIAL & NO.	GROSS	TARE	NET
PA	WILL CALL 9/26 am		35210	220	34990

S	WEIGHT SHIPPED	QUANTITY ORDERED	WIDTH-DIA-O.D. INCHES	GATHR.WALL INCHES	LENGTH	PART NUMBER		PRICE	AMOUNT	C/P
						HEAT	TEST			
Reqn	1307	MO# 6825	48.0	.048	coil	877513	G3710			
		12630	36.0	.059	coil	778670	G4905			
Reqn	1328	MO# 307	30-053-461	CL# 07303N-060	6640#	-061	5990#			
Reqn	1271	MO# 15535	30-043-402	CL# 06243N-289	7685#	778317	G447			

Verified by
RR 11/6/84

ALLEGHENY LUDLUM STEEL CORP.
CERTIFICATE OF TEST
CHEMICAL ANALYSIS

HEAT NO.	C	MN	P	S	SI	CR	NI	MO	CU	N
8317	.05	1.83	.030	.005	.57	18.60	8.11	.31	.31	.07
8670	.06	1.79	.030	.005	.57	18.37	8.15	.19	.25	.06
7513	.06	2.00	.029	.008	.60	18.38	8.10	.22	.19	.07

ITEM C

PHYSICAL PROPERTIES							
HEAT NO.	TEST NO.	YIELD STRENGTH	TENSILE STRENGTH	ELONG	HARDNESS	BEND	A 262 F
8317	G4447	45400	94000	60	85.HRB	T PASS	PASS
		44500	92500	61.	84.HRB		
8670	G4905	42000	92500	60.	84.HRB	T PASS	PASS
		41200	92000	60.	83.HRB		
7513	G3710	48100	92000	55.	85.HRB	T PASS	PASS
		44100	89500	56.	86.HRB		

CLASS I

RR 4148

FROM DUCOMMUN METALS CO.

4890 S. ALAMEDA
LOS ANGELES, CA

90058
DATE REQUIRED

STANDARD ORDER
EXPEDITE

TYPE OF ORDER

SHIPPED FROM DUCOMMUN METALS CO.

4890 S. ALAMEDA
LOS ANGELES, CA

90058

01/04/84 004118 02 01/06/84 01/06/84

PULLMAN POWER PRODS
X P G & E DIABLO CNYN POWR PL
7 MILES NORTH OF AVILA BEACH
AVILA BEACH CA 93424

Handwritten signature
DMM

TRANS 029603 01 OK 01

PULLMAN POWER PRODS
PO BOX 367
AVILA BEACH, CA

CUSTOMER ORDER NO

FZ177-14423

REQUISITION RELEASE NO

ORDERED BY

BRIAN

PHONE NO

805-541-7579

CONDITIONS OF SALE: All claims for defective material are waived unless made in writing within ten days from date of shipment. Our liability is limited to replacing the material or refunding the invoice value of the material sold. Cut material, when furnished correctly cannot be returned for credit. Salesman cannot authorize the return of merchandise.

INSIDE 88 OUTSIDE 72 STATE CA P/P OR PRINTER 22

DUCOMMUN

QUANTITY SHIPPED	QUANTITY ORDERED	INV UNIT	ITEM CODE	DESCRIPTION	UNIT PRICE	SELL UNIT	TAX	QUANTITY ON HAND
COLOR CODE	TOL	ARC						LINE ITEM
65350	65350	LB	632506853 OR L&L A	N 1 IN (S) A36 HR STL PLATE I 0050 PCS CUT ALL TO 48 X 96 I 0010 PLATES	22.0000	CWT	K	1.

FOR INFORMATION ONLY

cut to A

CLASS I

TEST REPORT	HEAT NUMBER	HEAT NUMBER
MW	1. S 76330 - 7 pl	2. Y 77128 - 3 pl
FILLED	CHECKED	SHIP. APP. BY

Labels, Coils, Bundles (Lengths), Lengths, Cartons

PULLMAN POWER PRODUCTS CORPORATION

JOB #7177

AVILA BEACH, CALIFORNIA 93424 • (805) 595-2356

MESSAGE

REPLY

Jerry Arnold

DATE

2/2/84

February 1, 1984

USE OF THIS
MATERIAL IS
ACCEPTABLE

Material purchased on Pullman Power Products

Purchase Order #7177-14423 was supplied by

Ducommun. Although the Purchase order

included the requirement which states

"Material shall be domestically manufactured,"

the material was actually manufactured in

Korea. This material consists of 50 1" X 4' X

8' C.S. Plates intended to be used for hanger

construction in Unit II. Please allow Pullman

to use this material as indicated per Mill Test
certificate Attached.

Phillip Lang

SIGNED

Form # N-R73 © Wheeler Group Inc. 1982

INSTRUCTIONS TO SENDER:

INSTRUCTIONS TO RECEIVER:

KEEP YELLOW COPY. B. SEND WHITE AND PINK COPIES WITH CARBON INTACT.

1. WRITE REPLY. B. DETACH STUB, KEEP PINK COPY, RETURN WHITE COPY TO SENDER.

QA

FOR INFORMATION
ONLY

CLASS L.



Pullman Power Products

RR 4148

PRODUCT ENGINEERING DEPARTMENT

QUALITY ASSURANCE AND DOCUMENTATION REQUIREMENTS

	REQ'D	APPROVED BY CUSTOMER	VERIFIED BY P.P.P. Q.C.
1. Vendor Quality Assurance Program - ASME Section III			
2. Certified Drawings for Approval			
3. Qualified Procedures for Approval			
a. Welding			
b. Weld Repairs			
c. Heat Treatment			
d. Ultrasonic			
e. Radiograph			
f. Magnetic Particle			
g. Liquid Penetrant			
h. Eddy Current			
4. Documentation			
a. Mill Reports			
b. Impact Tests			
c. Ultrasonic			
d. Radiograph			
e. Magnetic Particle			
f. Liquid Penetrant			
g. Eddy Current Results			
h. Hydrostatic			
i. Partial Data Reports ASME Section			
j. NDT Personnel Qualifications	/		
k. Manufacturer's C of C			
5. Marking per P.P.P. Standard			
<p><i>Discontinued</i></p> <p>P.O.# 7177-14423</p>			

FOR INFO
 J. Ditz 2-8-83

PREPARED BY *R.C. King*

DATE OF ISSUE 12-30-83

APPROVED BY *[Signature]* 12-30-83

PAGE OF

DUCOMMUN METALS CO.

TYPE OF ORDER

SHIPPED FROM: DUCOMMUN METALS CO.

10111

390 S. ALAMEDA
LOS ANGELES, CA

90058

STANDARD ORDER
EXPEDITE

4890 S. ALAMEDA
LOS ANGELES, CA

90058

LINE OF ORDER

INVOICE NUMBER

DATE REQUIRED

SHIPPING DATE

LINE ITEM

TRUCK ROUTE

CUSTOMER CODE

SUFFIX

CREDIT

1/04/84 004118 01 01/06/84

TRANS 029603 01 OK

PULLMAN POWER PRODS
X-P G & E DIABLO CANYN POWR PL
7 MILES NORTH OF AVILA BEACH
AVILA BEACH CA 93424

CONDITIONS OF SALE: All claims for defective materials are waived unless made in writing within ten days from date of shipment. Our liability is limited to replacing the material or refunding the invoice value of the material sold. Cut material, when furnished correctly cannot be returned for credit. Salesman cannot authorize the return of merchandise.

PULLMAN POWER PRODS
PO BOX 367
AVILA BEACH CA



ORDER NO.
777-14423

ORDERED BY
BRIAN
PHONE NO.
805-541-7579

INSIDE 88 OUTSIDE 72 STATE CA PFT OK PRINTER 22 SEQ. NO. 7 PAGE 7

VISITON/RELEASE NO.

DUCOMMUN A INVOICE NUMBER 004118

QUANTITY SHIPPED	QUANTITY ORDERED	INV UNITS	ITEM CODE	COLOR CODE	TOL	ABC
203	202	LB	723224507	NONE		A

DESCRIPTION	UNIT PRICE	SELL UNIT	T	A	R	AMOUNT
N 11GA-.120 48X120 T304 2B SS SHEET X 0001 SHEET 48 X 120						

RECEIVED
JAN 06 84
PULLMAN POWER PRODUCTS
Q. A. DEPARTMENT

GENERAL CONSTRUCTION
Diablo Canyon
DATE JAN-6 1984 REC'D.
Checked [Signature]
P. G. and E. CO.

CLASS I

TEST REPORT	HEAT NUMBER	HEAT NUMBER
MW	877760	
	HEAT NUMBER	HEAT NUMBER

CASES	COILS	BUNDLES (LENGTHS)	LENGTHS	CARTONS	FILED	CHECKED	SHTG. APD. BY	HEAT NUMBER
CASES (CARBOCAP)	COILS	BUNDLES (INBOARDS)	PIECES	PACKAGES	CONT	END DATE	RECEIVED BY	

FROM DUC MIN METALS CO.

TYPE OF ORDER

4890 S. ALAMEDA
LOS ANGELES, CA

STANDARD ORDER
EXPEDITE

4890 S. ALAMEDA
LOS ANGELES, CA

900

90058

DATE REQUIRED

01/04/84 004118 01 01/06/84 01/06/84

PULLMAN POWER PRODS
X P G & E DIABLO CNYN POWR PL
7 MILES NORTH OF AVILA BEACH
AVILA BEACH CA 93424

TRANS 029603 101 OK
PULLMAN POWER PRODS
PO BOX 367
AVILA BEACH CA

Handwritten signature and date: 1-6-84
DMM

CUSTOMER ORDER NO

ORDERED BY

TERMS AND CONDITIONS OF SALE: All claims for defective material are waived unless made in writing within ten days from date of shipment. Our liability is limited to replacing the material or refunding the invoice value of the material sold. Cut material, when furnished correctly cannot be returned for credit. Salesman cannot authorize the return of merchandise.

INSIDE 88 OUTSIDE 72 STATE CA PFI OR PRINTER 22

F7177-14423

BRIAN

PHONE NO

805-541-7579

DUCOMMUN

QUANTITY SHIPPED	QUANTITY ORDERED	INV UNIT	ITEM CODE	DESCRIPTION	UNIT PRICE	SELL UNIT	ITEMS
203	202	LB	723224507 NONE A	N 116A-.120 48X120 T304 2B S8 SHEET X 0001 SHEET 48 X 120 <i>item "B"</i>	109.0000	CWT	K

CLASS I.

APPROVED
ASTM 1979
PULLMAN POWER PRODUCTS
QA
PGE Diablo Canyon Power
1-7-84
initials

FOR [unclear]

TEST REPORT MW	HEAT NUMBER 877760	HEAT NUMBER 3
	HEAT NUMBER ITEM B	HEAT NUMBER 4
FILLED	CHECKED	SHGC APD BY
CONT XND	DATE	RECEIVED BY

CASES	COILS	BUNDLES (LENGTH)	LENGTHS	CARTONS	PACKAGES
		BUNDLES (BOARD)	PIECES		

✓ RR 4148



ALLEGHENY LUDLUM STEEL CORPORATION

ORIGINAL INVOICE

Special Steels for Industry CARD TYPE

DIRECT CORRESPONDENCE REGARDING THIS INVOICE
2000 OLIVER BUILDING, PITTSBURGH, PENNSYLVANIA 15

MESSAGE DATE	INQUIRY NUMBER	INQUIRY DATE	SHIPMENT REQD.	NOT BEFORE	NO. ITEMS	ORDER ENTRY DATE	DATE	ORDER NUMBER	DATE SHIPPED
							10-11-83		
GOVT. CONTRACT NO.	CUST. ORDER NO. & DATE		1d 4 83		CUST. CODE	ACCEPTING MILL			
	72L-10100				337680	NEW CASTLE			
DESTINATION	INDUSTRY	SIC	PRODUCT CODE	MAT'L	SLSM.	DIST.			
04 037 1900	160	5051	13020102060000	1121	283	36			
PRODUCT			SHIPPING LOCATION			INVOICE NUMBER & DATE			
			L OS ANGELES						

DUCOMMUN METALS
P.O. BOX 2117 T.A.
LOS ANGELES, CA. 90051
ATTN: ACCOUNTS PAYABLE

TERMS - 10 DAYS, NET 30 DAYS
UNLESS OTHERWISE INDICATED.

F.O.B. SHIPPING POINT SAME AS ACCEPTING MILL
UNLESS OTHERWISE INDICATED.

4890 SO. S ALAMEDA ST.
LOS ANGELES, CA. 90054

REMIT TO:
file X #9656
LOS ANGELES, CA. 90074

ALLEGHENY STAINLESS STEEL TYPE 304 SHEET CR ANNEALED #2B FINISH #3 EDGE
QQ-S-766C MIL-s-5059C EXCEPT PRODUCT CHECK AMS 5513C ASTM-A-240-82C ASME-SA-2
1983 ED EXCEPT WAIVE CLM 7213-304 REV 5

PA	WILL CALL 10/10	CAR INITIAL & NO.	GROSS	TARE	NET
			24400	140	24260

I S S	WEIGHT SHIPPED	QUANTITY ORDERED	WIDTH-DIA. O.D. INCHES	GATHR. WALL INCHES	LENGTH	PART NUMBER		PRICE	AMOUNT	C.
						HEAT	TEST			
		8920	48.0	.075	coil	887836	G3911			
	Reqn#1294	MO#30-053-022	CL#05173N-103							
		8260	48.0	.120	coil	877760	G4761			
	Reqn#1339	MO#30-063-068	CL#05053N-008							
		7080	48.0	.135	coil	878619	G4752			
	Reqn#1337	MO#30-063-036-1	CL#07213N-014B							

APPROVED
ASTM 1977
PULLMAN POWER PRODUCTS
CA
P.G.E. Data Center Project
DB 1-7-84
INITIALS

ITEM 0
Verified by
DR 4/6/84

CERTIFICATE OF TEST
CHEMICAL ANALYSIS

HEAT NO.	C	MN	P	S	SI	CR	NI	MO	CU	N
87836	.06	1.79	.036	.003	.60	18.32	8.39	.23	.30	.07
77760	.05	1.79	.029	.008	.52	18.06	8.07	.31	.39	.07
878619	.06	1.87	.031	.008	.65	18.20	8.10	.18	.21	.07

CLASS I

PHYSICAL PROPERTIES

HEAT NO.	TEST NO.	YIELD STRENGTH	TENSILE STRENGTH	ELONG	HARDNESS	BEND	A 26
87836	G3911	46600	93500	61.	85.HRB	T PASS	PA
		45800	92000	60.	85.HRB		
77760	G4761	43800	92000	57	85.HRB	T PASS	PA
		46800	93500	56.	86.HRB		



FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

CHANGE "A"

FD-70-30 USE PREVIOUS EDITIONS

JOB NO. 7177	DATE 3/13/84	SHEET NO. 1 of 1	SHIPPING ADDRESS: PULLMAN POWER PRODUCTS c/o Pacific Gas & Electric Co. Diablo Canyon Power Plant 7 Miles North of Avila Beach, CA 93424	REQ. NO. F- 7177- 14423
DISCOUNT TERMS	SHIPPING TERMS	VIA	VENDOR: Ducommon 4890 S. Alameda Street Los Angeles, CA 90051	JOB COST CODE: SUB CONTRACT NO. 4148
				MAIL 4 COPIES OF INVOICES P.O. Box 367 Avila Beach, CA 93424

RR 4148

ITEM (LETTER)	QTY. REQ/D.	DESCRIPTION	UNIT PRICE	TOTAL	DATE REC'D.
		This change is written to reflect an increase in price as the Vendor included freight charge in price of material instead of it being separate.			
		Written AS:			
A	50	Plates 1" x 4' x 8' C.S. Plate A-36 (65,350K)	C (20 50	1339075	
		Should Be:			
A	50	Plates " " " " " "	C 22 00	1437700	
		Difference		980 25	
		Original P.O. Amount		1395215	
TOTAL PRICE				1493240	

NEEDED FOR:

DATE NEEDED: DATE ORDERED: DATE PROMISED:

DWG(S) ATTACHED:

PREPARED BY: *Philip M. Long* APPROVED BY: *[Signature]* PURCHASED BY: *BO*

IMPORTANT: THIS ORDER IS SUBJECT TO ALL OF THE TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE HEREOF.

OUR ORDER NUMBER MUST APPEAR ON ALL INVOICES, BILLS OF LADING, EXPRESS RECEIPTS AND CORRESPONDENCE. MARK ALL SHIPPING TAGS AND PACKAGES WITH ABOVE ORDER NUMBER

REMARKS

REIMBURSABLE CLASS 1

RECEIVING DEPARTMENT

CARRIER:

COMPLETE PARTIAL

PREPAID: \$ COLLECT: \$

RECEIVED BY:

PULLMAN POWER PRODUCTS CORPORATION

JOB #7177

AVILA BEACH, CALIFORNIA 93424 • (805) 595-2356

MESSAGE

TO DON BICE

DATE 2-7-84

PULLMAN POWER PRODUCTS

SUBJECT ENGINEERING CONVERSION:

" WAREHOUSE "

Kg/MM² TO P.S.I.

EXT. 3634

① 45.4 Kg/MM² (1422.34) = 64574.23 P.S.I.

② 29.1 Kg/MM² (1422.34) = 41390.09 P.S.I.

③ 48.4 Kg/MM² (1422.34) = 68841.25 P.S.I.

④ 30.9 Kg/MM² (1422.34) = 43950.30 P.S.I.

BY C. Bradley-Muhammad
LEVEL II Q.A.E.

REPLY

Thanks Muhammad

DATE 2-7-84

FOR INFORMATION ONLY

CLASS I

SIGNED

Don Bice

DUCOMMUN METALS CO.

4170

ARIZONA DIVISION
301 SO. 29th ST. PHOENIX, AZ 85034
(602) 275-4771

LOS ANGELES DIVISION
4990 SO. ALAMEDA ST., VERNON, CA 90058
(213) 588-0181

SAN DIEGO OFFICE
2515 CAMINO DEL RIO SOUTH, SAN DIEGO, CA 92108
(714) 297-8410 (714) 477-3141

BERKELEY DIVISION
2550 - 7th STREET, BERKELEY, CA 94710
(415) 841-1820

KENT DIVISION
8212 SO. 196th STREET, KENT WA 98031
(206) 872-7230

TO: PULLMAN POWER PRODS.
C/O P G & E DIABLO CANYON PWR PL
7 MILES NORTH OF AVILA BEACH
AVILA BEACH, CALIF 93424

QUANTITY 55,350 LBS	CUSTOMER'S ORDER NUMBER F7177-14423	PACKING LIST & INVOICE NUMBER 004118 02	TYPE OF REPORT ACTUAL
MATERIAL DESCRIPTION 1/2" HOT ROLLED CARBON STEEL PLATE A-36 50 PCS 48 X 96 FROM 10 PLATES		SPECIFICATION <u>ASTM-A36</u>	PRODUCING MILL POHANG IRON & STEEL CO

MECHANICAL PROPERTIES

LOT NUMBER	TEMPER	TENSILE STRENGTH PSI KGMM ²	YIELD STRENGTH PSI KGMM ²	% ELONG IN	% RED. AREA	HARDNESS	BEND TEST	GRAIN SIZE	MACRO	MICRO	INT. GRAN CORROSION
77128		45.4 ✓	29.1 ✓	26 ✓							
576330		48.4 ✓	30.9 ✓	27 ✓							

CHEMICALS

LOT NUMBER	CARBON	MANG	PHOS.	SULPHUR	SILICON	LEAD	COPPER	MAGNESIUM	CHROMIUM	ZINC	NICKEL	ALUMINUM
77128	.14 ✓	1.00 ✓	.017 ✓	.010 ✓	.26 ✓		.02 ✓					
6330	.17 ✓	.94 ✓	.016 ✓	.017 ✓	.23 ✓		.02 ✓					

OTHER PROPERTIES

WELDABILITY IN 16hrs:

CARBURIZATION:

MAGNETIC PARTICLE:

C-573

APPROVED
ASTM 1979
PULLMAN POWER PRODUCTS
Q.A.
P.G.&E. Diablo Canyon Project
AB 2-8-84
DATE

CERTIFIED TEST REPORTS

WE HEREBY CERTIFY THAT THESE ARE CORRECT
COPIES OF REPORTS NOW ON FILE AT
DUCOMMUN METALS COMPANY.

R L Johnson
Test Report Clerk

CLASS

FOR INFORMATION
ONLY

TEST REPORT DUCOMMUN METALS CO.

4149

ARIZONA DIVISION
301 SO. 26th ST. PHOENIX, AZ 85034
(602) 275-4471

LOS ANGELES DIVISION
490 SO. ALAMEDA ST., VERNON, CA 90058
(213) 588-0111

SAN DIEGO OFFICE
2515 CAMINO DEL RIO SOUTH, SAN DIEGO, CA 92108
(714) 297-8410 (714) 477-3141

BERKELEY DIVISION
2550 - 7th STREET, BERKELEY, CA 94710
(415) 841-1820

KENT DIVISION
8212 SO. 196th STREET, KENT WA 98031
(206) 872-7230

TO: PULLMAN POWER PRODS
C/O P G & E DIABLO CNYN PWR PL
7 MILES NORTH OF AVILA BEACH
AVILA BEACH, CALIF 93424

QUANTITY	CUSTOMER'S ORDER NUMBER	PACKING LIST & INVOICE NUMBER	TYPE OF REPORT
5,350 LBS	F7177-14423	004118 02	ACTUAL
SERIAL DESCRIPTION	SPECIFICATION		PRODUCING MILL
" HOT ROLLED CARBON STEEL PLATE -36 50 PCS 48 X 96 FROM 10 PLATES	ASTM-A36		POHANG IRON & STEEL CO

MECHANICAL PROPERTIES

LOT NUMBER	TEMPER	TENSILE STRENGTH PSI KGMM ²	YIELD STRENGTH PSI KGMM ²	% ELONG	IN	% RED. AREA	HARDNESS	BEND TEST	GRAIN SIZE	MACRO	MICRO	INT. GRAN CORROSION
77128		45.4	29.1	26								
76330		48.4	30.9	27								

CHEMICALS

LOT NUMBER	CARBON	MANG	PHOS.	SULPHUR	SILICON	LEAD	COPPER	MAGNESIUM	CHROMIUM	ZINC	NICKEL	ALUMINUM
77128	.14	1.00	.017	.010	.26		.02					
6330	.17	.94	.016	.017	.23		.02					

LOT NUMBER	MOLY.	COBALT	TANTALUM	TITANIUM	SELENIUM	TIN	OTHER

OTHER PROPERTIES

WARRANTY PERIOD: 16 months

DEBURRING: NONE

MAGNETIC PARTICLE: NONE

APPROVED

ASTM 1979

PULLMAN POWER PRODUCTS

Q.A.

P.G.&E. Diablo Canyon Project

NO 2-8-87

INITIALS

CLASS I

CERTIFIED TEST REPORTS

WE HEREBY CERTIFY THAT THESE ARE CORRECT
COPIES OF REPORTS NOW ON FILE AT
DUCOMMUN METALS COMPANY.

BY R L Johnson
 Test Report Clerk

FOR INFORMATION

TEST REPORT DUCOMMUN METALS CO.

4149

ARIZONA DIVISION
301 SO. 29th ST. PHOENIX, AZ 85034
(602) 275-4471

LOS ANGELES DIVISION
4990 SO. ALAMEDA ST., VERNON, CA 90068
(212) 384 0181

SAN DIEGO OFFICE
2515 CAMINO DEL RIO SOUTH, SAN DIEGO, CA 92108
(714) 287-8410 (714) 477-3141

BERKELEY DIVISION
2550 - 7th STREET, BERKELEY, CA 94710
(415) 841-1820

KENT DIVISION
8212 SO. 196th STREET, KENT WA 98031
(206) 872-7230

TO: PULLMAN POWER PRODS
C/O P G & E DIABLO CANYON PWR PL
7 MILES NORTH OF AVILA BEACH
AVILA BEACH, CALIF 93424

QUANTITY	CUSTOMER'S ORDER NUMBER	PACKING LIST & INVOICE NUMBER	TYPE OF REPORT
65,350 LBS	F7177-14423	004118 02	ACTUAL
MATERIAL DESCRIPTION		SPECIFICATION	PRODUCING MILL
1" HOT ROLLED CARBON STEEL PLATE A-36 50 PCS 48 X 96 FROM 10 PLATES.		ASTM-A36	POHANG IRON & STEEL CO

MECHANICAL PROPERTIES											
AT/LOT NUMBER	TEMPER	TENSILE STRENGTH PSI KGMM ²	YIELD STRENGTH PSI KGMM ²	% ELONG IN	% RED. AREA	HARDNESS	BEND TEST	GRAIN SIZE	MACRO	MICRO	INT GRAN CORROSION
Y77128		45.4	29.1	26							
S76330		48.4	30.9	27							

CHEMICALS												
AT/LOT NUMBER	CARBON	MANG	PHOS	SULPHUR	SILICON	LEAD	COPPER	MAGNESIUM	CHROMIUM	ZINC	NICKEL	ALUMINUM
Y77128	.14	1.00	.017	.010	.26		.02					
S76330	.17	.94	.016	.017	.23		.02					

AT/LOT NUMBER	MOLY.	COLUMBIUM	TANTALUM	TITANIUM	SELENIUM	TIN	OTHER

OTHER PROPERTIES

WELDABILITY IN 16ths:

CARBURIZATION:

MAGNETIC PARTICLE:

UC-573

APPROVED
ASTM A79
PULLMAN POWER PRODUCTS
Q.A.
P.G.&E. Diablo Canyon Project
DB 2-8-84
INITIALS

CLASS I

CERTIFIED TEST REPORTS

WE HEREBY CERTIFY THAT THESE ARE CORRECT
COPIES OF REPORTS NOW ON FILE AT
DUCOMMUN METALS COMPANY.

BY *R L Johnson*
Test Report Clerk

FOR INFORMATION

25/17

FROM: DUCOMMUN METALS CO.

4890 S. ALAMEDA
LOS ANGELES, CA

90054

STANDARD ORDER
EXPEDITE

TYPE OF ORDER

SHIPPED FROM: DUCOMMUN METALS CO.

4890 S. ALAMEDA
LOS ANGELES, CA

90054

DATE OF ORDER	INVOICE NUMBER	DATE REQUIRED	DATE PROMISED	SHIPPING DATE	LINE ITEM
01/04/84	004118 02	01/06/84	01/05/84	JAN 5 1984	

TRANSPORTATION	UNIT WEIGHT	UNIT PRICE	UNIT QUANTITY	DATE SHIPPED
TRANS	020603	01	OK	01/05/84

PULLMAN-POWER PRODS
 2 P G & E DIABLO CANY PCVR PL
 7 MILES NORTH OF AVILA TEST REPORTS
 AVILA BEACH CA WITH GOODS



CONDITIONS OF SALE: All claims for defective material are waived unless made in writing within ten days from date of shipment. Our liability is limited to replacing the material or refunding the invoice value of the material sold. Cut material, when furnished correctly cannot be returned for credit. Salesmen cannot authorize the return of merchandise.

CUSTOMER ORDER NO.	ORDERED BY	INSIDE	OUTSIDE	STATE	PRINTED	SEQ NO
F7177-14423	Dr. IAN JAN 5 1984	BE	7	CA	22	7
REQUISITION/RELEASE NO.	PHONE NO.	DUCCOMMUN		F.O.B.	INVOICE	
	805-541-7579			A	004	

QUANTITY SHIPPED	QUANTITY ORDERED	QTY UNIT	ITEM CODE	DESCRIPTION	UNIT PRICE	SELL UNIT	QUANTITY ON HAND
	65350 LB	LB	63250023 OR LPLA	1 IN (S) 132 HR STL PLATE 1 0050 PCS CUT ALL TO 48 X 96 1 0010 PLATES	21.0000	PC	
				7 p/ths. S 76330			
				3 p/ths Y 77128			

FOR INFO ONLY

CLASS 1

C	CASES	COILS	BUNDLES (LENGTHS)	LENGTHS	CARTONS	TEST REPORT	HEAT NUMBER	HEAT NUMBER
						Pa	1	3
							2	4
						FILED	CHECKED	SHG. APD BY

426

계약 번호 : 63C07241

CONTRACT NO. KPP30096

주문 번호 : CDP-565
ORDER NO. CDP-565

품명 : PLATE
COMMODITY: PLATE

제품규격 : ASTM A36/A6
SPECIFICATION: ASTM A36/A6

열연검사증명서
MILL TEST CERTIFICATE

포항종합제철주식회사
POHANG IRON & STEEL CO., LTD.

BONGHONG CHON DONG POHANG CITY KYEONG SANG BUK DO KOREA

수요자 : CUP-265
CUSTOMER: CUP-265

공급자 : DAE WOO
SUPPLIER: DAE WOO

용명서번호 : 83-P-1012-007-002
CERTIFICATE NO. 83-P-1012-007-002

검사일자 : OCT. 12. 1983
DATE OF INSPECTION: OCT. 12. 1983

제품 치수 DIMENSIONS	수량 QUANTITY	중량 WEIGHT KG	제강번호 CHARGE NO.	제품번호 PRODUCT NO.	인장시험 TENSILE TEST		충격 IMPACT KG-M	입도 GRAIN SIZE	HEAT TREATMENT	화학적 조성 (%) CHEMICAL COMPOSITION (%)										비고 REMARK			
					Y.P.	T.S.				ELONG.	C	SI	Mn	P	S	CU	NI	CR	Ti		Mo	N	CIQ
1"X96"X240"	3	8,889	S76330	6514150	29.9	43.62	86.9			1723	54	1617	2										19597
"	3	8,889	"	6514160	"	"	"			"	"	"	"	"	"	"	"	"	"	"	"	"	19597
"	3	8,889	"	6523790	31.4	44.52	970			"	"	"	"	"	"	"	"	"	"	"	"	"	19597
"	3	8,889	Y77128	6583370	29.1	45.42	664			1426	100	1710	2	40									19597
"	3	8,889	S76330	6612930	30.9	48.42	764			1723	94	1617	2										19597
** SUB TOTAL **	15	74,075	74,075		GL : 200 MM																		
1-1/4"X96"X240"	1	3,706	S61606	6493550	28.5	47.62	659			1929	93	1813	1										8170
"	1	3,706	"	6493560	28.2	47.62	659			"	"	"	"	"	"	"	"	"	"	"	"	"	8170
"	3	11,118	Y66972	6493600	26.6	41.93	063			1327	85	1914	1	27									24511
"	2	7,412	Y74556	6493610	28.9	47.12	461			1924	94	2512	2										16340
** SUB TOTAL **	7	25,942	25,942		GL : 200 MM																		
1-1/4"X88"X331"	2	9,370	S64390	6501510	28.6	43.53	266			1423	90	1613	1										20657
"	2	9,370	"	6501520	27.8	43.03	065			"	"	"	"	"	"	"	"	"	"	"	"	"	20657
"	2	9,370	Y74938	6501530	28.2	43.83	364			1524	87	1712	1										20657
** SUB TOTAL **	6	28,110	28,110		GL : 200 MM																		
1-1/2"X96"X240"	2	8,692	Y69880	6506210	31.1	48.22	765			1625	85	2020	2	40									19603
"	2	8,892	Y74158	6506220	30.4	47.32	864			1724	101	1517	2										19603
"	2	8,892	Y77128	6587270	29.1	45.42	664			1426	100	1710	2	40									19603
** SUB TOTAL **	6	26,676	26,676		GL : 200 MM																		
1/2"X72"X240"	4	4,444	S72683	6482290	27.4	45.03	061			18	5	78	1515	1									9797
"	5	5,555	S72751	6482300	26.0	41.02	663			16	4	65	1212	2									12246
** SUB TOTAL **	9	9,999	9,999		GL : 200 MM																		
** GRAND TOTAL **	140	275,934	275,934		---	LAST ITEM	---																

APPROVED
ASTM 1979
PULMAN POWER PRODUCTS
QA
P.G.E. DaeDo Cement Project
INITIALS
P.E. Lee

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR BY THE ABOVE ORDER.

Gal Hoon. Cho

09.831 Hux 2

Pullman Power Products Corporation
FIELD WAREHOUSE REQUISITION

413/591

SYSTEM 2-05 LINE SPEC. 2-K-82-20-C DATE 6-22-84

ISO NO. — DETAIL DWG. NO. 500923 DDR. NO. — ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
⑥ 4	4	FISH P.S 1" X 4" X 4" W/ (1) 15/16" Ø HOLE EACH C.S. A36	14423		

L. W. J. CLASS I UGR MATERIAL
BS UNIT #2 LAY DOWN RCM '96 607.2081
FOREMEN

REC'D BY JWR Robertson

QA APPROVED Rick Robertson 2716
FILLED BY 1364

COPY - QA COPY - WAREHOUSE COPY - FIELD ENGINEERING COPY -

San Luis Obispo Telegraph-Tribune, July 13, 1984:

AN OPEN LETTER TO OUR FELLOW WORKERS AT DIABLO CANYON AND THE COMMUNITY OF SAN LUIS OBISPO:

We are Diablo Canyon workers (both former and present) who view our jobs seriously, obeyed the law and are paying too big a price for it.

We signed on at Diablo to do a job but we ran into several problems. We are mostly in Quality Control and engineering (some call us whistleblowers, others call us allegaters). As "persons performing q.a. functions," federal law (10 CFR 50 Appendix B) requires us to have "sufficient organizational freedom to identify quality problems; to initiate, recommend, or provide solutions, and to verify implementation of solutions" . . . that is the law. That is what we have to do if we are doing our jobs right.

There are people who have tried to keep us from doing our jobs. Instead of congratulations, here is a list of some of our rewards for trying to make Diablo safe to operate.

1. Transfers to meaningless positions when PG&E or one of the contractors didn't like our DCNs (Discrepancy Condition Notices) and Hold Tags.
2. Laid-off if we tried to keep the operations to code.
3. Fired if we didn't sign off something that wasn't up to code.
4. Slashed tires if someone in the craft resented their work not being accepted.
5. Water and other things dropped on us if we asked embarrassing questions.

Everyone at Diablo should be able to be proud . . . the Owners, the Crafts, the NRC. We are the ones whose job it is to make sure everyone can be proud. The challenges and responsibilities of our jobs are as dear to us as they are to most employees at the plant. We responded to the best of our ability.

When there were problems, we voiced our concerns through proper internal channels and we voiced them in professional ways. Our signatures on the Quality Control Documents are our professional stamps of approval. We refuse to turn a blind eye to possible problems. We don't always know the answers but we have the right and the Duty to ask questions and see those questions through to their resolution. We are the first line of defense against accidents and we cannot afford even a little accident at Diablo. If the design is good, then the pride and the professionalism of the Craft, the Engineers and the Inspectors is what is going to make this a quality job.

When many of our concerns about construction were bypassed and the work "accepted as is", we took our concerns to the contractors' Quality Assurance Management, and then to the QA Management for the Owner, and finally to the NRC. All along the way, we were rebuffed. Their main concerns were for the "paperwork" . . . it had to be right . . . but the problems in the field didn't seem to get their attention.

MORE

Finally, some concerned citizens listened to us. They helped us get the attention of the NRC and PG&E. It is costing a lot of money and is taking a lot of time.

A "corrective action" program is being implemented to address some of the issues we have raised. There are more to be addressed and we hope they will be. As quality-oriented craftsmen, engineers, inspectors and auditors, we want to see our professions survive and prosper properly and safely in any industry we serve. We live next to this plant.

We know some of our fellow workers and ex-workers at Diablo do not understand our motives. . . Ours are no different than theirs: We want to do our jobs and do them well. Quality in one's work speaks for itself. Our diligence has benefitted all workers at the plant. The plant will be safer and the improvements documented.

Politics should not play a part in the construction of Diablo. All of us who are sending this letter to you are professionals interested in doing a professional job. Being pro-nuclear or anti-nuclear is irrelevant and insulting. We are there to do a good job and to assure compliance with the Codes and Regulations necessary for the safe construction and operation of the plant.

This letter comes to you unsigned at this time because of the many ramifications to our lives when some of our identities have become known or suspected.

* * * * *

If you would like further information or a formal presentation, call or write:

Consumers Organized for Defense of Energy Safety
P.O. Box 1664
San Luis Obispo, California 93406
Phone: 544-7295 or 543-9445

It is now more important than ever before that a hearing be held in San Luis Obispo so that the workers' allegations mentioned above may be heard before licensing. Write or call:

Congressman Morris Udall
Interior and Insular Affairs Committee
1324 Longworth HOB
Washington, DC 20515
Phone: 202/224-3121

asking for this hearing.

GOVERNMENT ACCOUNTABILITY PROJECT

Institute for Policy Studies
1901 Que Street, N.W., Washington, D.C. 20009

(202) 234-9382

July 10, 1984

Mr. Lewis W. Shollenberger
Regional Counsel
Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596

Dear Mr. Shollenberger:

Mr. Parks has communicated responses from six out of seven potential participants in the Diablo Canyon plant tour. After hearing the terms offered by Region V, all six witnesses indicated their refusal to participate in any Region V plant tour of Diablo Canyon under any groundrules.

Mr. Parks did convince the witnesses, however, to participate in a plant tour controlled by Mr. Isa Yin. The whistleblowers stated that if Mr. Yin were responsible for the tour, there would not be any preconditions for their participation. They are confident that any logistics could be worked out with him in good faith. I am confident that Mr. Yin would agree to participate, since he previously has suggested that whistleblowers should take him on a plant tour after a future series of interviews.

Unfortunately, Mr. Vollmer of the Office of Nuclear Reactor Regulation (NRR) has not allowed Mr. Yin to conduct further interviews with witnesses. Hopefully, you can clear up this obstruction to Region V's stated goals of finding and correcting any remaining safety problems at Diablo Canyon.

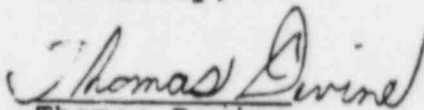
The six whistleblowers essentially offered a common reason for their refusal to participate in any plant tours sponsored by Region V. They are not willing to risk their careers or otherwise cooperate with a coverup. They have sound reasons not to trust Region V's stated goals.

First, at the April 13 criticality vote, Region V Administrator Jack Martin's reassurances to the Commission contradicted the "Problem Description" written less than 48 hours before by his inspector Dennis Kirsch. As you know, the Office of Inspector and Auditor (OIA) is investigating whether Mr. Martin made false and misleading statements to the Commissioners in reporting the results of the plant tour.

Second, the whistleblowers are puzzled that Region V refuses to take modest steps that would prevent the new tour from repeating the controversies of the last one. The witnesses had requested that -- (1) the ensuing NRC report on the plant tour include photographs of the hardware problems identified; and (2) the report include observations recorded by the NRC inspector on-the-spot to confirm the condition of the hardware.

The whistleblowers whom GAP represents made these requests for one reason -- to produce an accurate record of what they pointed out to Region V, free from controversy. On behalf of Region V, you refused. Instead, you offered the whistleblowers still another ride on the dog and pony show. No thanks.

Sincerely,


Thomas Devine

AFFIDAVIT

My name is Thomas Devine. I am the legal director of the ^{TD} Government Accountability Project (GAP). This affidavit is submitted to fill several holes in the public record concerning -- (1) the resignation^{TD} of Nuclear Regulatory Commission (NRC) inspector Isa Yin from the peer review team assessing the Diablo Canyon nuclear power plant; and (2) proceedings by a subcommittee of the Advisory Committee on Reactor Safety (ACRS) on the peer review team's report. The former issue is relevant to determine the adequacy and integrity of the peer review program, both within the NRC team and within the NRC management. The latter issue is relevant to determine whether the ACRS is an appropriate body to draw conclusions on issues raised by Mr. Yin's dissent.

I. EVENTS SURROUNDING GAP DISCLOSURE OF YIN RESIGNATION

1. On Monday, June 25, I telephoned Mr. Yin at his office, in an attempt to schedule appointments for witnesses who would only present their evidence if Mr. Yin participated in the sessions. At that time, he told me he was about to submit his resignation from the Diablo Canyon case, because management in the Office of Nuclear Reactor Regulation (NRR) had asked him to compromise his integrity. He was about to meet with the Region III administrator on the issue, however, and instructed me to call back in the morning.

2. I spoke with Mr. Yin the following morning and took nearly all the notes that were contained in my July 11, 1984 affidavit. The call is referenced in the affidavit as having occurred in the evening. I made that change at Mr. Yin's direction when he later

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confirmed ^{strike wife to} the accuracy of my draft statement. It was the only inaccuracy he had suggested. The timing error by Mr. Yin and myself was a good faith mistake, because we did have an evening conversation around the same time. Upon further reflection, however, I can pinpoint the referenced discussion in the morning, because I had to excuse myself temporarily from an interview at the Office of Inspector and Auditor (OIA) to follow Mr. Yin's instruction on the proper time to return his call.

3. After discussing the problem, GAP staff members reached a policy consensus that we should first seek Mr. Yin's return to the case, so that significant evidence from GAP clients would be disclosed and properly reviewed. We decided that this approach was far preferable to creating a scandal. If we could not obtain the necessary organizational freedom for Mr. Yin to do the job, only then would we go public with the information.

4. I informed Mr. Yin of our ^{to} planned efforts to seek his return to the job; he had not requested any assistance. When I told him of GAP's initiative, he thanked me. He said he could only return to finish the job if he were freed from interference by NRR.

5. From Thursday, June 28 through Thursday, July 5, Ms. Billie Garde of GAP and I attempted to work within the system at the NRC. Either Ms. Garde or I spoke with NRC officials William Dircks, Executive Director for Operations; Harold Denton, head of NRR; and Richard Vollmer of NRR. ^{to} ~~To~~ emphasize certain points: (1) What happened to Mr. Yin was unacceptable. (2) We were not calling at Mr. Yin's request; it was at GAP's initiative. (3) Mr. Yin was the only shred of credibility left on the staff for whistle-

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blowers. (4) We wanted to convince the NRC to let its system work, rather than to attack it. Top NRC management received repeated notice that our goal was for Mr. Yin to receive sufficient organizational freedom from scheduling pressures, that he could review all necessary evidence, and that he would agree to return to the case. Top NRC staff management also received repeated notice that GAP would attack the system if management didn't let it work. On July 5, Mr. Vollmerrd informed me that he would agree to another California trip where the whistleblowers could talk to anyone else on the peer review team except Mr. Yin. I repeated those terms back to Mr. Vollmer and confirmed that it was his decision not to permit Mr. Yin to speak further with whistleblowers. 70

6. As one of the steps to follow up on this conversation, I wrote a draft affidavit from my notes of conversations when Mr. Yin revealed his concerns. I took this action, because it was clear that further discussions were futile; NRC management had barred the witnesses from the only inspector in whom they had confidence. That evening I read the affidavit to Mr. Yin in Ohio, where he was on assignment. He confirmed the accuracy but requested that I send it to his office in Chicago before making any legal filing. He explained that the proper approach would be for him to review its accuracy at work and show the draft affidavit to his regional administrator James Keppler. I agreed and offered to delete anything that was inaccurate or that he felt could hurt his career.

7. On Monday, July 9, at 5:25 p.m., after informing me that he and Mr. Keppler had reviewed the draft affidavit, Mr. Yin asked me to change one wordrd, from "morning" to "evening", and recalled 70

the evening conversation. As discussed above, I mistakenly agreed ^{TD} to the change. I asked Mr. Yin several times if there were any other language that should be changed, and he said no.

8. I was never aware during any conversation that Mr. Yin had been drinking, nor did he ever mention having had a drink. I only contacted Mr. Yin after hours when he was out on assignment during normal working hours. In each instance, I began by asking if it were too late or an inconvenient time to call.

9. GAP has not played any games with the government on this issue. Unfortunately, the same cannot be said for the NRC. We made every attempt to work within the NRC system before attacking it. Unfortunately, top NRC management apparently made a decision that it was preferable to be criticized for obstructing Mr. Yin, ^{TD} RATHER than to let him see the evidence. This type of high-level, intentional coverup is most disillusioning and already has significantly affected public confidence in the integrity of the NRC.

II. ACRS SUBCOMMITTEE DELIBERATIONS

On Wednesday, July 12, after the court reporter left the room, the ACRS subcommittee continued with a discussion that was not transcribed. The contents are highly significant to assess whether the ACRS is an appropriate choice to judge Mr. Yin's professional dissent. Many topics were discussed, but the following are particularly relevant.

10. The first topic of discussion was whether to permit Mr. Yin to speak at the full ACRS meeting on Friday. Subcommittee members were concerned that no one could predict what Mr. Yin would say. They expressed concern that he was even more "polarized" ^{TD}

TD
than the last time and had said he did not "trust" the staff. The subcommittee chair suggested that the group summarize Mr. Yin's dissent in writing, and conclude that "after careful review etc. etc. we did not find it persuasive." Another member cautioned that endorsing Mr. Yin's concerns would be the same as saying there had been "a massive conspiracy by the NRC to cover up." While he would not say that, he was afraid that others would think the subcommittee was part of it if Mr. Yin were not permitted to speak. The group decided to give Mr. Yin around 15 minutes to summarize his points. Then a subcommittee member asked what would happen if Mr. Yin wouldn't come. The chair responded that they could have Mr. Yin ordered to appear on Friday. This discussion raises questions whether the ACRS subcommittee was more interested in public appearances than public safety.

11. The subcommittee did not ^{TD} discuss the specifics of Mr. Yin's dissent, the peer review team's defenses, or Pacific Gas and Electric's (PG&E) defenses. One participant even suggested that the questioning of PG&E that day had been inappropriate. He said that it was not appropriate for a committee of their "stature" to be "nitpicking" about "nuts and bolts". This perspective suggests that the subcommittee ^{TD} ~~does~~ not find it appropriate to examine the details behind the general conclusions in the conflict between Mr. Yin's position and Mr. Vollmer's whether the job should be considered done. Mr. Yin's point is that the details reveal bad symptoms that must be investigated further. As a result, the subcommittee's unwillingness to make decisions based on the specifics disqualifies the ACRS from any meaningful role as judge of the dissent.

TD

TD

12. Another participant stated that Mr. Yin's problem appeared to be that the breadth of his investigation was sharply limited by Mr. Vollmer^{TD}. Either he or another member parenthetically asked how Mr. Yin could be expected to find the smoking gun if it was in a locked drawer and he wasn't allowed to have the key. The subcommittee chair emphasized that any issue like that were not part of their responsibility. This suggests that the Commission must still institute a response to determine whether Mr. Vollmer improperly obstructed Mr. Yin from reviewing necessary information.

13. A participant said that he had not seen any smoking guns, but there were a number of problems and he had to wonder if it were not the tip of the iceberg. Among other responses, the subcommittee chair said the problem was that Diablo Canyon had been looked at too much. He thought that the problems the NRC found and made them fix at Diablo Canyon probably exist at least ten times that level at other plants. His conclusion was, "You don't find them if you don't look." Another subcommittee member wondered what they would find if they looked at Brown's Ferry. His question was met with general laughter. Another subcommittee member wondered what would happen if they looked at Indian Point. There was even more laughter. Soon after, the subcommittee unanimously agreed that Mr. Yin's concerns should not preclude licensing. This discussion suggests that the ACRS subcommittee does not want to look beyond the surface at Diablo Canyon, because there might be more violations of law. This perspective disqualifies the ACRS subcommittee from any further role at Diablo Canyon.

14. At the July 11 full ACRS meeting, in my public comments I mistakenly criticized the staff for permitting PG&E to conduct a sample review on a licensing action item, when a 100% review was required. In fact, PG&E had performed the full review. This error must be corrected immediately by withdrawing the criticism.

TD

TD

Thomas Devine
Thomas Devine

DISTRICT OF COLUMBIA

SS

Subscribed and sworn to before me this

16th of July 1984

John H. [Signature]

Notary Public, D.C.

My Commission Expires 3-14-86

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

Exhibit 5

NOV 24 1981

Docket No. 50-358
Construction Permit No. CPPR-88
EA 82-12

Cincinnati Gas and Electric Company
ATTN: Mr. W. H. Dickhoner
President
139 East 4th Street
Cincinnati, OH 45201

Gentlemen:

This refers to the investigation conducted by Region III during the period January 12 to October 9, 1981, of construction activities at the Wm. H. Zimmer Nuclear Power Station. The details of that investigation are described in Region III investigation report No. 50-358/81-13. The violations described in Appendix A to this letter are cross-referenced to that report in accordance with Appendix B to this letter.

The investigation was initiated as a result of allegations made to the NRC by a Quality Control Inspector who formerly worked at the Zimmer site and by the Government Accountability Project of the Institute for Policy Studies (a non-governmental agency) on behalf of Mr. Thomas Applegate. The results of the continuing investigation reveal a widespread breakdown of your quality assurance program as evidenced by numerous examples of noncompliance with twelve of the eighteen different criteria for a quality assurance program as set forth in 10 CFR 50, Appendix B. The cause of the breakdown was your failure to exercise adequate oversight and control of your principal contractors to whom you had delegated the work of establishing and executing quality assurance programs. You thereby failed to fulfill your vital responsibility as described in Criterion 1 of 10 CFR 50, Appendix B, to assure the execution of a quality assurance program. The potential safety concern of your quality assurance program breakdown was discussed during an enforcement conference at our Region III office in Glen Ellyn, Illinois, on August 5, 1981, attended by you and members of your staff and the NRC Region III staff.

Two of the violations (Items A and B of Appendix A of this letter) are of particular concern to us because of the very essential role they play in the execution of an effective quality assurance program. These two violations relate to false records and to harassment/intimidation of quality control inspectors.

With regard to false records, the examples we identified raise serious questions as to the accuracy of quality records at the site. Our concern in this area served as a major factor in requiring the conduct of a confirmation program to be completed by you to furnish evidence of plant quality.

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Because the NRC inspection program is a sampling program, the importance of accurate quality records cannot be overemphasized. Accordingly, we have addressed this matter as a separate violation and assessed a separate civil penalty for it.

With regard to harassment/intimidation of quality control inspectors, we have also addressed this matter as a separate violation and assessed a separate civil penalty for it. We determined that your construction contractor took some action to stop the water dousing of quality control inspectors; however, those actions did not stop the activity. Harassment/intimidation of quality control inspectors is clearly a barrier to effective implementation of a quality assurance program and results in loss of the organizational independence described in Criterion I of 10 CFR 50, Appendix B. The importance of this matter is reflected in the recent amendment (Public Law 96-295, June 30, 1980) to the Atomic Energy Act of 1954, which added Section 235 relating to protection of nuclear inspectors such as your quality control inspectors.

The impact of the identified quality assurance deficiencies on the actual construction has yet to be determined. Limited independent measurements were performed by the NRC in selected areas of concern in an attempt to characterize the actual safety significance of these deficiencies. Although a few problems requiring corrective action were identified (i.e., four unacceptably installed pipe hangers), the majority of the NRC independent measurements did not disclose hardware problems. However, recognizing that significant construction deficiencies could have resulted from the quality assurance problems identified during this investigation, the NRC has required the establishment of a comprehensive quality confirmation program to determine the quality of plant systems important to nuclear safety. The NRC will confirm the adequacy of the program and may make additional independent verifications. Deficiencies identified by these programs will require resolution prior to issuance of an Operating License.

Notwithstanding the fact that serious construction deficiencies have not been identified, in order to emphasize the need for licensees to have complete and accurate records, to maintain a work atmosphere where quality assurance personnel are not harassed or intimidated, and to assure implementation of an effective quality assurance program which identifies and corrects construction deficiencies, we propose to impose civil penalties in the cumulative amount of Two Hundred Thousand Dollars for the matters in the Notice of Violation. We expect that this penalty will result in an adequate deterrent against future similar violations by you and other licensees of plants under construction.

Some of the examples in the Notice of Violation occurred subsequent to the issuance of the revised enforcement policy and some prior to that time. In arriving at the amount of the proposed civil penalties we have exercised discretion, considered changes in the enforcement policy and considered the amount of the civil penalties that have been issued to licensees of other plants under construction as well as the number of examples found of each violation and when they occurred. We have for convenience and clarity categorized the items in the Notice of Violation at the Severity Levels described in accordance with the Interim Enforcement Policy published in the Federal Register, 45 FR 66754 (October 7, 1980).

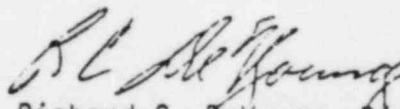
The results of this investigation and our review of your 10 CFR 50, Appendix B, noncompliance history reveal an additional matter which is of significant concern to us. This matter concerns inadequate corrective actions. The results of our normal inspection program for the construction and testing of Zimmer indicate you were found in noncompliance forty-four times since December 1979 with thirteen of the eighteen different criteria of Appendix B to 10 CFR 50. During our Systematic Assessment of Licensee Performance review on December 16, 1980, we expressed concern with your relatively poor performance in this area. This poor history of compliance with 10 CFR 50, Appendix B, when considered with the recent findings of the investigation indicates that your corrective actions only addressed individual problems and not underlying programmatic causal factors. Consequently, we request that you review your history of noncompliance with 10 CFR 50, Appendix B, for the past two years and in your response to this letter provide those steps you have taken to address and correct the underlying programmatic causal factors related to the noncompliances.

You are required to respond to the Notice of Violation and in preparing your response you should follow the instructions in Appendix A. You should give particular attention to those actions designed to assure continuing compliance with NRC requirements. Your written reply to this letter and the results of future inspections will be considered in determining whether further enforcement action is appropriate.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosure will be placed in the NRC Public Document Room.

The responses directed by this letter and the enclosed Appendix A are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

Sincerely,



Richard C. DeYoung, Director
Office of Inspection and Enforcement

Enclosures:

1. Appendix A - Notice of Violation and Proposed Imposition of Civil Penalties
2. Appendix B - Cross References:
Noncompliances to Report Details

cc:
See next page

Cincinnati Gas and Electric
Company

- 4 -

cc w/encl:

E. A. Borgmann, Senior Vice President,
Engineering Services and Electric Production
J. R. Schott, Plant Superintendent
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII
Harold W. Kohn, Power Siting Commission
Citizens Against a Radioactive Environment
Helen W. Evans, State of Ohio
Thomas Applegate
Louis Clark, Director, GAP
Institute for Policy Studies

Appendix A
NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTIES

Cincinnati Gas and Electric Company
Wm. H. Zimmer Nuclear Power Station

Docket No. 50-353
Construction Permit No. CPPR-88
EA 82-12

As a result of the investigation conducted at the Wm. H. Zimmer Nuclear Power Station in Moscow, Ohio, on January 12 - October 9, 1981, the violations listed below with multiple examples were identified. The numerous examples of the violations demonstrate your failure to exercise adequate oversight and control of your principal contractors, to whom you had delegated the work of establishing and executing quality assurance programs, and thereby fulfill your responsibility of assuring the effective execution of a quality assurance program. Your failure manifested itself in a widespread breakdown in the implementation of your quality assurance program and caused the NRC to require an extensive quality confirmation program to provide confidence that safety-related structures, systems, and components will perform satisfactorily in service. Included in the breakdown were findings we consider particularly disturbing relating to false records and harassment and intimidation of quality control inspectors.

Because of the significance of not having complete and accurate records, not maintaining a work atmosphere where quality assurance personnel are not harassed or intimidated, and not assuring implementation of an effective quality assurance program which identifies and corrects construction deficiencies, and in accordance with the Interim Enforcement Policy, 45 FR 66754 (October 7, 1980), the Nuclear Regulatory Commission proposes to impose civil penalties pursuant to Section 234 of the Atomic Energy Act of 1954, as amended, ("Act"), 42 U.S.C. 2282, and 10 CFR 2.205 in the amounts set forth for the violations listed below.

- A. 10 CFR 50, Appendix B, Criterion XVII states, in part, "Sufficient records shall be maintained to furnish evidence of activities affecting quality."

Contrary to the above, records were identified that did not furnish evidence of activities affecting quality in that they were false. Examples of false records are as follows:

1. Isometric drawings, weld inspection records, or other records did not furnish evidence of the actual piping components installed in the 11 pipelines in the diesel generator cooling water, starting air and fuel oil systems, in that the heat numbers recorded on the drawings or weld inspection records did not match the heat numbers or color coding marked on the respective components. The 11 pipelines were:

1DG28AB1	1DGC5AA3/4	1DG28AE1
1DG27AB1	1DGF6AA1/2	1DG25AC2
1DG01AB1	1DGC5BA3/4	1DG11AA3
1DGF2AA1/2	1DGF6BA1/2	

2. The Kaiser Nonconformance Reporting Log did not reflect all reports initiated as evidenced by the following:
 - a. The original entry for a report (CN-4309) initiated by a QC Inspector on January 7, 1981, relating to deficient weld fit-up was obliterated by the use of white correction fluid and there was no other record of this report in the Noncompliance Report (NR) system.
 - b. The original entry for a report (CN-5412) initiated by a QC Inspector on February 3, 1981, and relating to violation of a hold tag was obliterated by the use of white correction fluid and there was no other record of this report in the NR system.
 - c. A report (NRC-0001) initiated by a QC Inspector on February 11, 1981, relating to excessive weld weave was not assigned a number and there was no other record of this report in the NR system.
3. Written statements as to planned actions which were made to justify voiding reports E-1861 (voided 11/11/80), E-1862 (voided 11/11/80), and E-2466 (voided 6/30/80) were not taken.
INVOLVED 124 NONCONFORM TYPE HANGAR ACQUA.
4. Written statements relating to the availability of records which were made to justify voiding reports E-1777 (voided 4/30/79) and E-5108 (voided 6/20/80) were false.
5. Reports CN-5476, CN-5477, and CN-5479 were knowingly improperly voided (2/27/81) and copies deleted from the NR system at the direction of the Kaiser QA Manager.

This is a Severity Level III violation (Supplement II).
(Civil Penalty - \$50,000).

- B. 10 CFR 50, Appendix B, Criterion I states, in part, "The persons... performing quality assurance functions shall have sufficient...organizational freedom to identify quality problems...including sufficient independence from cost and schedule."

The Wm. H. Zimmer QA Manual, Section 1.2.3 describes QC Inspectors as members of QAD (Quality Assurance Division) and Section 1.2.4 states, in part, "QAD has been assigned sufficient...organizational freedom to identify quality problems..."

Contrary to the above, QC Inspectors did not have sufficient freedom to identify quality problems and were not sufficiently independent from cost and schedule. The results of interviews indicate that some QC Inspectors were: (a) harassed by construction workers and supervisors; (b) not always supported by QC management; and (c) intimidated. The following are examples of insufficient freedom of QC Inspectors, including insufficient freedom from cost and schedule, which occurred between Summer 1978 and March 11, 1981:

1. Five QC Inspectors interviewed executed signed sworn statements wherein they claimed they were doused with water (while engaged in the performance of inspection duties) by construction personnel. Two other QC Inspectors made similar statements.
2. A QC Inspection supervisor claimed that over his objections qualified QC Inspectors who were doing thorough jobs were re-assigned by QC management because of complaints by construction personnel.
3. Two QC Inspectors executed signed sworn statements wherein they claimed they had been harassed by being searched for alcohol by security personnel at the request of construction supervisory personnel. One other QC Inspector made a similar statement.
4. A QC Inspector executed a signed sworn statement wherein he claimed the QA Manager had threatened to fire him after construction personnel complained he had used a magnifying glass to inspect a weld when in fact he was using a mirror and either device was an acceptable tool.
5. A QC Inspector executed a signed sworn statement wherein he claimed he was struck by a stream of water from a fire extinguisher while performing an inspection.
6. A QC Inspector executed a signed sworn statement wherein he claimed he was threatened with bodily harm by a construction person if he did not pass a weld.
7. A Lead QC Inspector executed a signed sworn statement wherein he claimed:
 - a. He was accused by the QA Manager for holding up a concrete pour when in fact the delay was caused by the concrete trucks being late.
 - b. Construction management frequently approached QC Inspectors and challenged their inspection findings and questioned their judgement.

- c. The QA Manager said things like, "our job here is to accept, not reject, and we are here to get this plant built."
8. A Lead QC Inspector executed a signed sworn statement wherein he claimed he was relieved of his inspection duties because he continued to submit legitimate nonconformance reports over construction management objections for deficient welds on pipe support hangers. He also stated that QA management had previously told QC Inspectors to not write anything to make Kaiser look bad.
9. A QC Inspector executed a signed sworn statement wherein he claimed he was told by QA management to accept inspected items that were unacceptable.

This is a Severity Level III violation (Supplement II).
(Civil Penalty - \$50,000).

10 CFR 50, Appendix B, Criterion II requires holders of construction permits for nuclear power plants to document, by written policies, procedures, or instructions, a quality assurance program which complies with the requirements of Appendix B for all activities affecting the quality of safety-related structures, systems, and components and to implement that program in accordance with those documents.

Contrary to the above, Cincinnati Gas and Electric Company and its contractors did not adequately document and implement a quality assurance program to comply with the requirements of Appendix B as evidenced by the following examples:

1. 10 CFR 50, Appendix B, Criterion XV states, in part, "Nonconforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures."

Kaiser Procedure QACMI G-4, "Nonconforming Material Control," provides detailed instructions for the review and disposition of reports (Nonconformance Reports) of nonconforming items. Contrary to the provisions of QACMI G-4, the sample of NRs reviewed indicate significant deficiencies with the nonconformance reporting system in the areas of voiding of reports, not entering reports into the system, improper dispositioning of reports, and incomplete report files. The deficiencies identified were as follows:

- a. Two NRs related to documentation deficiencies had been improperly voided in that records used to justify the voiding did not provide evidence necessary for proper voiding. (NR-E-2233 voided 1/24/80, NR-E-2237 voided 12/19/79)

- b. One NR related to nondestructive examination of a T-quencher weld had been erroneously closed (not voided) by administrative error. (NR-E-2996 closed 3/17/81)
- c. Two NRs related to nondestructive examinations of service water system welds had been incorrectly dispositioned (not voided). (NR-E-2836 closed 11/13/80, NR-E-2596 closed 4/16/80)
- d. Five reports had been voided by personnel other than the QA Manager. (CN-5122 voided 1/2/81, CN-5476 voided 2/27/81, CN-5477 voided 2/27/81, CN-5479 voided 2/27/81, CN-4389 voided 12/02/80)
- e. In one case during revisions of the report some nonconforming items were removed from a NR without adequate justification. (NR-E-2466 voided 6/30/80)
- f. The following nine reports had not been issued NR numbers and/or copies of the reports had not been retained in the Site Document Center:

CN-4389	CN-4957
CN-4930	CN-4958
CN-4931	CN-4959
CN-4955	CN-5122
CN-4955	

2. 10 CFR 50, Appendix B, Criterion XVI states, in part, "Measures shall be established to assure that conditions adverse to quality, such as... deviations... and nonconformance are promptly identified and corrected."

The Wm. H. Zimmer QA Manual, Section 15.2.2 states, "HJK is responsible for identifying and reporting nonconformances in receiving inspection, construction, or testing activities which are delegated to HJK Quality Assurance Procedures to assure that nonconforming items are conspicuously marked to prevent their inadvertent use or installation."

AWS Code D1.1-1972, Section 3 and 8.1.5 define requirements for weld quality and address slag, weld profiles, blowholes, porosity, and undercut.

AISC, Seventh Edition (1969), Page 4.113 requires 1/2 inch minimum radius for re-entrant corners.

Contrary to the above, the following nonconforming conditions were not identified and corrected:

- a. Based on an inspection of the 25 structural hanger support beams described in Item C.4 below:

- (1) Several welds on nine beams did not conform with AWS D1.1-1972 requirements in that they contained unacceptable slag, weld profiles, blowholes, porosity, and/or undercut.
 - (2) Five beams did not conform with AISC requirements in that the re-entrant corners were notched, creating potential stress risers, instead of being rounded with required radii.
 - (3) Four beams, two of which had unacceptable welds as described in Item C.2.a:(1) above, did not conform with design documents in that they were not specified on any design document.
- b. Based on an inspection of about 100 cable tray hangers in the Cable Spreading Room, four did not conform with AWS D1.1 1972 requirements in that the welds contained unacceptable slag, weld profiles, blowholes, porosity, and/or undercut.
3. 10 CFR 50, Appendix B, Criterion XVI states, in part, "Measures shall be established to assure that conditions adverse to quality, such as...deviations...and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition."
- The NRC's Zimmer QA Manual, Section 16.5 states, in part, "Vendors, contractors, and subcontractors are required to determine cause and corrective action to prevent recurrence of errors which could result in significant conditions adverse to quality."
- ASME Code, Section III-1971 Edition, Article NB-3661.5(b) states, in part, "...a gap of approximately 1/16 in. shall be provided between the end of the pipe and the bottom of the socket before welding."
- ASME Code, Section III-1971 Edition, Winter 1972 Addenda, Articles NA-4130(a), NA-4420, NA-4510, NA-4442.1, NB-4122, NA-4451, NB-4230, and NB-3661.5(b) require, in part, in-process inspections for pipe fitup, weld procedure, weld filler metal traceability, and welder qualifications...
- Contrary to the above, the NRC inspectors identified the following nonconforming conditions that had not been corrected and action had not been taken to preclude their repetition:

- a. Licensee records indicate that the socket engagement (fitup) for more than 439 socket welds was not verified in accordance with ASME Code, Section III-1971 Edition, Article NB-3661.5(b) and the condition was not corrected in that the corrective action was not commensurate with the ASME Code. The welds date back to 1979.
- b. Licensee records indicate that the in-process inspections for more than 22 welds in the diesel generator cooling water, starting air, and fuel oil piping systems were not performed by Kaiser in accordance with ASME Code, Section III-1971 Edition, Article NB-3661.5(b), et al., and the condition was not corrected in that the corrective action was not commensurate with the ASME Code. The welds date back to 1978.
- c. Five licensee QA audits (audit performed 8/8-9/74 - no number, and Audit Nos. 78/07, 78/09, 78/10, 80/04) of Sargent & Lundy identified repetitive problems concerning S&L not performing certain design calculations, reviews, and verifications and action was not taken to preclude repetition.

4. 10 CFR 50, Appendix B, Criterion VIII states, in part, "Measures shall be established for the identification and control of materials... These measures shall assure that identification of the item is maintained..."

The Wm. H. Zimmer QA Manual, Section 8.2 states, in part, "H. J. Kaiser Company procedures provide that within the H. J. Kaiser Company jurisdiction the identification of items will be maintained by the method specified on the drawings, such as heat number, part number, serial number, or other appropriate means. This identification may be on the item or on records traceable to the item. The identification is maintained throughout fabrication, erection, and installation. The identification is maintained and usable in the operation and maintenance program."

Contrary to the above, based on an inspection by NRC inspectors in March 1981 of approximately 25 structural hanger support beams located in the Blue Switchgear Room and the Cable Spreading Room, the identification of the material in nine of those beams was not maintained to enable verification of quality.

5. 10 CFR 50, Appendix B, Criterion III states, in part, "Measures shall be established to assure that applicable regulatory requirements and the design basis...are translated into...drawings..."

The Wm. H. Zimmer FSAR, Section 8, provides the design basis for electrical cable separation that includes the following:

Associated cables (Green/White, Blue/White, and Yellow/White) from more than one Division cannot be routed in the same raceway. (FSAR Paragraph 8.3.1.13.2)

Vertical separation of three feet or more must be maintained between cables from different Divisions. (FSAR Paragraph 8.3.1.11.2.1.d)

Instrument (low-level signal) cables cannot be routed in the same raceway with power and control cables. (FSAR Paragraph 8.3.1.12.1.3)

The Wm. H. Zimmer QA Manual, Section 3.3.2. states, "Composite... drawings are prepared, translating the design concepts into layouts of structures, systems, and components necessary for the construction of the plant."

Contrary to the above, as of March 1981, the FSAR design basis for electrical cable separation had not been translated into drawings and this resulted in the following cable installation deficiencies in the Cable Spreading Room:

- a. Associated Cable (Yellow/White) No. RE053 for Division 1 was routed in the same raceway (two-inch conduit and Class IE Sleeve No. 79) as Associated Cable (Blue/White) No. RE058 for Division 2. Also, Associated Cable No. RE053 was routed so that in places there was only a vertical separation of four inches between it and cables in Blue Tray No. 20720 for Division 2.
- b. Instrument Cable (Green) No. WS714 and others for Division 3 were routed in the same raceway (Tray No. 46388) as Associated Control Cables (Yellow/White and Blue/White) for Divisions 1 and 2. This deficiency was due, in part, to a design which specified the installation of a Green Instrument Tray (No. 3029K) inside a White Control Tray (No. 46383).
- c. Many Associated Cables from all three Divisions were routed in the same raceway (White Tray No. 4080K) including Cable (Blue/White) No. TI192, Cable (Yellow/White) No. RR781, and Cable (Green/White) No. TI816.
- d. Associated Cables (Yellow/White) No. TI942 and No. TI943 for Division 1 were routed in the same raceway (White Tray Riser No. RK4627) as Associated Cables (Blue/White) No. TI808 and No. TI760 for Division 2.
- e. Many Associated Cables (Yellow/White) for Division 1 were routed in the same raceway (White Tray Riser No. 4139) as Associated Cables (Blue/White) for Division 2.

6. 10 CFR 50, Appendix B, Criterion III states, in part, "Design control measures shall be applied to...the delineation of acceptance criteria for inspections and tests."

The Wm. H. Zimmer QA Manual, Section 3.13.1 states, in part, "Design control measures also apply to delineation of acceptable criteria for inspections and tests."

Weld acceptance criteria are required by the ASME Code, Section III-1971 Edition and the AWS D1.1-1972 Code.

Contrary to the above:

- a. The weld acceptance criteria used by H. J. Kaiser Company from July 1980 to January 1981 were not applied to weld inspections during that period in that the weld acceptance criteria for such items as the drywell support steel were deleted.
- b. The acceptance criteria for Weld 55H (isometric drawing PSK-1WS-32) performed on Service Water System Line No. 1WS17A18 by H. J. Kaiser Company in November 1979 were not applied in that they were designated as not applicable.
7. 10 CFR 50, Appendix B, Criterion XI states, in part, "Test results shall be evaluated to assure that test requirements have been satisfied."

The Wm. H. Zimmer QA Manual, Section 11.1 states, in part, "Test programs to assure that essential components, systems, and structures will perform satisfactorily in service are planned and performed in accordance with written procedures and instructions at vendor shops and at the construction site."

ASME Section III-1971 Edition, Winter 1972 Addenda, Appendix IX, Paragraph IX-3334.4 states, in part, "The shim thickness shall be selected so that the total thickness being radiographed under the penetrameter is the same as the total weld thickness..."

M. W. Kellogg Co. (pipe manufacturer and agency performing the prefabricated pipe weld radiography in question) Radiographic Procedure No. ES-414, dated September 26, 1972, Paragraph 4.1.8, states, "Wherever required, shims shall be used to produce a total thickness under the penetrameter equal to the nominal thickness of the base metal plus the height of the crown or reinforcement."

Contrary to the above, the licensee's review of 187 radiographs did not assure that test requirements were satisfied in that the licensee failed to detect that the penetrameter shimming was insufficient to satisfy the requirements of M. W. Kellogg Procedure

No. ES-414 or the ASME Code. This deficiency was identified during the NRC review of approximately 800 radiographs involving 206 pre-fabricated pipe welds in such systems as main steam, feedwater, and diesel generator support systems.

8. 10 CFR 50, Appendix B, Criterion III states, in part, "These measures [design control] shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled...The design control measures shall provide for verifying or checking the adequacy of design."

The Wm. H. Zimmer QA Manual, Section 3.4 states, in part, "Design reviews are conducted to assure that the appropriate quality standards are specified and included in design documents."

The Wm. H. Zimmer QA Manual, Section 3.6 states, "Measures are established to assure that any deviations from the applicable standards are controlled."

The Wm. H. Zimmer QA Manual, Section 3.11.2 states, in part, "At S&L, design verification reviews are performed...."

The Wm. H. Zimmer FSAR Section 8.3.3.1.1 states that cable ampacity is based on IPCEA Publication No. P-46-426. An additional limitation on cable ampacity as stated in Section 8.3.3.1.3 is that "the summation of the cross-sectional areas of the cables shall not exceed 50% of the tray usable cross-sectional area or two layers of cables, whichever is larger, but not to exceed 60% of the cross-sectional area in any case."

AWS D1.1-1972 Code, Section 3.6.4, states, "For building and tubular structures, undercut shall be no more than 0.01 inch deep when its direction is transverse to primary tensile stress in the part that is undercut, nor more than 1/32 inch for all other situations."

Contrary to the above:

- a. As of March 1981, design control measures had not been established to assure that deviations from design conditions (quality standards) identified by Sargent & Lundy engineers were controlled. For example, Sargent & Lundy noted on a calculation sheet dated December 27, 1979, that the design thermal loading for two power cables (VC016 and VC073) in Yellow Tray No. 1057A would allow the cables to be thermally overloaded and no program existed to control those design deviations.

- b. As of March 1981, design control measures had not been established by Sargent & Lundy to provide for verifying or checking the adequacy of the design for the thermal loading of power cable sleeves and the physical weight loading of cable trays.
 - c. As of March 1981, the cable ampacity design by Sargent & Lundy was not based on IPCEA P-46-426 and the FSAR limit on cross-sectional area.
 - d. As of March 1981, the design allowable undercut on cable tray hanger welds was not based on AWS D1.1-1972 Code (appropriate quality standard). The design undercut was instead based on Sargent & Lundy Specification H-2713, Supplement 7, Sargent & Lundy Standard EB-117, and H. J. Kaiser Procedure SPPM No. 4.6, "Visual Examination," Revision 8, Paragraph 5.2.9, allowed up to 1/16 inch undercut.
9. 10 CFR 50, Appendix B, Criterion X states, in part, "A program for inspection of activities affecting quality shall be established and executed by or for the organization performing the activity to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity."

The Wm. H. Zimmer QA Manual, Section 10.1.2 states, in part, "Inspections are performed in accordance with written procedures which include requirements for check lists and other appropriate documentation of the inspections and tests performed."

AWS D1.1-1972 Code, Section 3.10.1, requires work to be completed and accepted before painting.

Contrary to the above:

- a. As of March 1981, a QC inspection program had not been established to require verification of separation of electrical cables routed from the Cable Spreading Room to the Control Room. An example of a nonconforming condition that should have been identified by such a program was Blue Cables RI103 and CM111 that had been routed into Tray Riser (Green) No. 3025A, which extended from Tray (Blue) No. 2077A in the Cable Spreading Room to the Control Room.
- b. The programs established for in-process and final inspections of welds on 180 cable tray hangers located in the Cable Spreading Room were not executed as required in the AWS D1.1-1972 Code. Specifically, the final weld inspections were made after the welds were painted (Galvanox).

10. 10 CFR 50, Appendix B, Criterion V states, in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

The Wm. H. Zimmer QA Manual, Section 5.1 states, "Construction, fabrication, and manufacturing activities which affect the quality of the facility are accomplished in accordance with written instructions, procedures, and drawings which prescribe acceptable methods of carrying out those activities."

The Wm. H. Zimmer QA Manual, Section 3.12 states, in part, "Design changes...including field changes, are subject to design change control measures commensurate with those applied to the original design."

Contrary to the above:

- a. Kaiser Procedure QACMI G-14, "Surveillance Reports," (SR) was not appropriate to the circumstances in that it allowed in-process nonconformances which constitute field changes to be dispositioned within 30 days without being subjected to design control measures commensurate with those applied to the original design. Examples of nonconformances so dispositioned were identified, in SRs F-2899, F-2903, and F-2914.
- b. Kaiser Procedure QACMI G-14 was not followed in that SRs F-2909, F-3070, F-3071, F-3072, F-3073, F-3074, F-3075, F-3076, F-3083, and F-7019 were not dispositioned within 30 days and were not transferred to Nonconformance Reports as required by Paragraph 5 of QACMI G-14.
11. 10 CFR 50, Appendix B, Criterion VII states, in part, "The effectiveness of the control of quality by contractors and subcontractors shall be assessed by the applicant or designee...."

The Wm. H. Zimmer QA Manual, Section 7.3.1 states, in part, "As part of the vendor selection process, S&L makes an independent evaluation of the bidders' QA programs as a part of their total bid evaluation."

Contrary to the above, as of March 1981, neither the licensee nor designee (Sargent & Lundy) had assessed the effectiveness of the control of quality by vendors who had supplied structural beams. Specifically, evaluations of the vendor (U.S. Steel Supply, PBI Steel Exchange, and Frank Adams Company) quality assurance programs for control of mill certifications and structural beams were not performed.

12. 10 CFR 50, Appendix B, Criterion XVII states, in part, "Sufficient records shall be maintained to furnish evidence of activities affecting quality. The records shall include...monitoring of work performance, and...include closely-related data such as qualifications of personnel, procedures, and equipment."

The Wm. H. Zimmer QA Manual, Section 17.1.4 states, in part, "Documentation of all performance surveillance includes personnel identification and qualification, procedure, type observation, date of performance, person or organization monitored, results and corrective action if required."

Contrary to the above, the Bristol Steel and Iron Works Quality Control Steel Erection Report, which was a generic form for monitoring in-process steel erection, did not identify closely related data such as weld procedure numbers, types of welding material, welder identification, and specific welds inspected.

13. 10 CFR 50, Appendix B, Criterion XVIII states, in part, "A comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program."

The Wm. H. Zimmer QA Manual, Section 18.1 states, in part, "QA Division conducts a comprehensive system of planned and periodic audits of S&L, HJK...to verify compliance with all aspects of the quality assurance program."

Contrary to the above, during the past 9 years the licensee's QA Division did not perform an audit of the Sargent & Lundy nonconformance program.

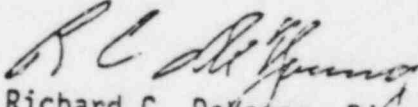
This is a Severity Level II violation (Supplement II).
(Civil Penalty - \$100,000).

Pursuant to the provisions of 10 CFR 2.201, Cincinnati Gas and Electric Company is hereby required to submit to this office within 30 days of the date of this Notice a written statement or explanation, including for each alleged violation: (1) admission or denial; (2) the reasons for the violation if admitted; (3) the corrective steps which have been taken and the results achieved; (4) the corrective steps which will be taken to avoid further violations; and (5) the date when full compliance will be achieved. Any statement or explanation may incorporate by specific reference (e.g., giving page and paragraph numbers) the provisions of your quality confirmation program and your actions in response to our Immediate Action Letter of April 8, 1981. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, Cincinnati Gas and Electric Company may pay the civil penalties in the cumulative amount of Two Hundred Thousand Dollars or may protest imposition of the civil penalties in whole or in part by a written answer. Should Cincinnati Gas and Electric Company fail to answer within the time specified, this office will issue an Order imposing the civil penalties in the amount proposed above. Should Cincinnati Gas and Electric Company elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalties, such answer may: (1) deny the violations listed in this Notice in whole or in part; (2) demonstrate extenuating circumstances; (3) show error in this Notice; or (4) show other reasons why the penalties should not be imposed. In addition to protesting the civil penalties in whole or in part, such answer may request remission or mitigation of the penalties. Any answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate by specific reference (e.g., giving page and paragraph numbers) to avoid repetition. Cincinnati Gas and Electric Company's attention is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing civil penalties.

Upon failure to pay any civil penalties due, which have been subsequently determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalties, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282.

FOR THE NUCLEAR REGULATORY COMMISSION


Richard C. DeYoung, Director
Office of Inspection and Enforcement

Dated at Bethesda, Maryland
this 24 day of November 1981

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

11-12 82

EXHIBIT Exhibit 6

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

'82 NOV 12 P4:50

CLERK OF COURT SERVICE
BRANCH

In the Matter of
CINCINNATI GAS & ELECTRIC COMPANY
(William H. Zimmer Nuclear
Power Station)

SERVED NOV 12 1982

Docket No. 50-358
Construction Permit No. CPPR-88
EA 82-129

ORDER TO SHOW CAUSE AND
ORDER IMMEDIATELY SUSPENDING CONSTRUCTION
(CLI-82-33)
I.

The Cincinnati Gas and Electric Company (CG&E) holds Construction Permit No. CPPR-88 which was issued by the Commission in 1972. The permit authorizes the construction of the William H. Zimmer Nuclear Power Station Unit 1, a boiling water reactor to be used for the commercial generation of electric power. The Zimmer plant is located on the licensee's site in Moscow, Ohio.

II.

A. Initial Identification of QA Problems

In early 1981 the NRC conducted an investigation into allegations made by present and former Zimmer site employees and by the Government Accountability Project. The NRC investigation revealed a widespread breakdown in CG&E's management of the Zimmer project as evidenced by numerous examples of non-compliance with twelve of the eighteen quality assurance Criteria of

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Appendix B to 10 CFR Part 50. Consequently, CG&E paid a civil penalty of \$200,000 for the failure to implement an acceptable quality assurance program, false quality assurance documents, and intimidation and harassment of quality control inspectors. (See Notice of Violation and Proposed Imposition of Civil Penalties, dated November 24, 1981 and Investigation Report No. 50-358/81-13.) In addition CG&E agreed to take actions to correct identified QA failures and prevent their recurrence and to determine quality of completed construction work.

1. Actions to Correct Identified QA Failures and Prevent Recurrence

A meeting was conducted by Region III on March 31, 1981, and the utility agreed to implement ten actions to correct quality assurance failures identified during the January - March 1981 investigation and to preclude their recurrence. These actions included: (1) increasing the size and technical expertise of the CG&E QA organization; (2) taking action to assure independence and separation of the QA/QC function performed by Kaiser from the construction function; (3) conducting 100% reinspections of the quality control (QC) inspections performed after that date by Kaiser and other contractors; (4) reviewing for adequacy, and revising as appropriate, all QC inspection procedures; (5) training QA/QC personnel on new and revised procedures; (6) reviewing for adequacy, and revising as appropriate, the procedures governing the identification, reporting, and resolution of deviations from codes and Final Safety Analysis Report (FSAR) statements; (7) reviewing for adequacy the procedures governing nonconformance reporting and justifying the disposition of each voided nonconformance

report; (8) establishing an adequate program for control of QA and QC records; (9) performing a 100% review of all future surveillance and non-conformance reports written by contractor personnel; and (10) reviewing and revising the CG&E audit program so that it included technical audits of construction work and more comprehensive and effective programmatic audits. These commitments were confirmed in an Immediate Action Letter to the licensee on April 8, 1981.

2. Actions to Determine Quality of Completed Construction Work

Following the identification in 1981 of significant quality assurance problems and related management breakdowns, CG&E agreed to establish a comprehensive program to determine the quality of the completed construction work. The Quality Confirmation Program (QCP) was submitted to the NRC by the licensee on August 21, 1981. The QCP addressed problems identified by the investigation in the following areas: (1) structural steel; (2) weld quality; (3) traceability of heat numbers on piping; (4) socket weld fitup; (5) radiographs; (6) electrical cable separation; (7) nonconformance reports; (8) design control and verification; (9) design document changes; (10) subcontractor QA programs; and (11) audits.

3. Results of Actions Taken by the Licensee to Determine the Quality of Completed Construction Work

Many construction deficiencies have been identified by the licensee during the conduct of the QCP and other quality reviews and reported to

the NRC pursuant to 10 CFR 50.55(e) which could have been prevented or identified in a timely manner by the licensee and its contractors had there been a properly managed QA program. Major construction deficiencies identified to date by the quality reviews are listed in order of identification and include the following:

- . Welds performed using an unqualified welding procedure for welds greater than 0.864 inches.
- . Unauthorized stamping of fittings and use of "high-stress" stamps.
- . ASME structural weld and welder qualification deficiencies.
- . Welds performed and welders not qualified for weld thickness range per ASME requirements.
- . Approximately 2400 feet of small bore piping identified with questionable heat treatment.
- . Welder qualifications with a substantial number of documentation discrepancies.
- . Carbon steel weld rod may have been used for a portion of several stainless steel recirculation line welds.

. Electrical cable tray installation and inspection deficiencies.

. Hangers installed for the control rod drive system are of indeterminate quality.

. Both weld and radiograph quality deficiencies for sacrificial shield welds and radiograph deficiencies identified for the containment monorail and the ventilation stack.

. Deficiencies in the H. J. Kaiser procurement program for structural steel and other materials.

. Inadequate design control by Sargent & Lundy (architect engineer) for electrical separation.

. Inadequate weld preparation prior to radiography (ripples not removed) which caused masking of discontinuities in some welds.

. Reactor control, reactor protection, and neutron monitoring panels, including field installed wiring do not, in some cases, conform to design drawings with regard to cable separation.

. Inadequate engagement of "gamma plugs" in large-bore piping and lack of heat number traceability of the "gamma plugs." (During radiography of a pipe weld, a gamma source is sometimes inserted through a small

hole in the side of the pipe. After radiography the hole is plugged to provide a pressure boundary.)

Inadequate inspection program and installation procedures for "Nelson stud" installation for cable tray hangers.

- . Concrete and steel coating program not in accordance with the QA Program and the Sargent & Lundy specification requirements.
- . Design changes made to the Fire Protection System piping in the cable spreading room in 1979 were inadequately controlled.
- . The Sargent & Lundy (architect engineer) dynamic stress analysis of small bore piping is questionable.
- . Cable separation problem with regard to division separation between non-essential cables being bundled with essential cables of different divisions.
- . Pipe support installation procedures did not contain seismic clearance criteria between pipe supports and cable trays or conduit and associated supports as required by the specification.

These deficiencies represent those which the staff considers most significant. There were additional 10 CFR 50.55(e) reports made by the licensee and the licensee has identified a large number of

nonconformances (which could reflect construction or other types of deficiencies). As of September 30, 1982 the licensee's continuing quality confirmation program reviews had identified approximately 4,200 nonconformances of which about 800 have been "dispositioned", i.e., the licensee had made a determination as to resolution. (Inspection Report No. 50-358/82-12, report pending.) The large number of nonconformance reports and the significance of the matters being identified corroborate the staff's 1981 finding of significant breakdown in the licensee's quality assurance program.

B. Findings Subsequent to Licensee Actions Taken to Correct QA Failures and Prevent Recurrence

Since the Immediate Action-Letter was issued on April 8, 1981 and quality assurance and management deficiencies were brought to the attention of the licensee, hardware and programmatic QA/QC problems have been identified by the NRC and the National Board of Boiler and Pressure Vessel Inspectors. These problems are discussed in the following paragraphs and indicate the licensee and the constructor are still having difficulty implementing satisfactory QA/QC programs:

During an inspection conducted the latter part of 1981 and the early part of 1982 (Inspection Report No. 50-358/82-01, issued on June 24, 1982) three items of noncompliance were identified. The findings concerned (1) the failure to clearly establish and document the authorities and duties of all QA Department personnel, (2) the failure to provide

adequate certification of qualifications of all QA Department personnel, and (3) the failure to provide adequate procedures. The licensee failed to adequately address the provisions of Regulatory Guide 1.58 (ANSI N45.2.6-1978) concerning personnel in the QA Department. Additionally, inadequately qualified personnel were reviewing and approving quality procedures controlling electrical activities, which contained deficiencies.

Furthermore, as a result of the licensee reviews it was revealed that some weld inspectors involved in the QCP Task I, Structural Steel, were not adequately certified and the task was stopped. The task was restarted following upgrade of the inspectors through training provided by additional certified weld inspectors.

During an inspection conducted in March and April 1982 (Inspection Report No. 50-358/82-05, issued on July 1, 1982) two items of noncompliance were identified. The findings concerned the lack of implementation and timeliness of corrective actions and the failure to adequately review and document potentially reportable matters.

During an inspection conducted in April, May, and June of 1982 (Inspection Report No. 50-358/82-06, issued on November 2, 1982) two items of noncompliance were identified. The findings concerned (1) the performance of quality activities required of the welding engineers by inadequately qualified clerks and (2) the failure to perform required calibrations

during a critical quality activity, Induction Heating Stress Improvement (IHSI) program.

A recent inspection conducted during June and July of 1982 (Inspection Report No. 50-358/82-10, report pending) identified a number of significant concerns. These concerns were discussed with the licensee on July 9, July 15, August 15, and October 19, 1982. Four significant items of concern (potential items of noncompliance) were identified:

- (1) the inadequate control and documentation of welder qualifications;
- (2) the failure to take corrective actions following the identification of inadequate records to support welder qualifications;
- (3) the unauthorized correction, supplementation, and alteration of quality records; and
- (4) the failure to follow procedures controlling weld filler metal control, logging and control of requests for information/evaluation, and imposition of reporting requirements on contractors.

The NRC findings concerning welder qualifications resulted in the requalification of approximately 100 active onsite welders and the need for the licensee to develop a program to evaluate the previous work of the welders whose qualifications were not adequately documented.

An inspection was conducted following notification of the Region III Office that a CG&E Stop Work Order (SWO) had been initiated on August 5, 1982, pertaining to Catalytic, Inc. (CI) activities in the area of the control rod drive system hangers and supports. CI is a contractor of the licensee performing construction work

including rework activities identified by the QCP program. During this inspection conducted during August and September of 1982 (Inspection Report No. 50-358/82-13, report pending), significant concerns were identified regarding the implementation of CG&E's quality assurance program and its management program established to control and monitor the activities of Catalytic, Inc. (CI). The concerns involved the areas of (1) the description of organization and functional interfaces, (2) training of CI personnel, (3) design control measures, (4) procedure content and implementation, (5) document control, (6) inspection and surveillance activities, (7) nonconforming conditions, (8) corrective actions, (9) records, and (10) audits. The findings were discussed with the licensee on August 12, September 10 and 17, and October 13, 1982.

As a result of the inspection findings and subsequent discussions with the licensee, Stop Work Orders were issued by the licensee, stopping all essential work by CI on October 11, 1982, pending resolution of the programmatic problems identified by the NRC and licensee reviews.

The licensee has initiated Stop Work Orders in addition to those affecting CI due to inadequate quality assurance in the areas of application of coatings (October 12, 1982), electrical cable installation (October 12, 1982), and special process procedures (November 1, 1982). The Stop Work Orders involve ongoing activities. The November 1, 1982 Stop Work Order involved procedures not meeting requirements notwithstanding that the procedures had been specifically

reviewed by CG&E for adequacy subsequent to the issuance of the April 8, 1981 Immediate Action Letter.

Additionally, during the week of October 10, 1982, the Authorized Nuclear Inspector (ANI) for the N-stamp holder (H. J. Kaiser) recalled ASME work packages then being used in the field because of the performance of ASME code work (hanger attachment removal and piping cutouts) was outside the approved QA Program procedures. The ASME code work was being controlled and performed utilizing an H. J. Kaiser administrative memo which bypassed the ANI's required involvement in the code activities. The NRC was apprised of the required corrective actions during a meeting involving CG&E and H. J. Kaiser on October 15, 1982. The corrective actions taken and planned were considered acceptable by the Authorized Nuclear Inspector.

The National Board of Boiler and Pressure Vessel Inspectors, at the request of the State of Ohio, have been onsite since March 1, 1982. The National Board has issued three interim reports documenting findings regarding ASME code activities. The National Board findings include deficiencies in the following areas regarding on-going ASME code activities: design control, procurement, procedures, special processes, nonconforming conditions, and corrective actions. The findings are generally consistent with past and present NRC findings.

C. Rework Activities

As a result of the information obtained from the licensee's reviews of plant quality, the licensee is proceeding, prior to completion of the relevant QCP tasks, to initiate rework activities. A major example of rework activities is the area of structural steel welding. The reinspection and rework of structural steel welds located in a number of areas of the plant have been in process for a number of months. Approximately 70 percent of the structural welds are being reworked to make the welds acceptable. In the case of these welds, rework is being undertaken prior to the completion of the quality reviews to determine the acceptability of all structural steel welds and beam/hanger materials. The rework of these welds prematurely may result in the addition of new weld material over unacceptable weld material or beam/hanger materials. Following completion of the quality reviews unacceptable areas may require additional rework activities. This approach to rework activities indicates a lack of a comprehensive management program to address rework activities and the safety impact of those activities on the facility.

III.

The foregoing information indicates that: 1) the Zimmer facility has been constructed without an adequate quality assurance (QA) program to govern construction and to monitor its quality, resulting in the construction of a facility which currently is of indeterminate quality; 2) substantial efforts are underway to determine the quality of past construction activities and numerous construction deficiencies have been

identified and are continuing to be identified such that both reanalysis and rework will be required to bring the facility into conformance with the application and regulatory standards on the basis of which the construction permit was originally issued; and 3) rework of deficiencies identified by the Quality Confirmation Program (QCP) has been undertaken prior to completion of other relevant QCP tasks and other reviews, resulting in the potential for additional reworking of the same item if further deficiencies are found, as has been the case, by the quality reviews. Consequently, the NRC presently lacks reasonable assurance that the Zimmer plant is being constructed in conformance with the terms of its construction permit and 10 CFR Part 50, Appendix B, and that there is adequate management control over the Zimmer project to ensure that NRC requirements are being met.

The verification of the facility's quality and appropriate actions to correct deficiencies in construction are of utmost importance to the public health and safety should the licensee receive a license to operate the facility. Moreover, the licensee must be in a position to assure that its construction activities have been properly carried out in accordance with Commission requirements, as the Commission inspectors are not able to personally verify every individual aspect of construction that may impact on safety. In view of the importance to safety of construction verification and corrective actions and the past pattern of quality assurance deficiencies, the Commission has concluded that safety-related construction, including rework activities, should be suspended until there is reasonable assurance that future construction activities will be appropriately managed to assure that rework activities and all other construction activities will be conducted in

accordance with 10 CFR Part 50, Appendix B, and other Commission requirements. The Commission has further determined that in light of the foregoing considerations the public health, safety and interest require suspension of construction, effective immediately pending further authorization.

IV.

Accordingly, pursuant to sections 103, 161f, 182 and 186 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR Parts 2 and 50, IT IS HEREBY ORDERED THAT:

- A. Effective immediately, safety-related construction activities, including rework of identified deficient construction, shall be suspended.
- B. The licensee shall show cause why safety-related construction activities, including reworking activities, should not remain suspended until the licensee:
 - (1) Has obtained an independent review of its management of the Zimmer project, including its quality assurance program and its quality verification program, to determine measures needed to ensure that construction of the Zimmer plant can be completed in conformance with the Commission's regulations and construction permit.
 - (a) The independent organization conducting this review shall be knowledgeable in QA/QC matters and nuclear plant construction and shall be acceptable to the Regional Administrator. The independent organization shall make

recommendations to the licensee regarding necessary steps to ensure that the construction of the facility can be completed in conformance with the Commission's regulations and the construction permit. A copy of the independent organization's recommendations and all exchanges of correspondence, including drafts, between the independent organization and CG&E shall be submitted to the Regional Administrator at the same time as they are submitted to the licensee. In making recommendations, the independent organization shall consider at a minimum the following alternatives for management of the Zimmer project and shall weigh the advantages and disadvantages of each alternative:

1. Strengthening the present CG&E organization.
2. Creation of an organizational structure where the construction management of the project is conducted by an experienced outside organization reporting to the chief executive officer of CG&E.
3. Creation of an organizational structure where the quality assurance program is conducted by an experienced outside organization reporting to the chief executive officer of CG&E.
4. Creation of an organizational structure with both quality assurance and construction project management conducted by an experienced outside

organization reporting to the chief executive officer of CG&E.]

- (b) The licensee shall submit to the Regional Administrator the licensee's recommended course of action on the basis of this independent review. In evaluating the recommendations of the independent organization, the licensee shall address why it selected particular alternatives and rejected others. The licensee's recommendations and its schedule for implementation of those recommendations shall be subject to approval by the Regional Administrator.
- (2) Following the Regional Administrator's approval in accordance with section IV B(1)(b),
- (a) Has submitted to the Regional Administrator an updated comprehensive plan to verify the quality of construction of the Zimmer facility and the Regional Administrator of NRC Region III has approved such plan. In preparing this updated comprehensive plan, the licensee shall review the ongoing Quality Confirmation Program to determine whether its scope and depth should be expanded in light of the hardware and programmatic problems identified to date. The updated plan shall include an audit by a qualified outside organization, which did not perform the activities being audited, to verify the adequacy of the quality of construction; and

(b) Has submitted to the Regional Administrator a comprehensive plan, based on the results of the verification program, for the continuation of construction, including reworking activities, and the Regional Administrator has confirmed in writing that there is reasonable assurance that construction will proceed in an orderly manner and will be conducted in accordance with the requirements of the Commission's regulations and the Construction Permit No. CPPR-88.

(3) The Regional Administrator may relax all or part of the conditions of section IV.B for resumption of specified construction activities, provided such activities can be conducted in accordance with the Commission's regulations and the provisions of the construction permit.

V.

Within 25 days of the date of this order, the licensee may show cause why the actions described in section IV should not be ordered by filing a written answer under oath or affirmation that sets forth the matters of fact and law on which the licensee relies. As provided in 10 CFR 2.202(d), the licensee may answer by consenting to the order proposed in section IV of this order to show cause. Upon the licensee's consent, the terms of

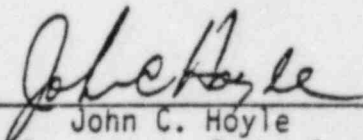
section IV.B of this order will become effective. Alternatively, the licensee may request a hearing on this order within 25 days after the issuance of this order. Any request for a hearing or answer to this order shall be submitted to the Secretary, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. A copy of the request or answer shall also be sent to the Director, Office of Inspection and Enforcement, and to the Executive Legal Director at the same address, and to the Regional Administrator, NRC Region III, 799 Roosevelt Road, Glen Ellyn, Illinois 60137. A request for a hearing shall not stay the immediate effectiveness of section IV.A of this Order.

If the licensee requests a hearing on this order, the Commission will issue an order designating the time and place of hearing. If a hearing is held, the issues to be considered at such a hearing shall be whether the facts set forth in sections II and III of this order are true and whether this order should be sustained.

Commissioners Ahearne and Roberts dissent from this decision. Their dissenting views are attached.

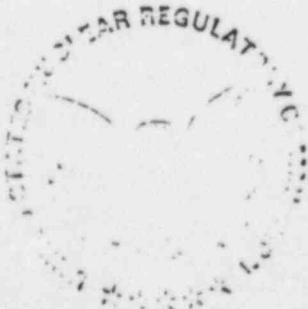
It is so ORDERED.

For the Commission



John C. Hoyle
Acting Secretary of the Commission

Dated at Washington, D.C.
this 12th day of November, 1982.



DISSENTING VIEWS OF COMMISSIONER AHEARNE

I agree with both the substance and the direction for change described in this order. However, I would have simply issued a Show Cause Order and would not have made it immediately effective.

DISSENTING VIEW OF COMMISSIONER ROBERTS

I disagree with the action taken by the Commission majority on several grounds. First, I believe the Commission's action in immediately suspending construction at the Zimmer facility is precipitous. Earlier this year, Cincinnati Gas and Electric Company (CG&E) made substantial changes in its management structure in order to manage more effectively construction activities and to monitor more carefully quality assurance programs. Despite the fact that this new organizational structure is relatively untested, the Commission is now suspending effective immediately all construction and corrective actions at the site. Additionally, the NRC Staff admits that CG&E's enhanced Quality Confirmation Program (QCP) and large quality control staff is effectively identifying existing construction problems. Moreover, to the extent that actual construction deficiencies have been found, CG&E's management has demonstrated its willingness to take strong remedial actions by issuing stop work orders in those areas where construction deficiencies have been found. In a plant that is approximately 98 percent complete, the Commission is requiring the relatively few remaining construction activities and the ongoing corrective actions necessitated by the QCP to stop immediately while additional organizational changes are implemented.

Second, I believe the Commission's action does not comport with its own practice. In Licensees Authorized to Possess . . . Special Nuclear Materials, CLI-77-3, 5 NRC 16, 20 (1977), the Commission said that "[a]vailable information must demonstrate the need for [such] emergency

actions and the insufficiency of less drastic measures" (emphasis added). See also Consumers Power Co. (Midland Plant, Units 1 & 2), CLI-73-38, 6 AEC 1082, 1083 (1973). I believe that, in this case, some of the less drastic alternatives proposed by the Staff would be adequate to resolve the problems at this facility. For example, the Commission could send CG&E a letter indicating that at this time the Commission does not have sufficient information to conclude that Zimmer has been constructed in substantial conformance with the construction permit. The Commission could request the provision of information on the part of CG&E which, if available, would provide the Commission with the necessary assurance. See 10 CFR 50.54(f).

Third, in the absence of willfulness, the Commission may suspend construction effective immediately in accordance with Section 9b of the Administrative Procedures Act and the Commission's regulations only if the Commission finds that the public health, safety, or interest requires such action. I do not believe that the concerns listed in the Commission's Order show that the public health and safety requires immediate suspension of all construction and corrective actions at the Zimmer site. Indeed, Mr. James Keppler, the Region III Administrator, has stated that CG&E's QCP has been successful in identifying existing construction problems. Transcript of Public Meeting on the Status of Zimmer, October 28, 1982 at 5. Additionally, most of the NRC inspection findings arising out of the QCP point to administrative or procedural deficiencies, rather than to actual material or construction errors. While the NRC's level of confidence in the adequacy of the plant

construction has been reduced, it has not been shown by the NRC that problems exist which require immediate resolution to protect the public health and safety. Moreover, I do not believe this action is in the public interest.

I am also concerned that the Order has been approved without consideration for the Applicant's proposal to correct management and construction problems. That proposal, outlined in a letter to the Commissioners dated November 10, 1982, contained all of the essential elements approved by this Order. Specifically, the proposal calls for obtaining new project management, stopping all rework on quality confirmation matters, and an independent third party review to confirm the acceptability of selected safety systems. In view of the voluntary agreement by CG&E to such drastic measures, I feel that this Order is primarily punitive in nature and does little to correct problems in the interest of public health and safety.

Finally, I disagree with the Commission's Order because of the potential for delay inherent in this procedure. CG&E has an absolute right to a hearing on the Commission's Order. If CG&E avails itself of this right, then other "interested persons" will be entitled to demand a hearing. Once started, the hearing would be difficult to bring to an expeditious close. Even if the Staff and CG&E were to reach agreement on the corrective actions to be taken, litigation of the requirements imposed by the Commission Order would continue. Consumers Power Co. (Midland Plant, Units 1 & 2), ALAB-315, 3 NRC 101 (1976); Dairyland Power Cooperative (LaCrosse Boiling Water Reactor), LBP-81-7, 13 NRC 257, 264-65 (1981).



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

- Exhibit 7

June 13, 1984

Docket No. 50-382.

Mr. J. M. Cain
President & Chief Executive Officer
Louisiana Power and Light Company
317 Baronne Street
New Orleans, Louisiana 70160

Dear Mr. Cain:

SUBJECT: WATERFORD 3 REVIEW

On April 2, 1984, the staff began an intensive review effort largely conducted onsite, designed to complete those issues necessary for the staff to reach its licensing decision on Waterford Unit 3. These issues covered a number of areas including allegations of improper construction practices at the facility. As we indicated to you, the staff would promptly notify you of issues that could potentially affect the safe operation of the plant.

We have recently identified the items listed in the enclosure that have potential safety implications for which we require additional information. It should be noted that they are being provided to you before the NRC staff publication of its SSER which will document its assessment of the significance of these and all of the other issues examined. The issues in the enclosure represent an extensive staff audit of information related to the plant.

As a result, you are requested to propose a program and schedule for a detailed and thorough assessment of the concerns. This program plan and implementation schedule will be evaluated by the staff before consideration of issuance of an operating license for Waterford 3. This program plan should include and address the cause of each of these potential problems identified; the generic implications and the root cause of the concern on

Mr. J. M. Cain

- 3 -

June 13, 1984

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POTENTIAL SAFETY IMPLICATIONS1. Inspection Personnel Issues

As a part of the NRC staff's review, the credentials of quality assurance and quality control inspectors were examined. Included in this effort were the verification of previous job experience and qualifications and certification of personnel as inspectors.

The following items were found: -----

- (1) NRC reviewed inspector certifications for 37 of the 100 Mercury QC inspectors, including certifications for all Level III personnel. Twelve inspector certifications were found questionable due to insufficient education or experience.
- (2) The certification records of 38 Tompkins-Beckwith (T-B) QC inspectors were selected at random and reviewed. Fourteen inspector certifications were found questionable due to insufficient education or experience.
- (3) A 30% sample by the staff of inspector certifications of the Mercury QC work force revealed that no verification of past employment was documented. A sample by the staff of inspector certifications of the Tompkins-Beckwith QC work force produced similar results.

The safety significance of these findings is that unqualified inspectors may have inspected safety-related systems, thereby rendering verification of the quality of these systems indeterminate. LP&L shall: (1) verify the professional credentials of 100% of the site QA/QC personnel, including supervisors and managers, (2) reinspect the work performed by inspectors found unqualified, and (3) verify the proper certification of the remaining site QA/QC personnel to ANSI N45.2.6-1973.

2. Missing N1 Instrument Line Documentation

The staff examined the documentation concerning installation of safety-related N1 instrument lines. Part of that review dealt with the situation where there is a change of design classification for systems. As a result of the staff review it was determined that communications between LP&L and Ebasco prompted a revision to be written by Ebasco to an LP&L drawing to clarify the "class break" for N1 instrument lines. The revision imposed ASME Class requirements for all installations between the process piping and the instruments for instrument lines installed after April 7, 1982. Prior to the revision a class break was defined to show the location where ASME class stopped and ANSI B31.1 applied.

Although ANSI B31.1 does not relate to records retention, 10 CFR 50 Appendix B does require special process controls, traceability, installation and inspection records. Therefore, for locally mounted N1 instruments, even though they were installed prior to April 7, 1982,

these records could not be located. Examples of the instruments lines with no supporting installation and inspection records for zones classified as ANSI B31.1 are LT-SI-0305B; LT-SI-0305D; PS-CH-0224X; PS-CH-0224Y and PS-CH-0224Z.

Examples of the type of deficient data are weld reports, welder identification, weld filler material, base material and weld inspection results.

The NRC staff concluded that based upon the lack of quality records, for instrumentation installation to B31.1 the requirements of 10 CFR 50, Appendix B and the related other QA program elements may not have been complied with.

The lack of documentation to demonstrate the quality of installation of these safety related lines calls into question the acceptability of these installed components.

LP&L shall; (1) Provide the missing documentation required by 10 CFR 50 Appendix B for the B31.1 instrumentation for local mounted instruments; (2) Review other design changes and documentation for all safety-related N1 instrumentation systems to assure all system installations were properly documented and inspected; and (3) If the documentation cannot be located, action must be taken to assure affected portions of safety-related system comply with NRC requirements.

3. Instrumentation Expansion Loop Separation

As a part of its review of NCRs the staff identified a concern in NCR W3-7702. This NCR was written as a result of Mercury OCR Package 1782. Drawing 172-L-012-C Revision 4 had a handwritten note on it identifying two lines DPR-RC-9116 SMB (HP) and DPT-RC-9116 SMA (HP) where the separation criteria had been violated. The violation occurs where these instrument lines from different trains leave the tube tracks and form an expansion loop before returning to the continuation of the tube track. Lack of separation could result in failure of redundant lines that could prevent a safety function.

LP&L shall correct the separation criteria violation found in System 52A. They shall also provide a program for review of other safety-related systems for separation criteria violations and take the necessary corrective actions.

4. Lower Tier Corrective Actions Are Not Being Upgraded to NCRs

The staff reviewed the Corrective Action system to verify if lower tier corrective action documents were being properly upgraded to NCRs as required by 10 CFR Part 50, Appendix B Criteria XV and XVI. Specifically the staff looked at a number of Field Change Requests (FCRs), Design Change Notices (DCNs), and Engineering Deficiency Notices (EDNs) selected

from printouts of safety-related equipment and systems document issuance logs. The selected documents were reviewed for content and basis for issuance (i.e., before the fact design change or after the fact nonconformance). Finally a walkdown was performed to verify proper identification and change control completion. In addition Tompkins-Beckwith (T-B) Discrepancy Notices (DNs) were reviewed.

As a result of its review the staff found that the following issues.

- a. Field Change Requests - Sixty-three FCRs and 21 revisions to FCRs were evaluated. It appears as though 35 should have been NCRs and another 4 reflected conditions that may have warranted an NCR. The list below provides examples of FCRs that should have been NCRs.

F-MP-1818	F-AS-1631
F-AS-3698	F-E-3089
F-AS-3648	F-MP-2138
F-AS-2338	F-MP-2151
F-MP-1434	F-E-2288

- b. Design Change Notices - Fourteen DCNs and 5 revisions to DCNs were reviewed. It appears as though 4 of those should have been upgraded to NCRs. Listed below are examples of these.

DCN-703 and Revision 1
DCN-1C-478
DCN-ME-30
DCN-E-790

It appears as though the problems identified in DCN-703 are related to FCR-MP-2138 and may have been reportable under 10 CFR Parts 21 or 50.55(e).

- c. Engineering Discrepancy Notice (EDNs) - Seventy-six EDNs were reviewed for proper identification and control. Of those 76, it appears as though 51 of those should have been NCRs. Examples of these are listed below.

EDN-EC-1476
EDN-E-1548
EDN-EC-1502
EDN-EC-1479

In addition during the review, another 35 were "voided" with no action taken. The voiding action was performed by a clerk. Examples of voided EDNs are as follows:

EDN-EC-0630
EDN-EC-1175
EDN-EC-1176
EDN-EC-1140

- d. Tompkins-Beckwith - The staff reviewed a sample of the handling of information requests and Discrepancy Notices by Ebasco. As a result of that review it appeared that a number of these items should have been upgraded to NCRs. Examples of these are listed below.

W-6519	W-5755
W-6183	W-742
W-6322	W-5917
W-3656*	W-381--
W-1876	W-5824*
W-4112	W-5047
W-5692	W-5416
W-6243	W-5916
W-6349	W-2105
W-728	W-4968*
W-4648*	W-4969*

The asterisked (*) items all related to incorrect heat numbers being entered incorrectly or clerical errors being made on rod slips.

In summary, the staff found that the QA program requirements for nonconformance identification, control and proper action do not appear to have been complied with.

LP&L shall review all FCRs, DCNs, EDNs, and T-B DNs to assure that proper corrective action was taken, including an adequate review by QA. This action shall include the steps required by 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, and for Construction Deficiency Reporting, 50.55(e). Also included in this review shall be the examination of improper voiding of all other design changes or discrepancies notices that affected safety-related systems or that were misclassified as non-safety related.

5. Vendor Documentation - Conditional Releases

As a part of the staff review of the QA program, the staff evaluated the Ebasco vendor QA program. In assessing this program, the staff specifically looked at the receipt inspection program and the conditional release system.

As a result of its evaluation, the staff found certain deficiencies with the handling of conditional certification of equipment (C of E) for Combustion Engineering supplied equipment. For example, one conditional C of E for the reactor vessel and internals was issued because as-built drawings, material certifications, and the fabrication plans had not been forwarded when the equipment was delivered to LP&L in 1976. The missing documents were sent to Ebasco sometime in 1978, according to the Ebasco quality records supervisor, but were apparently lost prior to being placed in the Ebasco document control system. The conditional

certification of equipment was found when a check of all files was made in April or May 1984. The missing documents have been requested from CE, and a deficiency report was issued and placed on a master deficiency list. This problem has existed since July 20, 1976.

The safety significance of this is that problems with the vendor QA records could affect installed safety related equipment. LP&L shall examine their records and determine if all conditional certifications of equipment have been identified, reviewed, and promptly resolved.

6. Dispositioning of Nonconformance and Discrepancy Reports

The staff conducted a review of Ebasco nonconformance reports (NCRs) randomly selected from the Ebasco QA vault and the NCR tracking system. The selected NCRs were reviewed for content, compliance with procedures, accuracy, completeness of the disposition and final closure. Of the NCRs reviewed it is the staff's judgement that approximately one third contained questionable dispositions. Other NCRs were found still open.

The implied safety significance is that improperly dispositioned NCRs or lack of NCR closure could place the quality of installation in question.

For example, Ebasco NCR W3-5564 identifies that welds were painted before the final weld inspection was performed. The NCR was closed out with a letter stating that the final inspection will be performed to inspect only for undersizing and lack of weld material where installation drawing calls for weld material. No paint was to be removed therefore the inspector could not inspect for welding defects.

The NCRs reviewed by the staff dealt with a wide variety of issues. The following is a list of example Ebasco NCRs that the staff feels contain questionable dispositions or exceeded closure time requirements.

Ebasco W3 NCRs

NCR-7139	NCR-7177	NCR-3912	NCR-7182	NCR-5563
NCR-7181	NCR-7184	NCR-6159	NCR-6723	NCR-3919
NCR-7547	NCR-6221	NCR-1650	NCR-6511	NCR-6623
NCR-4219	NCR-5586	NCR-7432	NCR-7180	NCR-4137
NCR-6165	NCR-4088	NCR-7099	NCR-6786	NCR-6597
NCR-7533	NCR-7179	NCR-7140	NCR-5565	

The staff also found similar type problems related to Mercury NCRs in that the dispositions were questionable; supporting documentation could not be located; rework appears to have not been accomplished; NCRs were not processed; a sufficient basis was not provided; and closure basis was inadequate.

The following NCRs fall into these categories:

Mercury NCRs

180	420	528	568	625
255	429	540	591	656
268	438	554	594	658
363	487	560	595	
380	491	565	614	

Additionally during this review the staff found problems with Ebasco discrepancy reports (DRs) in that it appears some DRs should have been elevated to NCRs; closure references were incorrect or inappropriate; closure action was improper; documentation was inaccurate; closure was via a DR, should have been an NCR; disposition failed to address the discrepancy; and the disposition of "use-as-is" had insufficient basis.

The following DRs fall into these categories:

Ebasco DRs Related to Turnover Packages

Q2-CS-1C-27	BD-1C-1143
Q2/3-FW/1C-851	Q1-RC-LWS-RC-2
Q2-SI-1C-89	LW3-RC-29
QMC-APD-P47E	Q2-LW3-SI-10F/E
CH-1C-342	CC-1C-6

The staff concludes that some Ebasco and Mercury NCRs and Ebasco DRs were questionably dispositioned and that LP&L shall (1) Propose a program that assures that all NCRs and DRs are appropriately upgraded and adequately dispositioned and corrective action completed, and (2) correct any problem detected.

7. Backfill Soil Densities

The staff found that records are missing for the in-place density test of backfill in Area 5 (first 5' starting at Elevation -41.25'). These documents are important because the seismic response of the plant is a function of the soil densities.

LP&L shall (1) Conduct a review of all soil packages for completeness and technical adequacy and locate all records and provide closure on technical questions, or (2) conduct a review of all soil packages for completeness and technical adequacy and where soil volumes cannot be verified by records as meeting criteria, perform and document actual soil conditions by utilizing penetration tests or other methods, or (3) Justify by analysis that the soil volumes with missing records, or technical problems as defined after the records review, are not critical in the structural capability of the plant under seismic loads.

8. Visual Examination of Shop Welds During Hydrostatic Testing

The staff's review of hydrostatic tests conducted by Tompkins-Beckwith (T-B) for their installed ASME Class 1 and Class 2 piping systems found a lack of proof of the visual inspection of all shop welds during the tests. Inspection of all welds for leakage is required by the ASME Code and is essential to ensure the structural integrity of the piping system. LP&L shall provide documented evidence that shop welds were indeed inspected during the hydro tests. If the appropriate inspection documents do not exist or cannot be located, LP&L shall submit a statement attesting to shop weld inspection by the responsible personnel of LP&L or Ebasco who had witnessed the hydro tests.

9. Welder Certification

The staff reviewed the records for the installation of the supports for certain of the instrumentation cabinets in the Reactor Containment Building (RCB). -The review included an examination of procurement records for the support material, weld rod control documents, welder certification records, and QC inspection records.

Based on the staff review it appears that documentation is missing on the support welds and it is not clear that the welders were certified for all of the weld positions used. Thus the quality of the supports for the instrument cabinets are indeterminant.

LP&L shall attempt to locate the missing documents and determine if the welders were appropriately certified. If the documentation cannot be located, appropriate action must be taken to assure the quality of the cabinet supports.

10. Inspector Qualifications (J. A. Jones and Fegles)

The NRC staff reviewed the qualification and certifications of QC inspectors in the civil/structural area. The review included the qualifications of four Ebasco inspectors, five J. A. Jones inspectors and eight Fegles inspectors. The inspector qualifications were compared against the requirements of ANSI N45.2.6 and the contractor's procedures.

The staff found that four of the five J. A. Jones inspectors and two of the eight Fegles inspectors failed to meet the applicable certification requirements related to relevant experience. Since these inspectors were involved in the inspection of safety-related activities, the fact that they may not have been qualified to perform such inspections, renders the quality of the inspected construction activities as indeterminant.

LP&L shall review all inspector qualifications and certifications for J. A. Jones and Fegles against the project requirements and provide the information in such a form that each requirement is clearly shown to have been met by each inspector. If an inspector is found to not meet the qualification requirements, the licensee shall then review the records to determine the inspections made by the unqualified individuals and provide a statement on the impact of the deficiencies noted on the safety of the project.

11. Cadwelding

The staff reviewed the Cadweld activities related to the deficiencies identified in NCR-W3-6234. The staff is concerned that the applicant has provided only limited data (in other than the raw form) to the NRC on the statistics of the Cadweld testing program conducted during construction. The data provided stated that for the base mat 3,673 splices were made with 81 tests run, showing an average strength of 95,397 psi with a range of 60,750 - 107,051 psi. For the entire project the applicant has stated that 14,293 splices were made of which 591 were tested with 6 of those failing to meet tensile requirements. It is noted that the above NCR has been reopened as a result of the CAT inspection and all issues have not been resolved.

LP&L shall provide the Cadweld data for the project in such a form that it can be readily compared to the acceptance criteria used for the Waterford 3 project. This will require breaking down the Cadweld data by building or structural element such as the base mat, NPIS walls that are not part of RAB or FHB, containment interior structures etc. Additionally, the data should be broken down by test program type (production or sister), bar size, bar position and cadwelder. Data shall be provided in each category on total splices made, visual rejects, production tests and failures, and sister tests and failures. Data shall also be provided on welder qualification and requalification including dates.

Based on discussions with LP&L representatives the NRC staff has been informed that efforts in this area are underway, but this information is needed for staff review.

12. Main Steamline Framing Restraints

As part of the NRC staff's review, the installation and inspection of the main steamline framing restraints above the steam generators was examined to determine if the as-built drawings reflect the actual installation. The NRC staff found no problems with as-built conditions, but found that several bolted connections had not been inspected (or documented) for the framing. The failure to perform (or document) the inspections render the quality of these framing restraints as indeterminate.

Based on discussions with LP&L representatives the staff was informed that the subject inspections are in progress. LP&L shall complete the inspections of the restraints and make the documentation of such inspections available to the staff.

13. Missing NCRs

During the NRC's review of Ebasco's NCR Processing System the card index file of NCRs was examined and the staff noted that there are missing reports in the consecutively numbered NCRs. Specifically W3-27, 814, 859, 981, 1053, 1102, 1109, 1228, 1349, and 1438 are missing from your card index file. Others were also noted to be missing from the Ebasco QA vault.

LP&L shall (1) obtain the missing NCRs, explain why these NCRs were not maintained in the filing system, review them for proper voiding, and (2) assure that when an issue is raised to an NCR, it is then properly filed for tracking and closure.

14. J. A. Jones Speed Letters and EIRs

During the Ebasco QA review of J. A. Jones speed letters and engineering information requests, several items that could affect plant safety were noted. Based on its sample of these actions, the staff does not expect that any of these items will significantly affect plant safety. Nevertheless, the applicant should complete the actions identified in these reviews and issues raised shall be resolved promptly.

15. Welding of "D" Level Material Inside Containment

The staff reviewed the welding of "D" level material for containment attachments. The containment spray system structural component welds were chosen for specific detailed review. The welds on the containment spray piping supports were checked for weld rod traceability and welder identification and certification. The applicant was unable to produce the documentation sought for the staff review.

The applicant shall (1) locate the documentation and verify the adequacy of the information, or (2) perform a material analysis and NDE work, or (3) rework the welds. The staff shall be promptly informed of the applicant's approach and the documentation shall be made available for staff review.

16. Surveys and Exit Interviews of QA Personnel

In a memorandum dated January 3, 1984, R. S. Leddick, LP&L Vice President for Nuclear Operations, directed that the LP&L Quality Assurance (QA) personnel conduct interviews of the on-site contractor QA personnel to elicit any concerns the contractor staff may have regarding the quality of construction of Waterford Unit 3. That memorandum also indicated that exit interviews would be similarly conducted with the contractor personnel prior to their leaving the Waterford 3 project. A total of 407 such interviews were conducted beginning in January 1984. Individual responses were sent to the specific employee(s) who raised the concern.

Exit interviews with the contractor QA employees (resigned, transferred, or terminated) began on January 16, 1984. A compilation of the concerns raised during those interviews were forwarded for followup on May 22, 1984.

The NRC staff reviewed all of the questionnaire forms and responses to the questions identified by the LP&L QA staff. In some cases, the NRC review identified additional potential issues, beyond those identified by LP&L, and responses that did not address the intent of the concerns. Nevertheless, the staff found that the majority of the concerns raised are being or have been addressed as part of all of the other NRC review efforts associated with Waterford 3.

As a result of the staff review, it is not evident that the survey and exit interviews have been vigorously pursued by LP&L to investigate the issues raised for safety significance, root cause, and generic implications. For example, the exit interviews began in January and are continuing. However, the process of reviewing the content of those interviews did not begin until late May 1984. For some of the interviews, additional information should have been obtained from the person interviewed but the interviewers did not indicate on the form whether or not they sought additional facts. Finally for a number of areas, issues or potential problems were acknowledged but it is not clear that any followup action occurred.

The NRC staff is concerned that the LP&L program to investigate issues does not promptly and thoroughly examine the specific areas and the programmatic implications of them. Other successful programs have utilized independently staffed groups to assess each issue raised and formally report to senior utility management on their findings and recommended corrective actions. These elements are not evident in the LP&L process. As a result, LP&L should develop and implement a formal program for handling issues raised by individuals. One of the first tasks to be dealt with by the program should be the review of the responses previously provided to the QA survey and during the exit interviews.

17. QC Verification of Expansion Anchor Characteristics

A review of Mercury Construction Procedure SP-666, Revision 8, "Drilled-In Expansion Type Anchors in Concrete for Category I Structures," revealed that it does not require QC verification of many characteristics necessary to ensure proper installation of concrete expansion anchors. These characteristics include:

- Spacing between adjacent anchors
- Spacing between an anchor and the edge of a concrete surface
- Spacing between an anchor and an embedded plate
- Minimum anchor embedment depth
- Grouting of unused/abandoned holes in the concrete
- Mounting plate size
- Size of holes in mounting plates and hole distance from plate edges

Although most of the above characteristics are addressed in Section 6.1 "Installation," they are not included within Section 6.2 "Inspection," as items requiring QC verification. In addition, QC Inspection Report Form 277A, Rev. May 1982, "Equipment Installation (Anchors)," does not list these attributes as inspection points.

Therefore, Procedure SP-666 should be revised to include all necessary inspection attributes, and a reinspection program should be initiated. This program should be of sufficient size and scope to indicate whether these concrete anchors, in general, are able to perform their intended function. Detailed results should be made available to the NRC staff for review.

18. Documentation of Walkdowns of Non-Safety Related Equipment

A review of the design and evaluation of the non-safety instrument air piping, tubing, and their supports indicated that the general recommendations of Regulatory Guide 1.29, "Seismic Design Classification" were considered. This non-safety equipment is installed in areas with safety related equipment, such as the containment and auxiliary building areas. From the information provided relative to this system, it is apparent that the potential for system failure was considered in the design.

Also a number of procedures and controls were implemented to further assure that these non-safety related components would not affect safety related equipment. However, the followup documentation of the final walkdowns did not list the reviewed equipment in detail and therefore it could not be concluded that the instrument air piping and tubing (and their supports) had been adequately addressed regarding potential physical damage to safety-related equipment.

Therefore, documentation should be provided that clearly shows what equipment was reviewed during the walkdowns and on what bases it was concluded that the installation was acceptable.

19. Water in Basement Instrumentation Conduit

In examining the safety significance of the allegations, the NRC staff performed system walkdowns as a means of verifying the as-built conditions. During one of those walkdowns, the staff noted that there was water in an electrical conduit that penetrated the basement. If the seals in that conduit should fail there is a potential direct path for ground water to flood the auxiliary building basement. LP&L should review all conduit that penetrates the basement and terminates above the top of the basement to assure that these potential direct access paths of water are properly sealed.

20. Construction Materials Testing (CMT) Personnel Qualification Records

The Inquiry Team effort included a review of the disposition of the generic problem identified during the LP&L Task Force verification relative to GEO Construction Testing (GEO) documentation for personnel qualifications in the area of CMT.

The utility should conduct a review of supporting documentation for GEO corrective action stated in Attachment 6 of NCR W3-F7-116 (Ebasco W3-6487). This review should focus on the identification of CMT personnel placed in GEO Categories 1, 2 or 3 who were apparently qualified solely on written statements by other individuals attesting to the individuals training and qualifications. For such individuals, the applicant should pursue any new information or evaluations which could provide further assurance in support of the actual past work experience and training referenced by the written statements.

21. LP&L QA Construction System Status and Transfer Reviews

The Inquiry Team assessment of the Ebasco QA disposition of LP&L QA Construction documentation and walk-through hardware findings for a sample of the sixty-seven systems transferred to LP&L operations resulted in NRC questions on the adequacy of Ebasco and LP&L QA Construction disposition of those findings. As a result of the NRC questions LP&L and Ebasco QA initiated a review to ensure that all LP&L QA Construction findings were adequately dispositioned. Ebasco QA had identified 15 systems or subsystems (Nos. 18-3, 36-1, 36-3, 43B, 43B9, 46C, 46E, 46H, 55A, 59, 69B, 71B, 72A, and 91E) where the LP&L findings may not have been properly dispositioned during the transfer of these systems to LP&L operations.

Based on the above, LP&L is requested to complete the review of all significant LP&L status and transfer review findings, such as undersized welds and other hardware walk-through and documentation findings. This review should ensure that these findings have been properly closed out or identified to LP&L operations for their closeout. For any LP&L open findings not properly identified on the status or transfer letters to LP&L operations, LP&L should determine whether this condition adversely affected the testing conducted for those systems.

22. Welder Qualifications (Mercury) and Filler Material Control (Site Wide)

The staff reviewed inprocess weld records for the installation of instrumentation systems by Mercury Company. Systems reviewed included Reactor Coolant, Safety Injection, Component Cooling Water, Main Steam, Main Feed, and Charging Water. The staff selected welders from these records and reviewed their qualifications to the welding process used during the time frame of actual welding.

Based on the staff's review it appears that some Mercury welders were not qualified. Problems included: welders not qualified to the correct welding procedure; welders qualified for a specific process, even though they were not tested for that process; and actual dates on qualification records appeared questionable, the welder may have welded prior to being tested. The staff concludes that there are questions relative to the Mercury welder qualification status.

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Also during this review the staff evaluated the controls being used to control filler material. The staff found that the requirements for "rebaking" of low hydrogen electrodes did not meet the requirement of the ASME and AWS Codes. The Codes require low hydrogen electrodes to be rebaked at temperatures of 450° to 800°F for two hours. The site practice for all site contractors was to rebake at 200°F for eight hours. Justification for this Code deviation has not been provided by LP&L .

LP&L shall (1) Attempt to locate the missing documentation and determine if the welders were properly qualified, or (2) If the documentation to support proper qualification cannot be located, LP&L shall propose a program to assure the quality of all welds performed by questionably qualified welders.

LP&L shall also provide engineering justification for the allowance of "rebake" temperatures and holding times that differ from the requirements of the ASME and AWS Codes.

23. QA Program Breakdown Between Ebasco and Mercury

The staff review included evaluation of the implementation of the QA programs of LP&L, Ebasco, and Mercury. The staff performed a followup on the previous 1982 NRC review that resulted in NRC enforcement action and a civil penalty. The most recent staff review indicated that LP&L, Ebasco, and Mercury did not followup on the corrective action commitments made to the NRC.

Additionally LP&L, Ebasco, and Mercury failed to audit the entire QA program as required (LP&L only performed one-third of their scheduled audits for a five year period). The audits that were conducted identified some problems, however the required corrective actions were not completed. Management audits, performed by outside consultants, identified problems and concerns that LP&L also failed to take corrective action on.

The results of the NRC task force effort indicate that an overall breakdown of the QA program occurred. Most problems identified by the NRC had been previously identified by the QA programs of LP&L, Ebasco, and Mercury. But the failure to determine root cause and the lack of corrective action allowed the problem to persist.

LP&L shall provide an assessment of the overall QA program and determine the cause of the breakdown, together with corrective action to prevent recurrence. This overall assessment is necessary to provide assurance that the QA program can function adequately when the plant proceeds into operations.

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