GOVERNMENT ACCOUNTABILITY PROJECT
Institute for Policy Studies
1901 Que Street, N.W., Washington, D.C. 20009 (202) 234-9382

July 31, 1984

Nunzio J. Palladino, Chairman
Thomas Roberts, Commissioner
James Asselstine, Commissioner
Frederick Bernthal, Commissioner
Lando Zech, Jr., Commissioner
1717 "H" Street, N.W.
Washington, D. C. 20555

Re: Diablo Canyon Nuclear Power Plant, Units 1 and 2
Docket Numbers 50-275 and 50-323 (2.206)

Dear Commissioners:

On behalf of Messrs. James McDermott and Timothy O'Neill, the Government Accountability Project (GAP) submits this supplement to Mr. O'Neill's July 27, 1984 petition under 10 CFR 2.206. With Mr. O'Neill's consent, Mr. McDermott is joining the action as a co-petitioner.

In addition to providing further evidence in support of the July 27 petition, Messrs. O'Neill and McDermott also expand the original request for retraining. Instead of just requesting retraining for all personnel in organizational freedom required by 10 CFR 50, Appendix B, Criterion I, petitioners request Commission-approved retraining for all project personnel, including management, for --

1) all 18 quality assurance criteria of 10 CFR 50, Appendix B; and

2) the meaning and the provisions in the Atomic Energy Act and U.S. Code for false statements to the government, the penalties for such violations, and the NRC's enforcement policy toward that portion of the law.

The basis for the expanded retraining request is Mr. McDermott's experience last week with fraudulent retraining programs. Mr. McDermott's July 30, 1984 affidavit is enclosed as attachment 1. On three occasions he was asked to sign his certification for participation in activities that did not occur and for his review of retraining materials that had not been distributed. In one case the false statements were so crude that Mr. McDermott was told to sign a blank form.

On Saturday, July 28, two days after he refused to engage in this criminal act, Mr. McDermott was laid off. Mr. McDermott was a highly-qualified veteran welder at Diablo Canyon, but he was laid-off while fresh recruits with limited certifications were retained. Mr. McDermott also was known to Diablo Canyon project management as a whistleblower who has submitted numerous affidavits to the NRC staff and met with the Office of Investigations. Management knew, because the staff blew

D503

Mr. McDermott's cover by turning censored but easily-traceable versions of his affidavits over to the utility. Finally, Mr. McDermott was known as an associate wno helped Mr. O'Neill prepare his quality assurance reports. To personnel on-site, the message from Mr. McDermott's layoff, last Saturday was clear: in response to Mr. O'Neill, management is cracking down instead of cleaning up its program.

That is odd, since last Friday at a press conference Pacific Gas and Electric Company (PG&E) and Bechtel assured the public that they welcome reports of problems at the plant. That was only one of many false statements to the public by the licensee and Bechtel ast Friday. In a July 31, 1984 affidavit and exhibits enclosed as Exhibit 2, Mr. O'Neill details 7 additional cases. As Mr. O'Neill explains in his affidavit, these false statements are relevant for an operating license, because "[i]f there is ever an accident at Diablo Canyon, we have to be able to rely on the utility to tell the truth." 1)

The enclosed evidence demonstrates a basic truth at Diablo Canyon: after thirteen years the quality assurance breakdown is continuing. Rather than a housecleaning, the 1984 version of the program is still producing repetitive violations. This is inevitable, as long as the program is characterized by false statements and phoney retraining programs. Under the law that is no foundation for an Atomic Energy Act license.

Respectfully submitted,

Thomas Devine

Thomas Devine
Counsel for Messrs. McDermott
and O'Neill

---

1) The exhibits to Mr. O'Neill's July 27 affidavit also are enclosed. They had been withheld to avoid compromising the ongoing cases at the Office of Investigations, but on Monday the Atomic Safety and Licensing Appeal Board ordered the disclosure of the most recent evidence.

JMc

A F F I D A V I T

My name is James L. McDermott. I am submitting this affidavit freely and voluntarily to Mr. Thomas Devine, who has identified himself to me as the legal director of the Government Accountability Project and who serves as my attorney for disclosures to the Nuclear Regulatory Commission. I have instructed Mr. Devine to add my name to the petition submitted by Mr. Timothy O'Neill on July 27, 1984 with Mr. O'Neill's permission, which he has supplied. This affidavit is in support of the joint petition. My own case provides a clear illustration of the need both for reinspections and systematic retraining of all personnel at Diablo Canyon.

On Saturday, July 28, I was laid off from my job as a welder for Pullman Power Products at Diablo Canyon, two days after I refused to sign three statements certifying my participation in retraining programs on various matters. I refused because I would have been engaging in a false statement if I had signed. In one case, I was asked along with others to sign a JMc CERTIFYING MY PARTICIPATION IN AN UNIDENTIFIED TRAINING SESSION THAT HAD NEVER OCCURRED. JMc blank form. To show how badly things have deteriorated, 15 other employees signed the form.

Since January 1984 I have been a witness in the ongoing Nuclear Regulatory Commission (NRC) investigation at Diablo Canyon. During that time I have submitted five affidavits and

8408070257

JMc

met with the NRC on three occasions, including twice with the Office of Investigations (OI). Earlier this month I settled a Department of Labor lawsuit which had charged retaliation in an earlier layoff. I was a confidential witness, until the NRC technical staff blew my cover by turning over a copy of my affidavit to Pacific Gas and Electric (PG&E). Although my name was whited-out, the issues in my statement were traceable back to me since I had challenged the same violations on-site. PG&E promptly published my name in a licensing brief. With my cover already blown, there was no reason to hold back and my wife began serving as a public spokesperson for the Consumers in Defense of Energy Safety (CODES). PG&E claimed that my continued employment at Diablo Canyon helped rebut charges of harassment for NRC whistleblowers. PG&E's licensing brief is enclosed as Exhibit 1.

The events surrounding my layoff began last Thursday, July 25, when four handouts were distributed to personnel in the shop. Each handout was for retraining through the "Steps to Prevent Recurrence" (STPR) corrective action program. We were all supposed to sign that we had been retrained on each problem, after studying each handout. I signed one of the forms but I had to refuse to sign three others. The other three STPR forms involved problems with -- 1) flowmeters to control the release of gas in Gas Tungsten Arc Welding (GTAW); 2) falsified traceability records for certain plates; and 3) cutting of crushable bumpers.

The STPR on flowmeters contained the crudest falsification. It is enclosed as Exhibit 2. In essence we were asked to sign a form certifying our attendance in a retraining program that was never conducted. The form was blank for all the spaces describing the retraining, including "Nature of Instruction", "Date", "Time", and "Instructor". Further, our signatures certified that we had participated in discussions and reviewed additional information. The discussions never occurred and the referenced information was not included in the handout. Fifteen people signed anyway. I talked with several people about why they signed a blank check. As one explained, he didn't want to have trouble.

This phoney retraining program concerned a generic deficiency highly significant to plant safety. The flow of gas keeps out undesirable atmosphere during the welding process. Too much or too little gas can lead to unacceptable quality such as oxidation, ~~porosity~~, cracking, embrittlement and excessive cost. The fraudulent retraining program means that the shoddy welding probably will continue for the thirteenth year in a row.

The STPR on traceability of plates concerned falsified purchase order identification records. It is enclosed as Exhibit 3. I could not sign the form, because the referenced procedures and quality assurance (QA) records were not included.

I had raised this same issue near the end of June with the production foreman. He said that maybe I should remove the phoney Purchase Order Number from the plate. Before that happened, however, a QC

JMS

inspector identified the problem and wrote a Deficient Condition Notice (DCN). The inspector suffered severe harassment for writing the report, including a public dressing down from the craft superintendent and construction workers who shook their fists in his face. Based on his experience, I believe that my initiative in raising the same issue to a foreman helped lead to my layoff.

The third STPR concerned the improper cutting of crushable bumpers, which are thin-gauged tubing welded to resemble square honeycombs. They are used to absorb the impact in the event of a ruptured pipe. The STPR is enclosed as Exhibit 4. I could not sign this form, because the referenced procedure was not attached.

The training continues to be inadequate on a generic basis. For example, the recent "training" on harassment basically was to pass out a memo saying that we could be disciplined up to termination if we harassed QC. The memo itself was a signal that management was pulling its punches: harassment would not necessarily cost a worker his job if he were caught. There were not any classes, or even discussions about a problem that has been getting out of control.

In other cases the handouts were inadequate as retraining documents, because the craft workers had never been trained sufficiently the first time to understand the terms in the QA reports. I know, because various welders asked me what the documents meant. They came, because I was a former QC inspector.

JMS

On Thursday, July 26th, after reviewing the STPR handouts, I sought out the QC inspector. I told him this was bull, because we would be signing for documents and events that were not there. He agreed and said he would notify the Resident Inspector.

At the end of the shift, the foreman asked me to sign the STPR forms. I refused on three out of four. He asked me to point out to him what was the matter, which I did. He said he saw my point and agreed with me that a good training program should have begun 13 years ago.

Despite his agreement with my criticisms, the foreman said that the superintendent would still want me to sign. He also said that maybe we should fill in the blanks on the training form for flowmeters. I said maybe we shouldn't. I believe that raising this problem of false statements internally, refusing to participate, and refusing to cooperate with a coverup contributed to my layoff.

On Friday the QC inspector told the NRC's Resident Inspector, Mavin Mendonca, of the STPR problems.

On Friday Tim O'Neill also filed his petition and held a press conference. Tim is a friend of mine, which was well-known

on-site. We ate lunch together regularly, where in plain view I often reviewed or helped him to prepare reports of QA violations. We ate lunch together on Tuesday, July 24, the day Tim resigned. I believe that my layoff the day after his press conference in part was further retaliation due to guilt by association.

On Saturday, July 28 I was laid off, along with one other welder out of around 15 in our shop. The other employee was a traveler -- a member from another local outside of this union's jurisdiction, with a travel card. Although it is not a formal rule, travelers usually are laid-off first. In fact, another brother said to me that he should of been laid off because he was a travelcard holder and that I was a local member.

I believe that my layoff was retaliatory for three reasons: 1) The time lag was two days after I refused to sign three false statements and one day after my friend Tim went public on a series of QA violations including some which I had openly helped him to prepare at the job site. 2) Over half the rest of the crew were travelers. 3) Two of the travelers were welders hired about two weeks earlier. They had only passed the basic gate, or entry, test. By contrast, I had been certified to unlimited thickness after passing the heavy wall test. In fact, I had just trained these two welders, to replace me as it turned out.

When I was laid off the foreman said that it was not just his decision; that management also was involved. He denied that

there were any "politics" involved, however. A Bechtel supervisor told me that he was sorry to see me go, because I never missed anytime, was always working and was better qualified as a welder than those who kept their jobs. He said that didn't make sense from an economic standpoint. He added that he had made the same point to Pullman and Bechtel management, without any success.

I am familiar with the conclusions in the 1977 Nuclear Services Corporation (NSC) audit about a quality assurance breakdown. I can state without question that it is continuing without letup. If there has been corrective action, the effects have been invisible. The QA breakdown continues, because those of us who try to uphold the NRC laws are either ignored; harassed until they resign as with Tim; or laid-off like myself. I am joining Tim's petition, because the NRC must crack down to restore respect for its rules at Diablo Canyon. If the Commission licenses the plant instead, it will be a clear message that the Atomic Energy Act no longer is worth the paper it is written on.

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

James L. McDermott

STATE OF California
COUNTY OF San Luis Obispo } ss.

ON 30 July, 19 84
before me, the undersigned, a Notary Public in and for said State, personally appeared James L. McDermott

known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

WITNESS my hand and official seal.

MICHAEL S. KROUT
NOTARY PUBLIC-CALIFORNIA
PRINCIPAL OFFICE IN
SAN LUIS OBISPO COUNTY
My Commission Expires Jan. 25, 1985

Michael S. Krout
Notary Public in and for said State.

ACKNOWLEDGMENT—General—Statutory Form 835—Rev. 3-81

EXHIBIT 1

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of PACIFIC GAS AND ELECTRIC COMPANY (Diablo Canyon Nuclear Power Plant, Units 1 and 2)	Docket Nos. 50-275 O.L. 50-323 O.L.

APPLICANT'S REPLY TO JOINT INTERVENORS' MOTION FOR PROTECTIVE ORDER

The Joint Intervenors, by motion dated June 11, 1984, have sought a protective order for Exhibits 3, 4, 7, and 10 which were submitted in support of their reply to PGandE and Staff responses to the Joint Intervenors' latest motion to reopen.

Neither the Staff nor PGandE were served copies of those exhibits, and the Joint Intervenors by their motion have requested that access to the substance of the exhibits be denied to the Staff and PGandE (JI motion pp. 5-6). It is PGandE's understanding that this Board has received such exhibits but in an edited form with the names of affiants and other identifying material removed. On receipt of the motion for a protective order, this Board issued an order

8406200338

requesting response to the motion and certain questions by June 19, 1984.[1]

I. DISCUSSION

Joint Intervenors' motion for a protective order is predicated on two points. The first is that the information given in each subject exhibit is conditioned by the affiant that it not be released to the Staff or the Applicant. The second is that the withholding of the substance of the exhibits is necessary to protect the anonymity of the affiants.[2]

---

[1]The order requested Staff and PGandE to answer the following:

(1) What documents were served on the applicant and the staff as joint intervenors' reply?

(2) If the same documents, in the same form, as those served on the Appeal Board were received by the applicant and the staff, is there any need for a protective order?

(3) Is the Commission's policy statement of August 5, 1983, 48 Fed. Reg. 36,358, applicable to joint intervenors' request for a protective order? If so, with what result?

(4) If the Commission's policy statement is not applicable, is the protective order sought by joint intervenors appropriate in the circumstances presented?

(5) If the protective order sought by joint intervenors is not appropriate, is a less encompassing order suitable?

[2]Although Joint Intervenors claim the informers privilege, this Board has previously acknowledged that the privilege may be claimed only by the government. Houston

(Footnote Continued)

Joint Intervenors seek to reopen the record based in part on new affidavits, the substance of which they seek to keep from Applicant. Fundamental to the acceptance of such affidavits as evidence upon which this Board may rely is the underlying truthfulness and veracity of the affiants and the factual basis for establishing that the affiants possess the necessary expertise to offer opinion testimony. By the requested terms of their motion for a protective order, Joint Intervenors attempt to restrict this Board in its function by not allowing the substance of the affidavits from seeing the light of day. Such a process, if allowed, would be extremely prejudicial to Applicant and approaches a trial in absentia.[3]

(Footnote Continued)
Lighting and Power Company (South Texas Project Units 1 and 2), ALAB-639, 13 NRC 469, (1981), footnote 26 at 478. See Roviaro v. United States, 353 U.S. 53, 59 (1957). In this case, rather than advancing the interest of the government in its investigation of the truth, Joint Intervenors seek to use the privilege to thwart such investigation.

[3]With this unexamined evidence, Joint Intervenors claim that a "cloud" hangs over the adequacy of the safety-related design and construction at Diablo Canyon citing Commonwealth Edison Company (Byron Nuclear Power Station Units 1 and 2) ALAB 770. That case is distinguishable from the instant proceeding. First, the "cloud" there was not unsubstantiated claims which had not even been examined, but rather the Licensing Board's findings made after hearing and Staff determinations over a period of years. In this case, Joint Intervenors seek to manufacture a "cloud" with anonymous affidavits which they refuse to expose to Applicant or Staff. The uncertainty that existed in Byron was that which was the result of findings, not merely

(Footnote Continued)

As to the first point, every citizen has an obligation to provide evidence, when necessary, to further the system of justice. Consumers Power Company (Midland Plant, Units 1 and 2) ALAB 764, Slip Opinion March 30, 1984. Houston Lighting and Power Company (South Texas Project, Units 1 and 2) ALAB 639, 13 NRC 469, 473 (1981). Wright v. Jeep Corp., 547 F.Supp. 871, 875 (E.D. Mich. 1982). See Branzburg v. Hayes, 408 U.S. 665, 688 (1972), Roviaro v. United States, 353 U.S. 53, 59 (1957). Since every citizen has such a duty which arises from his citizenship, he cannot, on his own, condition his civic obligation. Thus, affiants cannot tell this Board that they will give it information only if the Board agrees, contrary to

---

(Footnote Continued)
unsubstantiated allegations in support of a motion to reopen. Second, this is not a case where there has not yet been a hearing on the Applicant's verification program as was the case in Byron. Here, an extensive hearing on Design Quality Assurance and the adequacy of the verification program which was established pursuant to Commission order, has already been held. In Byron, Applicant argued that a hearing was not necessary even while the verification program was not complete. The Appeal Board remanded the case to take evidence on the completed verification program. Here the verification program has been completed and has been already subjected to hearing. Finally, in Byron, the Appeal Board found a hearing was necessary because one of the principle deficiencies that existed was the established absence of adequate certification procedures for quality control personnel. Such fundamental absence of proper certification is not present here.

requirements of law, not to relay it to a party whose rights or duties are being litigated.[4]

As to the second point, Joint Intervenors claim that because of inadequate editing of prior affidavits by the NRC Staff, Applicant was able to identify three of the anonymous allegers. As to these three allegers, they claim in an unsupported allegation that, "Since February 16, all three individuals have been laid off or suffered harassment on-site" (6/7/84 Devine Aff. at 3). Curiously, the documents executed by the anonymous allegers which disclosed identifying material were not released to Applicant until April 26, 1984. No person was laid off or harassed as a result of his allegations (Exhibit 1, attached). As a part of normal reductions of force, two of the three were laid off earlier this year, but each was rehired by April 9, 1984, prior to the date of release of the affidavits to Applicant. All three are currently employed at the site, and there have been no reports of harassment by any of these individuals from any source whatsoever. Consequently the

---

[4]While GAP and Joint Intervenors may consider themselves as chartered to ensure that the NRC satisfies its statutory duties, they cannot sua sponte substitute themselves for the governmental body which Congress charged with the duty to regulate, investigate, and license nuclear power plants. Consequently, the investigative arm of the Commission, its staff, cannot be deprived of the substantive information contained in Exhibits 4, 5, 7, and 10 or the names of the informers.

pivotal grounds for the request for the protective order are based, at best, a misleading affidavit.[5]

As acknowledged by this Board in the case of Consumers Power Company (Midland Units 1 and 2) ALAB-764, supra., the informer protection extends only to the identity of the informer and not to the substance of the information provided.[6] See Roviaro v. United States, supra. at 60.

Applicant has no other means of access to the allegations which are contained in Exhibits 3, 4, 7, and 10. It is the substance of those allegations and not the identity of the allegers which is of importance to Applicant, Staff, and this Board.

---

[5]This pivotal allegation should give the Board cause to question the veracity and forthrightness of Joint Intervenors' allegations. While the allegation in the affidavit is that the three individuals were either laid off or suffered harassment since February 16, 1984, it is clear that the layoffs were not related to their affidavits and that the individuals involved were even reemployed prior to the release of their affidavits. It is also clear that there is an absence of harassment as a result of their allegations. Given such inclination to stretch the facts, this Board must scrutinize all claims of Joint Intervenors.

[6]As in the Consumers Power case ALAB 764 supra., there is no issue of privilege involved here. Any confidentiality that may have existed between Thomas Devine, affiant, and the anonymous allegers was clearly breached when disclosure was made to Joint Intervenors and their counsel. While Thomas Devine has acted, in other matters, on behalf of Mothers for Peace, one of the Joint Intervenors, he is not counsel of record on behalf of all Joint Intervenors in this action.

Accordingly, should the Board be able to determine qualification of the affidavits, the Board should release Exhibits 3, 4, 7, and 10 in the form they have without a protective order.

II. RESPONSE TO BOARD CERTIFIED QUESTIONS

A. As indicated above, PGandE did not receive Exhibits 3, 4, 7, and 10 with Joint Intervenors' reply. If, in fact, it is the case that this Board received the exhibits without the names or other identifying material as edited by anonymous allegers, it would appear that consistent with protection of informers' interest, this Board could release the substance of the exhibits to the Staff and Applicant, and no protective order would be necessary.

B. Applicant does not see that the Commission policy statement of August 5, 1983 (48 Fed.Reg. 36358), applies since the subject information is not in the possession of or originated by the Staff in its ongoing investigation or inspection.

C. The protective order sought by Joint Intervenors far exceeds what is required to protect the interest of the anonymous informants and if granted as requested would prejudice Applicant and Staff and interfere with the Board's obligation to ascertain the truth of the matters placed before it.

E. As acknowledged by the Board in Consumer Power Co. (Midland Units 1 and 2) ALAB 764 supra., a

protective order which provides for deletion of names and other identifying material is appropriate for protection of informers' interests.

Applicant would suggest, however, that the Board should be presented with unedited versions of the Exhibits in camera so that it can ascertain that the affidavits are, in fact, of persons other than those who have previously provided affidavits. Thereafter, upon qualification of the affidavits, the Board should determine if the edited version protects the informers identity or whether, on weighing of the interests of the parties, a further modification should be made prior to release to Staff and the Applicant.[7] Alternatively, if the Board determines that the affidavits cannot be accepted, then they should be rejected outright.

Applicant would like to point out that while Joint Intervenors are seeking extraordinary relief from this Board, they do not approach the Board with altogether "clean hands." The allegations they submit, beyond being repetitious, have been tortiously dragged through the licensing

---

[7] If Exhibits 4, 5, 7, and 10 contain new materials, obviously Applicant should be afforded the opportunity to respond since they constitute a new motion and not a reply to Applicant's prior response to Joint Intervenors Motion to Reopen. Applicant is in the process of responding, inter alia, to the new material contained in the June 11, 1984, "Reply" of Joint Intervenors and will submit its responses to the Board by June 29, 1984.

process over in excess of six months time. Affiant Thomas Devine has stated under oath that "for the previous seven months," he has "been conducting an investigation of alleged illegal or improper practices at the Diablo Canyon nuclear powerplant" (6/7/84 Devine Aff. at 1). It is not inconceivable that Joint Intervenors and their associated representatives would continue this pattern of conduct over the next several months even though they have been investigating the matter for over at least six months. Applicant would submit, therefore, that if Joint Intervenors seek equity, they must do equity. That should certainly extend to providing the substance of their claims.

III. CONCLUSION

Applicant submits that consistent with due process and in the interest of fair play and justice, it is vitally necessary that it have access to the substance Exhibits 3, 4, 7, and 10. Applicant requests that Exhibits 3, 4, 7, and

10 be released to Staff and Applicant, or alternatively be rejected by the Board if they fail to meet minimal requirements for affidavits.

Respectfully submitted,

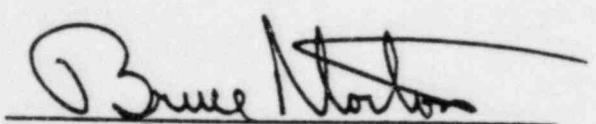
ROBERT OHLBACH
PHILIP A. CRANE, JR.
RICHARD F. LOCKE
DAN G. LUBBOCK
Pacific Gas and Electric Company
P. O. Box 7442
San Francisco, CA 94120
(415) 781-4211

ARTHUR C. GEHR
Snell & Wilmer
3100 Valley Bank Center
Phoenix, AZ 85073
(602) 257-7288

BRUCE NORTON
Norton, Burke, Berry & French, P.C.
P. O. Box 10569
Phoenix, AZ 85064
(602) 955-2446

Attorneys for
Pacific Gas and Electric Company

Dated: June 18, 1984

By 
Bruce Norton

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket Nos. 50-275 50-323
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)	)	(Construction Quality Assurance)

AFFIDAVIT OF D.A. Rockwell

STATE OF CALIFORNIA)
) ss
CITY & COUNTY OF SAN FRANCISCO)

The above, being duly sworn, deposes and says:

I, D.A. Rockwell, am Special Projects Engineer for the Pacific Gas and Electric Company at the Diablo Canyon Nuclear Power Plant. In such capacity, I work directly with management of Pullman Power Products and the H.P. Foley Company who are contractors on site at the Diablo Canyon Nuclear Project. In such capacity I am informed of personnel shifts and force changes of each organization. I have caused that the employment files be reviewed of the three individuals who were identified in the May 17, 1984 submittal of PGandE: Mr. J. McDermott, Mr. T. O'Neal, and Mr. J. Phillips. I have also investigated the possibility of the existence of any claims of harassment made by any of these three individuals as a result of the affidavits. Contrary to the representation of Thomas Devine, no harassment or reprisal by PGandE or its contractors against any of the three individuals has resulted from their anonymous allegations.

8406200321

EXHIBIT 1

Mr. J. McDermott was hired by Pullman on May 13, 1983. In a scheduled force reduction on January 13, 1984, Mr. McDermott was let go by Pullman. He was rehired by Pullman on April 9, 1984. He currently works for Pullman.

Mr. J. Phillips was originally hired by PTGC on March 31, 1983 and, as part of a scheduled force reduction, was let go on March 23, 1984. His ranking in March 1984 was 143 out of 147. Subsequent to his layoff by PTGC he was hired by Pullman on April 9, 1984. He currently works for Pullman.

Mr. T. O'Neal was hired by Pullman as a QC inspector on July 5, 1983 and currently is working for Pullman in that capacity.

The two individuals who were laid off were let go as a result of legitimate reduction of force, and not as the result of any allegation or affidavit they may have signed. Both were let go prior to April 26, 1984, the date when NRC first released the affidavits to PGandE.

Investigation has revealed no reports of harassment by any of these three individuals as a result of their allegations. There have been no reports to their supervisors. There have been no hot-line reports, and there have been no reports by union representatives regarding these individuals.

Mr. T. O'Neal did for the first time come to my office on June 12, 1984, the day after the Joint Intervenors motion was filed, to speak to me about his alleged quality concerns. He demanded my written response to his concerns.

He did not inform me of any physical threats, social harassment or reprisals of any kind resulting from his allegations.

Dated: June 19, 1984

D.A. Rockwell

Subscribed and sworn to
before me this 19th day
of June, 1984

Nancy J. Lemaster,
Notary Public in and for the
City and County of San Franciso
State of California.
My commission expires
April 14, 1986.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket No. 50-275
	)	Docket No. 50-323
Diablo Canyon Nuclear Power Plant, Units 1 and 2	)	
	)	

CERTIFICATE OF SERVICE

The foregoing document(s) of Pacific Gas and Electric Company has (have) been served today on the following by deposit in the United States mail, properly stamped and addressed:

Judge John F. Wolf
Chairman
Atomic Safety and Licensing Board
US Nuclear Regulatory Commission
Washington DC 20555

Judge Glenn O. Bright
Atomic Safety and Licensing Board
US Nuclear Regulatory Commission
Washington DC 20555

Judge Jerry R. Kline
Atomic Safety and Licensing Board
US Nuclear Regulatory Commission
Washington DC 20555

Mrs. Elizabeth Apfelberg
c/o Betsy Umhoffer
1493 Southwood
San Luis Obispo CA 93401

Janice E. Kerr, Esq.
Public Utilities Commission
State of California
5246 State Building
350 McAllister Street
San Francisco CA 94102

Mrs. Raye Fleming
1920 Mattie Road
Shell Beach CA 93449

Mr. Frederick Eissler
Scenic Shoreline Preservation
Conference, Inc.
4623 More Mesa Drive
Santa Barbara CA 93105

Mrs. Sandra A. Silver
1760 Alisal Street
San Luis Obispo CA 93401

Mr. Gordon Silver
1760 Alisal Street
San Luis Obispo CA 93401

John Phillips, Esq.
Joel Reynolds, Esq.
Center for Law in the Public Interest
10951 W. Pico Blvd. - Suite 300
Los Angeles CA 90064

David F. Fleischaker, Esq.
P. O. Box 1178
Oklahoma City OK 73101

Arthur C. Gehr, Esq.
Snell & Wilmer
3100 Valley Bank Center
Phoenix AZ 85073

Bruce Norton, Esq.
Norton, Burke, Berry & French, P.C.
P. O. Box 10569
Phoenix AZ 85064

Chairman
Atomic Safety and Licensing
Board Panel
US Nuclear Regulatory Commission
Washington DC 20555

Chairman
Atomic Safety and Licensing
Appeal Panel
US Nuclear Regulatory Commission
Washington DC 20555

Secretary
US Nuclear Regulatory Commission
Washington DC 20555

Attn: Docketing and Service
Section

*Lawrence J. Chandler, Esq.
Henry J. McGurren
US Nuclear Regulatory Commission
Office of Executive Legal Director
Washington DC 20555

Mr. Richard B. Hubbard
MHB Technical Associates
1723 Hamilton Avenue Suite K
San Jose CA 95125

Mr. Carl Neiberger
Telegram Tribune
P. O. Box 112
San Luis Obispo CA 93402

Michael J. Strumwasser, Esq.
Susan L. Durbin, Esq.
Peter H. Kaufman, Esq.
3580 Wilshire Blvd. Suite 800
Los Angeles CA 90010

Maurice Axelrad, Esq.
Lowenstein, Newman, Reis, and
Axelrad, P.C.
1025 Connecticut Ave. NW
Washington DC 20036

*Judge Thomas S. Moore
Chairman
Atomic Safety and Licensing
Appeal Board
US Nuclear Regulatory Commission
Washington DC 20555

*Judge W. Reed Johnson
Atomic Safety and Licensing
Appeal Board
US Nuclear Regulatory Commission
Washington DC 20555

*Judge John H. Buck
Atomic Safety and Licensing
Appeal Board
US Nuclear Regulatory Commission
Washington DC 20555

Commissioner Nunzio J. Palladino
Chairman
US Nuclear Regulatory Commission
1717 H Street NW
Washington DC 20555

Commissioner Frederick M. Bernthal
US Nuclear Regulatory Commission
1717 H Street NW
Washington DC 20555

Commissioner Victor Gilinsky
US Nuclear Regulatory Commission
1717 H Street NW
Washington DC 20555

Commissioner James K. Asselstine
US Nuclear Regulatory Commission
1717 H Street NW
Washington DC 20555

Commissioner Thomas M. Roberts
US Nuclear Regulatory Commission
1717 H Street NW
Washington DC 20555

Date: June 18, 1984

Dan G. Lubbock
DAN G. LUBBOCK

*Via Sky Courier Network

EXHIBIT 2

96059

Buchanan

STIEGER

7-24-84

[illegible] is issued for your [illegible] TO PREVENT RECURRENCE

[illegible] training record form to document SIR.

[illegible] must be complet d prompt · and correctly with

[illegible] documentation. Return to me by ASAP - Tim Roberts
BOX IN M.O.

Train area 10
DOP (Mo Dead

Paul L. Stieger

96-057

TRAINING SHEET

ATURE OF INSTRUCTION: ESA 201 . PARA 3.2 ; QAI 152 PAR 11.5; & KFP-10 par 10.1.5.E

ATE: 7-24-84

IME: _____ INSTRUCTOR: _____

ATTENDED BY:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____
37. _____
38. _____
39. _____
40. _____

DEFICIENCY REPORT

PRELIMAN DEFICIENCY REPORT PRODUCTS DIVISION

NO TEST PKG 1 OF

UNIT	AREA	ELEV.	COL/LINE	DATE:	NOTICE NO.
II	110 FAB SHOP	—	—	6-29-84	96-059

DEFICIENT CONDITION: ON 6-29-84 AT APPROXIMATELY 11:00 A.M. I NOTICED A PECULIARITY ON SOME 1" THICK PLATES LYING ON DUNNAGE INSIDE THE NORTH END OF THE FAB SHOP AT AREA 10 - CONT-

ORIGINATOR'S SIGNATURE: L.C. Craig Hagler

FIELD TAG APPLIED:	TAG #	INITIALS	DATE
6-28-84	96-059	RLM 1/96	6-28-84 / 7-6-84

RECOMMENDED DISPOSITION:
INSTRUCT APPROPRIATE CRAFT AND Q.C. INSPECTORS AS TO THE PERTINENT E.S.D. REQUIREMENTS

FIELD ENGINEER: [illegible] 7-6-84
FIELD QA INSPECTOR: L.C. Craig Hagler 7-10-84
CHIEF ENGINEER: SY [illegible] 7-22-84
DESIGN: [illegible]
FIELD QA/QC MANAGER: [illegible]

FIELD QA/QC MANAGERS EVALUATION: ☒ APPROVED AS RECOMMENDED ☐ OTHER

☐ NON-CONFORMANCE - D.R.# ____
☐ [illegible]
☐ [illegible]
☐ [illegible]
☐ [illegible]
☒ OTHER THIS DCN

COMMENTS:

FOR CRAFT STPR'S

CONTROLLED COPY

CAUSE CODE: 3

DATE: 7/22/84 FIELD QA/QC MANAGER: [illegible]

CORRECTIVE ACTION REQUIRED BY: 7/24/84 Eberle / Dekraai JMW NOT LATER THAN: ASAP

STEPS TO PREVENT RECURRENCE: ☒ NOT APPLICABLE

CRAFT AND QC SUPERVISOR TO ENSURE RESPONSIBLE PERSONNEL ARE INSTRUCTED TO APPLICABLE REQUIREMENTS AND PROCEDURES IN PARTICULAR ESD-201; PARA 3.2, QAI-15Z; PARA 11.5 & KFP-10, PARA 10.1.5.E DR 1/24

[illegible] DATE [illegible] FIELD QA/QC MANAGER

[illegible] DATE [illegible] SIGNATURE

DCN 96-059

PLUS 2 OF 3 ATTACHMENTS

ONE OF THE PLATES WAS MARKED "RR" IN BLUE SPRAY PAINT, A METHOD COMMONLY USED IN AREA 10 FOR DENOTING MATERIALS TO BE USED FOR RUPTURE RESTRAINTS ONLY. ON THE SAME PIECE OF PLATE THE NUMBER 14423 WAS MARKED WITH NISSEN METAL MARKER. THE 14423 MARKING WAS MARKED ON SEVERAL OF THE PLATES IN A MANNER WHICH WOULD NORMALLY INDICATE THAT THE NUMBER WAS DESIGNATING A PURCHASE ORDER NUMBER. I RECOGNIZED 14423 AS A PURCHASE ORDER NUMBER FOR " THICK TYPE A-36 CARBON STEEL AS WELL AS TWO OTHER SIZES AND TYPES OF STEEL, NONE OF WHICH WOULD NORMALLY BE USED FOR RUPTURE RESTRAINTS. PLEASE NOTE THE ATTACHED FIELD REQUISITION, PURCHASE ORDER, AND RECEIVING REPORT DOCUMENTS.

THERE WERE NINE PLATES TOTAL AND THEY ARE DESCRIBED AS FOLLOWS:

1.) ONE PLATE 1"X16"X4'0"
MARKINGS — 14423 — CLASS I STANDS — BLUE SPRAY PAINT NEAR ONE EDGE

2.) ONE PLATE 1"X16"X4'0"
MARKINGS — 14423 (ON THE EDGE) — "RR" IN BLUE SPRAY PAINT

3.) FOUR PLATES 1"X16"X16"
MARKINGS — NONE

4.) ONE PLATE 1"X16"X16"
MARKINGS 14423 — CLASS I STANDS

5.) ONE PLATE 1"X16"X16"
MARKINGS — 14423 (ON ONE EDGE)

6) ONE PLATE 1"X16"X16"
MARKINGS — 14423

THE MATERIAL HAD BEEN FRAUDULENTLY MARKED WITH THE 14423 P.O.#. THE MATERIAL SHOULD HAVE BEEN MARKED FOR

DCN 96-059

3 OF 3
PLUS ATTACHMENTS

CLASS E USE ONLY. ESD VIOLATIONS
INCLUDE 201 3.2 AND 277 5.0 (AS APPLICABLE).
PLEASE FIND THE NIGHT SHIFT APP A.C.
INSPECTORS NOTES AS TO HIS KNOWLEDGE
CONCERNING THIS MATTER.

RCM 1/96

FOR INFORMATION

SWING
6-28-84

CRAIG

CONCERNING PLATES ON THE FLOOR AT THE NORTH END OF FAB SHOP, THAT YOU HAVE A HOLD TAG ON. ON SWING 6-27-84 ONE OF THE NEW HIRES WAS CUTTING BASE PLATES FOR: PULLMAN MATERIAL STORAGE AREA STANDS. HE LOCATED THE PLATE IN THE SCRAP STORAGE AREA, THE PLATE HE GOT WAS PLATE THAT HAD LOST TRACEABILITY NO POS HTS STAMPS ETC. THE FOREMAN HAS HAD A TALK TO HIM AND, TOLD HIM HE SHOULD HAVE WRITTEN CONSTRUCTION AID OR SCRAP ON THEM, HOPE THIS HELPS YOU ~~~~ SO IT DOES NOT HAVE TO GO ~~ANY~~ FURTHER.

JOHN EDGETON

FOR INFORMATION ONLY

5946

INTEROFFICE CORRESPONDENCE

EXHIBIT 3

DATE July 21, 1984

TO PPP Superintendents

FROM Paul Mokry

SUBJECT Craft STPR's on DR 5946

Discuss with your Craft about flow meters and their proper use. Cover the information contained on the attached sheet.

After this information has been discussed, the Superintendents are to sign the memo and attached training sheet and return to Carolee at Trailer 61 or return to Tim Roberts box in the Main Office. Please do not return with the daily time sheets as this will cause unnecessary delay in the processing of the DCN's and DR's.

Paul Mokry

Paul Mokry,
General Construction Superintendent

M. Andrews
D. Buhanan
J. Callahan
J. Rowley
C. Borra
R. Martin
P. Impastato
L. Longo
S. Tucker
T. Justen
J. Williams
B. Madron
H. Reed
E. Jorden
C. Bolinger
B. Parmley
L. Bailes

5946

TRAINING SHEET

NATURE OF INSTRUCTION: _____

DATE: _____

TIME: _____ INSTRUCTOR: _____

ATTENDED BY:

1. Steven Mallow
2. Lowell Wolford
3. Kenneth Walston #1301
4. Dale Andrews #946
5. Lloyd D. Lodge 2408
6. David Jones 2811
7. L. Rhoads #30
8. L. Waites 261
9. Delbert Johnson 1728
10. Roger Dixon 347
11. [illegible] 3607
12. Wolf Brand 2158
13. Curtis Hayes 2978
14. Rick Johnston 2716
15. [illegible] 2303
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____
37. _____
38. _____
39. _____
40. _____

PG&E GAS TRANSMISSION — NATIONAL POWER PRODUCTS

QUALITY CONTROL DISCREPANCY REPORT

D.R. No. 5946
Loc. No. [illegible]
Unit No. 1
Code No. 1
Hold Tag ____ (Yes) ____ (No)

REVIEWED
T. Ellis
DATE 7/14/84

Rejected 7-12-84

Bldg. & Dist. & Eng. # ____ Welding ____ Date ____
Line Diablo Canyon Job No. ____ Test ____ Inspector Webster Veach

Title: Improper Use of Flowmeters — Spec. No. 96-000

EXPLANATION OF DISCREPANCY:

During weld monitoring, the following conditions were noted:

1. Flowmeters were in use which are not permitted in ESD-213 and ESD-219. These ESDs permit only the Linde L-32 (20 psi inlet type). The following additional devices are in use:

   A. Linde L-32 (50 psi inlet) - This device is identical to the L-32 (20 psi inlet) except it is designed for an inlet pressure of 50 psi.

   B. Victor FM 371: This device is similar in appearance to the Linde L-32. It is designed for an inlet pressure of 25 psi.

Continued - Page 2

RECOMMENDED DISPOSITION: INDICATE APPROVAL BY CIRCLING THE APPROPRIATE "RECOMMENDED DISPOSITION"

X A) Revise ESD-213 & ESD-219 to permit the use of the additional types of flowmeters.
B) Revise ESD-213 to delete regulator calibration requirements.

X A) Withdraw all types of flowmeters from use which are not permitted in ESD-213 and ESD-219.
B) Revise ESD-213 to delete regulator calibration requirements;

OR

(3) PG&E to disposition.

7/15/84 ACCEPT AS IS: REVISE ESD 213 & 219 AS DIRECTED BY UNIT II DR #8697. (SEE MEMO FROM J. MILLER TO K. MEREDITH / G. THOMAS DATED 7-10-84. CLOSE DR UPON SUBMITTAL OF REVISED ESD'S TO PGCE FOR REVIEW & APPROVAL.

Signed By Field C.A. Mgr. [signature] Date 6/20/84 — 7/2/84 Customer [signature] Date 7-14-84

FINAL DISPOSITION: ☐ In Accordance With Above ☐ Other (explanation and approval required)
Work Completed Insp: ____ Date: ____ Work Completed Insp: ____ Date: ____

EXPLANATION IF NECESSARY: Added statement on page 2 per PG&E request. [signature] 7-12-84

Field C.A. Manager ____ Date ____ Customer ____ Date ____

ACTION TO PREVENT RECURRENCE ☐ Not Applicable

RAFT

QC weld monitoring to be instructed to monitor for flowmeter conformance.

7/3/84

Add'l Material Info (if any) Attached (attached) CRW 7-16-84 Field C.A. Manager [signature] Date [signature] KE

DISTRIBUTION: Σ Master C.A. File Σ Auth. Insp. Σ Engineering Dept. ☐ Other ____
X Customer ☐ Receiving ☐ Field Inspector ____

FOLLOW-UP ACTION NECESSARY

ORIGINAL

DR NO 5946 Page 2
ISC NO. N/A
UNIT NO. 1
CODE NO. 1

Pacific Gas & Electric — SPEC. NO: 8711 — DATE 6/25/84 Completed 7/12/84
Diablo Canyon — JOB NO. 7177 — INSPECTOR Meadows/Healy

EXPLANATION OF Discrepancy (Continued from Page 1)

C. Victor HRF 2325: This is a similar flowmeter with a built-in pressure regulator.

D. Victor AF 250: This is a regulator with the low pressure gauge graduated in CFH. This device is not a true flowmeter.

All of the flowmeters will accurately measure gas flow rates provided proper inlet pressures are used. The AF 250 will be accurate if the outflow of gas is not restricted.

2. L-32 and Victor flowmeters were being used with the AF 250 regulator. Neither device will read accurately in this instance. It is impossible to determine the inlet pressure to the L-32 or Victor flowmeter. While the flowmeter will restrict the gas flow from the AF 250, ESD-219 does not permit this combination.

3. An L-32 (50 psi inlet type) was being used with an inlet pressure of 15 psi. This is a violation fo ESD-219. This same flowmeter was set at 15 CFH, a violation of the WPS. The WPS requires 20 CFH.

4. Regulators were not calibrated as is required in ESD-213.

Added at PG&E request:

The condutions observed occurred on 6-4-84 in Unit II and the Area 10 Fab Shop. (C. Aguedo 7-12-84) L.L.E. 7/12/84

1058-070

TO: BURNHAM EXHIBIT 4

FROM: P STIEGER

DATE: 7-24-84

This DCN/DR is issued for your STEPS TO PREVENT RECURRENCE only. Do NOT use this document to perform any work. Use [illegible] training record form to document STPR.

This DCN must be completed promptly and correctly with adequate documentation. Return to me by ASAP - tim Roberts Box IN M.O.

train cell area 10
Fab Step Personnel

Paul L Stieger

7. _____ 27. _____
8. _____ 28. _____
9. _____ 29. _____
10. _____ 30. _____
11. _____ 31. _____
12. _____ 32. _____
13. _____ 33. _____
14. _____ 34. _____
15. _____ 35. NOT APPLICABLE
16. _____ 36. _____
17. _____ 37. _____
18. _____ 38. _____
19. _____ 39. _____
20. _____ 40. _____

DEFICIENT CONDITION CLOSED: | DATE | SIGNATURE:

1058-070

TRAINING SHEET

NATURE OF INSTRUCTION: ESD 243 Par 5.2

DATE: 7-24-84

TIME: _____ INSTRUCTOR: Buchanan

ATTENDED BY:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____
37. _____
38. _____
39. _____
40. _____

ORIGINAL

SULLIVAN POWER PROJECT
REJECTION NOTICE

NO TEST PKG.

UNIT #	AREA	ELEV..	COL/LINE	DATE:	NOTICE NO.
II	CONT	VARIOUS		7-12-84	1058-070

DEFICIENT CONDITION: DURING CUTTING OF CRUSHABLE BUMPERS TO DESIGN LENGTHS PER DC 2-EC-22616 Δ CRAFT CUT BUMPERS SHORT (REF ATTACHED LIST OF APPLICABLE RESTRAINTS AND ACTUAL CUT LENGTHS).
NOTE: DG # 2240 DATED 6-27-84 ADDRESSED THIS PROBLEM AND PG&E EVALUATION STATED THAT THE SHORT LENGTHS WERE ACCEPTABLE.

ORIGINATOR'S SIGNATURE:

HOLD TAG APPLIED:	TAG #	INITIALS	DATE
NO	N/A	N/A	N/A

RECOMMENDED DISPOSITION:

TCR (1.) ACCEPT AS IS PER DG # 2240 DATED 6/27/84 PER E EVALUATION WAS ACCEPTABLE.

(OR)

2. PG&E TO DISPOSITION

FIELD ENGINEER 7/31/84

FIELD/QC INSPECTOR D. Mayes

CHIEF ENGINEER S.K. Todd C. Ray 7/30/84

LEVEL III William K

FIELD QA/QC MANAGER William K

FIELD QA/QC MANAGERS EVALUATION: ☐ APPROVED AS RECOMMENDED ☐ OTHER

☐ NON-CONFORMANCE - D.R.# _____

☐ REPAIR ORDER

☐ REWORK/REINSPECT

☐ INTERNAL AUDIT

☒ OTHER THIS DCN

COMMENTS:

CONTROLLED COPY

CAUSE CODE 3

DATE 7/20/84 FIELD QA/QC MANAGER William K

CORRECTIVE ACTION REQUIRED BY: NOT LATER THAN:

STEPS TO PREVENT RECURRENCE: ☐ NOT APPLICABLE

CRAFT SUPERVISOR TO ASSURE RESPONSIBLE PERSONNEL ARE INSTRUCTED TO APPLICABLE REQUIREMENTS AND PROCEDURES, IN PARTICULAR ESD-243 PARA 5.2 7-20-84

FOR CRAFT STPR'S

RESPONSIBLE SUPERVISOR DATE 7/20/84 FIELD QA/QC MANAGER William K

DEFICIENT CONDITION CLOSED: DATE SIGNATURE:

CRUSHABLE BUMPERS
CUT SHORT

DC-2-EC-22616 △1

RESTRAINT	BUMPER	DESIGN LENGTH	CUT LENGTH
2-1 RR	E	8 5/16"	8 1/8"
5-11 RR	4	6 3/8"	6 5/16"
6-1 RR	4	6 1/4"	6 1/8"
6-1 RR	E	9 3/16"	9 1/16"
2046 ERT	7	3 9/16"	3 1/2"

AFFIDAVIT

My name is Timothy J. O'Neill. I am submitting this statement freely and voluntarily to Mr. Thomas Devine, who is my counsel for disclosures to the U.S. Nuclear Regulatory Commission (NRC). This affidavit is to rebut false statements by Pacific Gas and Electric Company (PG&E) and the Bechtel Corporation in response to my July 27, 1984 affidavit and petition under 10 CFR 2.206 regarding the Diablo Canyon Nuclear Power Plant. Although the statements by PG&E/Bechtel defenses may not have been false statements to the government, they were made in a public forum and these false statements to the public should become part of the record for licensing. Confidence in the public statements of the utility is of paramount importance in the event of any type of accident, therefore the public must be able to rely on the utility to tell the truth. This statement also is to offer my consent for Mr. James McDermott to join me as a co-petitioner in my July 27, 1984 filing with the NRC.

I. WELDED STUDS

1. On Friday, June 27, 1984, Bechtel representative Howard Friend asserted that management has investigated the issue of ASTM A-307 bolts used as welded studs "ad nauseum". (See July 28, 1984 San Francisco Chronicle article, enclosed as Exhibit 1). To date, I have not received a documented response as to the acceptability of this material for the intended application. In January, 1984, when I

first reported this issue on-site in a quality-assurance (QA) Discrepancy Report (DR), Pullman Power Products QA/QC Manager Harold Karner censored the report to delete any references to ASTM A-307 material. He did not refute my findings or defend his decision on the record. Instead of investigating the problem, in this case the problem vanished. My original DR and the censored version by Pullman are included as Exhibits 2 and 3, respectively.

2. On Friday, July 27, 1984, Mr. Friend also said the site engineers agreed that there was no substance to my complaints. This conflicts with a May 31, 1984 internal Pullman memorandum by Harold Karner, which stated that the use of A-307 bolts with the heads cut off as welded studs was NOT (emphasis in original) acceptable. This memo was issued in response to yet another discrepancy report written over the use of improper materials as welded studs. The May 31, 1984 memorandum is enclosed as Exhibit 4. One of the individuals that participated in writing the memo was Chris Neary, Pullman's corporate welding engineer. In a July 5, 1984, affidavit to the Atomic Safety and Licensing Appeals Board (Exhibit 5), Karner again changed his story and said there was no technical basis for his May 31, 1984 memorandum. The technical basis was summarized in my report of January 13, 1984, as the use of this material is not permitted without a welding procedure qual-

ification test performed. Furthermore, Exhibit 6 is included to show current requirements for weldable A-307 bolt materials. Note the supplemental section for weldable bolt materials, and the restrictions on these materials as compared to chemistry and QA requirements for general bolt grade material. The additional requirements are in agreement with sound welding engineering fundamentals.

3. On July 27, 1984, Mr. Friend also asserted that the NRC had agreed with Bechtel and PG&E over this issue. If that was true, why did the Atomic Safety and Licensing Appeals Board hold up the licensing decision on July 6, 1984, until this issue was resolved? (See the Appeal's Board decision, enclosed as Exhibit 7, at pages 10-11.)

II. PG&E RESPONSES TO MY CONCERNS

4. In the Los Angeles Times, a PG&E spokesperson stated that the company has "bent over backwards for this guy. We have had meetings with him to be sure we understood his concerns". (The Times article is included as Exhibit 8) Although PG&E did meet with me, the context of these meetings was not constructive discussion and understanding. For example, in a July, 1984 meeting with PG&E QC Supervisor Ron Hobgood, the discussion turned into an attack by Hobgood on my qualifications to question PG&E. This meeting was called to discuss my complaints of harassment

REPORTED TO PG+E

by Pullman QC management via the Quality Hotline, which Hobgood supervises. This harassment complaint was in reference to an insubordination warning notice I received on June 30, 1984 for questioning discrepancy reporting priority. Hobgood stated he was consulted prior to the warning being issued by Pullman, and now the man was investigating my complaints of harassment. This seems to me to be a direct conflict of interest, and thus explains the position taken by Hobgood throughout the meeting. Hobgood used words such as inflexible, uncooperative, and unreasonable to describe me as an employee. His comments could hardly be taken in a spirit of cooperativeness. At one point, in reference to a letter I wrote over scrapping perfectly good material, I was asked in a demeaning tone, "How does it feel to be the eyes and ears of the public?" In a meeting on June 12, 1984 with PG&E special projects engineer D. Rockwell, I voiced my concerns over an operation where I thought no procedure existed. I was given a procedure with a revision date of June 5, 1984, and told that this procedure covered the condition identified in late February. The prior revision of the procedure showed that it did not. In my dealings with PG&E, the Quality Hotline person on duty made a valid attempt to move the concerns up the managerial ladder, however the higher they got, the more uncooperative and hostile PG&E became.

5. In the Los Angeles Times, PG&E also said they had investigated my concerns and that they were wrong. A good

example of their "investigative findings" is the previously-stated meeting with D. Rockwell on June 12, 1984. PG&E's answer to my reports of drilling without procedures for pipe support layout was to tell me that the operation was controlled by procedure. Unfortunately, the revision date on the procedure was five days prior to the meeting, and approximately four months after the report on uncontrolled drilling. This is included as Exhibit 9. In this meeting I also questioned the installation of expansion anchors in place of grout designed to fill voids in concrete. PG&E stated they would investigate and respond at a later time. When I asked that they respond in writing, this was termed a "demand" in Mr. Rockwell's June 14, 1984 affidavit written as a result of the meeting and previously submitted before the Board. I do not feel a written reply is an unreasonable request, although PG&E has yet to supply anything but a verbal respose that "there are no problems".

6. In the Los Angeles Times, PG&E stated that I was never discouraged from writing QA reports. That is a grossly false statement. I was discouraged from writing reports so many times that I lost count. This was a Pullman QC management directive, that work in-process did not require a report if deficiencies were noted, however this directive directly conflicted with the written procedure for such reporting that stated a report was required. I was reprimanded by both Pullman and PG&E for not realizing the "intent" of the

written procedures. I cannot work to intent, I can only work to the letter of a written procedure.

III. HARASSMENT

7. In the San Luis Obispo Telegram-Tribune, PG&E said I was hit with water from a paper drinking cup, rather than from a fire extinguisher. This article is enclosed as Exhibit 10. Information that I received confirms this as a direct lie, and demonstrates that PG&E's only intent is to cover up instances of harassment, rather than stop them. It is interesting that this explanation was not offered until I went public with my petition. If their story were true, why didn't they explain it to me at the time, rather than xeroxing my letter describing the act as harassment and distributing it to the construction workers involved? If anything at Diablo Canyon has become ad nauseum, it is PG&E's denials that there are any problems.

I have read the above 6 page affidavit, and it is true, accurate, and complete to the best of my knowledge and belief.

Timothy J. O'Neill

OFFICIAL SEAL
WILLIAM C MORLEY
NOTARY PUBLIC - CALIFORNIA
SAN LUIS OBISPO COUNTY
My comm. expires SEP 23, 1985

750 Morro Bay Boulevard, Morro Bay, CA 93442

San Francisco Chronicle — Saturday, July 28, 1984 — 2

PG&E, Bechtel Take on Critic

Surprise Debate Over Diablo Canyon

By Charles Petit
Science Correspondent

Pacific Gas & Electric Co. officials and a Bechtel engineer made a surprise, angry appearance yesterday at a press conference called by a "whistle-blower" inspector who quit at the Diablo Canyon nuclear plant Tuesday.

They showed up to present a rebuttal to charges made by Timothy J. O'Neill, 27, an inspector who worked for a subcontractor installing piping mounts in the $4.9 billion plant until he resigned.

The utility officials told reporters gathered to hear O'Neill's case at the San Francisco Press Club that they have already reviewed "ad nauseam" his charges of substandard construction.

The charges, coming less than a week before the Nuclear Regulatory Commission is scheduled to decide whether the plant may be turned up to full power, are "old news," the utility officials said.

They said the charges are part of a broad strategy by nuclear foes to "slow down and stop the industry" by any means. One PG&E representative said legal interveners against nuclear plants have turned last-minute allegations into a "near art form."

Richard Davin, a PG&E public information officer, said his company decided to show up at the anti-nuclear press conference because "we're frankly getting just a little tired of this, and we're not going to take it on the chin any more without responding."

TIMOTHY J. O'NEILL
He said the plant is unsafe

BECHTEL'S HOWARD FRIEND
He dismissed O'Neill's charges

The utility officials sat in the back row while O'Neill, flanked by lawyers for a Washington-based anti-nuclear activist organization, the Government Accountability Project, detailed charges that PG&E workers harassed him while on the job and frustrated his efforts to report substandard workmanship.

The Government Accountability Project has used O'Neill's charges to support a petition asking the Nuclear Regulatory Commission to delay a decision, expected Thursday, on whether to give the troubled plant a final license to operate at full power.

O'Neill, until Tuesday an employee of Pullman Power Products Co., said workers at the plant earlier this year sprayed him with a fire extinguisher, and that he heard workmen tell each other that a ".44 magnum to the back" — an apparent reference to a handgun — would end his complaints.

The company, he added, "did not take adequate steps to inform all workers that harassment of inspectors is a violation of federal law."

O'Neill, who admits he has a reputation as a "nitpicker," said that "I have a policy of holding them (workmen) to the letter of a procedure."

He said that his previous experience overseeing manufacture of components used in the Navy's nuclear-powered ships "taught me that you do it by the book, or you're fired," and he said similar high standards "just aren't enforced at Diablo Canyon."

The Government Accountability Project petition based on his charges alleges 14 specific instances where proper procedures were not followed.

O'Neill said that one of the most serious is use of threaded steel studs to anchor emergency water spray pipes in the reactor containment building. The studs, he said, were welded from bolts not authorized for such use and might be too brittle to withstand earthquake stress.

Howard Friend, a Bechtel industries completion manager for Diablo Canyon, dismissed O'Neill's charges.

"The stud problem has been investigated ad nauseam by PG&E, by our metallurgists and our engineers, and the NRC has reviewed everything we have done and agrees." He said flatly, "there is nothing substantive about these complaints."

He added, "If anybody thinks that PG&E would spend the amount of money that we have on this plant, and then would shortchange on bolts — well, it just doesn't make sense."

Steven Skidmore, the PG&E manager for quality assurance in nuclear operation, also said that O'Neill had not exhausted in-house channels for making his reservations known. The complaints, after lower-level PG&E managers had rejected them, could have been taken higher up "but Mr. O'Neill did not do that."

The water-dousing incident had also been investigated, and PG&E claimed it was just "horseplay" in which O'Neill was not a target and was accidentally splashed.

If the attempts by plant opponents do not succeed in delaying the permit decision, or in getting an appeals court order blocking the permit, Diablo Canyon electricity could begin flowing to Pacific Gas and Electric Co. customers by the end of August.

And, within two to three months, the steady buildup of power from the reactor's core could be complete, with the plant generating its full 1084-megawatt capacity.

PG&E — which has been bedeviled by nuclear power critics, discovery of a nearby active earthquake fault and a diagram fiasco during construction — filed its first permit request for the plant nearly 18 years ago.

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

Pullman Power Products

D.R. No. _____
Iss. No. _____
Unit No. ONE AND TWO
Code No. _____
Hold Tag _____ (yes) X (no)

DISCREPANCY REPORT

CUSTOMER Pacific Gas & Electric SPEC. NO. _____ DATE JANUARY 13, 1984
PROJECT Diablo Canyon JOB NO. _____ INSPECTOR O'NEILL

DISCREPANT ITEM: NONCONFORMANCE TO ASME II-77 AND AWS D1.1-82 MATERIAL AND PROCEDURE REQUIREMENTS FOR WELDED STUDS.

EXPLANATION OF DISCREPANCY: WHILE RESEARCHING WAREHOUSE COPIES OF FIELD WAREHOUSE REQUISITIONS FOR PIPING QA, INSPECTOR BECAME AWARE OF THE FOLLOWING NONCONFORMANCES TO ASME IX-77 AND AWS D1.1-82 FOR WELDING STUDS TO THE CONTAINMENT LINERS (SYSTEM 12), AND UPON FURTHER RESEARCH FOR WELDED STUDS IN GENERAL USING ASTM A-325, A-307, AND A-108 ATTACHMENTS.

ASTM A-325, A-307, AND A-108 ARE WELDED IN A MANNER THAT DEVIATES FROM THE ABOVE-REFERENCED CODES AND PG&E APPROVED WELDING PROCEDURES 7/8 AND 203. THESE PROCEDURES ARE QUALIFIED TO WELD P1 MATERIAL TO P1 MATERIAL IN ACCORDANCE WITH ASME IX-77. ASTM A-325, A-307 AND A-108 ARE NOT REFERENCED IN ASME-IX-77 AS P1 MATERIALS, THEREFORE WELDING OF THESE MATERIALS REQUIRES A QUALIFIED WELDING PROCEDURE PRIOR TO FABRICATION. PULLMAN POWER PRODUCTS HAS NO

RECOMMENDED DISPOSITION: INDICATE APPROVAL BY SIGNATURE OF THE APPROPRIATE RECOMMENDED DISPOSITION

1) REWORK
2) REPAIR
3) REJECT
4) USE AS IS (ACCEPT AS IS)

EXHIBIT 2

Approved By A.P.P. Field Q.A. Mgr. _____ Date _____ Customer _____ Date _____

FINAL DISPOSITION: ☐ In Accordance With Above ☐ Other explained on the reverse (required)

Work Completed Insp. _____ Date: _____ Work Completed Insp. _____ Date: _____

EXPLANATION IF NECESSARY

Final Q.A. Mgr. _____ Date _____ Customer _____ Date _____

CONCURRENCE OF CLIENT REPRESENTATIVE ☐ Not required

DISTRIBUTION
☐ Mfg. Q.A. File ☐ Mfg. Engr. ☐ Estimating Dept. ☐ Other _____
☐ Customer ☐ Planning ☐ Field Inspector _____

FINAL DISPOSITION IF NECESSARY

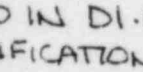
NONCONFORMANCE TO ASME IX-77 AND AWS D1.1-82 MATERIAL AND PROCEDURE REQUIREMENTS FOR WELDED STUDS.

DR # _____

INSP: O'NEILL

DATE: JANUARY 13, 1984

WELDING PROCEDURE QUALIFIED IN ACCORDANCE WITH ASME IX TO WELD A-325, A-307, AND A-108 ATTACHMENTS TO P1 MATERIALS

IN CASES WHERE WELDING IS REFERENCED TO AWS D1.1-82 PREQUALIFIED WELDING PROCEDURES THE ABOVE-REFERENCED MATERIALS ARE NONCONFORMING AS A-325, A-307, AND A-108 ARE NOT LISTED AS PREQUALIFIED MATERIALS PER ANY EDITION OF AWS D1.1 STRUCTURAL WELDING CODE, SECTION 8.2.1 OR 9.2.1. IN ADDITION, THE USE OF EXISTING ASME IX-77 QUALIFIED WELDING PROCEDURE SPECIFICATIONS 7/8 AND 203 DO NOT ADEQUATELY MEET THE REQUIREMENTS FOR AWS PREQUALIFIED WELDING PROCEDURE SPECIFICATIONS REFERENCED IN D1.1-82 5.1.2 AND 2.9.1 B-U5a AS THESE WELDING PROCEDURE SPECIFICATIONS HAVE NO APPROVAL TO ALLOW TWO-SIDED WELDING USING THE FOLLOWING SYMBOL  . IN ADDITION TO THIS, THE JOINT TOLERANCE FOR BEVEL ANGLE OF 45°+25°-5° IS NONCONFORMING TO THE PREQUALIFIED D1.1-82 2.9.1 B-U5a REQUIREMENTS.

ASTM A-307, BY SPECIFICATION, HAS NO CHEMISTRY LIMITATION FOR CARBON AND NO REQUIREMENT FOR HEAT TRACEABILITY; THEREFORE JOINTS MADE WITH REFERENCED PROCEDURES USING A-307 FASTENERS ARE INDETERMINATE AS TO WELD QUALITY. A-307 STATES THAT WHEN PURCHASED FOR WELDED APPLICATIONS, A-36 MATERIAL MUST BE ESPECIFIED. P.O. RESEARCH FOR THIS MATERIAL SHOWS NO SUCH SPECIFICATION.

A-325 MATERIAL IS, BY SPECIFICATION, A HIGH-STRENGTH FASTENER AND THE ALLOWABLE CARBON IN THIS MATERIAL WARRANTS SPECIAL WELDING CONSIDERATIONS SUCH AS PREHEAT AND PWHT TO ENSURE NOTCH TOUGHNESS IN THE FINAL WELDED JOINT. FURTHER INVESTIGATION WILL SHOW, IN SOME CASES, THAT A-325 AND A-307 BOLTS ARE USED TO FABRICATE WELD STUDS BY CUTTING THE HEAD OFF THE BOLT. ALL INSTALLATIONS OF THIS TYPE ARE QUALITY INDETERMINATE AS THE MATERIAL WAS PURCHASED FOR AN APPLICATION OTHER THAN WELDING.

ASTM A-108 MATERIAL IS ESSENTIALLY OF P1 CHEMISTRY, HOWEVER THIS DOES NOT PRECLUDE THE REQUIREMENT FOR PROCEDURE QUALIFICATION AS APPLICABLE TO ASME IX-77 OR AWS D1.1-82.

THE ATTACHED COPIES OF FIELD WAREHOUSE REQUISITIONS DOCUMENT THE USE OF THESE NONCONFORMING MATERIALS ON COMPONENT SUPPORTS FOR SYSTEMS 14 (COMPONENT COOLING WATER), 12 (CONTAINMENT SPRAY), 10 (RESIDUAL HEAT REMOVAL), 09 (SAFETY INJECTION SYSTEM), 08 (CHEMICAL AND VOLUME CONTROL), AND 07 (REACTOR COOLANT), IN BOTH UNIT ONE AND UNIT TWO. THESE EXAMPLES ARE TO BE CONSIDERED TYPICAL, AND A THOROUGH EVALUATION OF ALL SUPPORTS MAY BE NECESSARY TO DETERMINE ALL LOCATIONS WHERE THE ABOVE NOTED NONCONFORMING MATERIALS AND PROCEDURES WERE USED.

SIGNED: [signature] O'Neill 1/13/84

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

ITEM 1-14 LINE SPEC. 1-K2 DATE 3-7-83

NO. NA DETAIL DWG. NO 049266 DDR. NO. NA ACT. NO. 7177 PAGE NO. ____ OF ____

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
4	4	5/8" Ø X 2 3/4" Long Threaded weld studs	6782	B	
		A325 C.S.			
		CLASS 1 HNG-5-7N-1G			
		FW NA			

Weld's area 140 — DELIVER TO AREA — Roland Reed — FOREMEN — A R Hardee 1078 — Q.A. APPROVED

[illegible] — ISSUED BY — [illegible] — APPROVAL — [illegible] #439 — FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

Pullman Power Products

Division of Pullman Incorporated

8.2 (05-78)

FIELD WAREHOUSE REQUISITION

ITEM 1-14 LINE SPEC. 1-K2 DATE 3-7-83

NO. NA DETAIL DWG. NO 049266 DDR. NO. NA ACT. NO. 7177 PAGE NO. ____ OF ____

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
6	6	5/8" Ø X 2" Long Threaded weld stud	6782	B	
		A 325 C.S.			
		Issued 5/8" X 2 3/4" Lg. Bolt A325			
		CLASS 1 HNG-5-7N-1C			
		FW NA			

Weld's area 140 — DELIVER TO AREA — Roland Reed — FOREMEN — Fred Ramp 3-7-83 — Q.A. APPROVED

[illegible] — ISSUED BY — [illegible] — APPROVAL — [illegible] — FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

Hgr. # 43/6G

8.2 (05-78)

Pullman Power Products

Division of Pullman Incorporated

FIELD WAREHOUSE REQUISITION

ITEM 1-14 LINE SPEC. L-K2-317-12-B DATE 3-22-83

NO. 049255 DETAIL DWG. NO 500043 DDR. NO _____ ACT. NO 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO
10	10	5/8" Ø x 0'-2" lg. Bolts A 325 Issued @ 2 3/4" lg. (weld studs, Heads to be cut in field)	6992	B	
10	10	Hex Nuts A 194 2H w/ Washers	7543	J	
		→	11716	C	
		Class I Hgr.			

I RW Lowe G.A. Fred Bauer 3-24-83

LIVER TO AREA FOREMEN Q. A. APPROVED

CD BY John Rogers

G. APPROVAL FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

73/40SL

Pullman Power Products

8.2 (05-78)

FIELD WAREHOUSE REQUISITION

ITEM 2-12 LINE SPEC. 2-53-326-B B1 DATE 3-28-83

NO. _____ DETAIL DWG. NO 500908 DDR. NO _____ ACT. NO 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO
(E)	0	1/2" ¢ x 1 1/2" LG (MIN) THREADED WELDING STUD CS A 307 GRADE B			
6	6	Issued 1/2 x 2 A-307 Cap Screws to be Cut in field.	11117	G	
		Class I Hgr. MAT			

17 Held Hgr. Rec. for Insp.

LIVER TO AREA FOREMEN

CD BY C. Cancer

G. APPROVAL

Fred Lowe 3-29-83

Q. A. APPROVED

FILLED BY

8.2 (05-78)

Pullman Power Products

Division of Pullman Incorporated

FIELD WAREHOUSE REQUISITION

S EM 1-14 LINE SPEC. 1-K2-314-12 DATE 3-16-83

) NO. N/A DETAIL DWG. NO 049266 DDR NO N/A ACT NO 7177 PAGE NO. ____ OF ____

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO
12	12	5/8" ∅ X 2 3/4 Long ~~Hex Head Pattern Std~~ (BOLTS-SHEAR HEADS) SD C.S A-325	6932	B	
12	12	5/8" Hex Nuts and Washers A194 2H	11024	E	
		→	11716	C	
		CLASS I Hanger #59N1/2G			

Mark S. Williams — Fred Bauer 3-17-83

LIVER TO AREA FOREMEN Q. A. APPROVED

C.D. BY

G. APPROVAL FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

Hgr. # 43-86

8.2 (05-78).

Pullman Power Products

Division of Pullman Incorporated

FIELD WAREHOUSE REQUISITION

STEM 1-14 LINE SPEC. 1-K2-318-12B DATE 3-26-83

NO. 049255 DETAIL DWG. NO. 500043 DDR NO. ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
10	9	5/8" Ø x 0'-2¾ Lg. Bolts c.s. A 325 (weld studs, Heads to be cut in field).	7523	C	
0	9	⅝ Hex Nuts A 194 2H (c.s.) W/washers.	7523	C	
		Class I Hgr. Mat.			

Unit T — Bob Fraser Jr. — Fred Bauer 3-28-83

DELIVER TO AREA — FOREMEN — Q. A. APPROVED

RECD. BY — Richardson — Fred Bauer #039

ING. APPROVAL — FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

3.2 (05-78)

Pullman Power Products
Division of Pullman Incorporated

FIELD WAREHOUSE REQUISITION

59N/36

ITEM 14 LINE SPEC. 1-1C2 315/320-12 [B] DATE 3-21-83

O NO. N/A DETAIL DWG. NO. 04266 DDR NO. N/A ACT. NO. 7177 PAGE NO. ____ OF ____

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
		(2nd) 3/21/83			
10	10	5/8" ϕ Nelson Weld Studs threaded C/S A307 Gr B	9185	A	
10	10	5/8" ϕ Nuts. A194 2H.	10906	B	
10	10	5/8" ϕ Washers A325	11716	C	
		class I. Hgr.			

LIVER TO AREA K P L FOREMEN Marshall 1685 Q. A. APPROVED Don Bice 3-21-83

CD BY Cindi A. Fledderman 3/21/83 G. APPROVAL Cindi A. Fledderman FILLED BY [illegible] 3/21

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

59N/46

ITEM 14 LINE SPEC. 1-1C2 315/320-12 [B] DATE 3-21-83

NO. N/A DETAIL DWG. NO. ____ DDR NO. ____ ACT. NO. 7177 PAGE NO. ____ OF ____

ANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
		(2nd) 3/21/83			
10	10	5/8" ϕ Nelson Weld Studs threaded C/S A307 Gr B	9185	A	
10	10	5/8" ϕ Nuts A-194-2H.	10906	B	
10	10	5/8" ϕ Washers A325	11716	C	
		Class I. Hgr.			

LIVER TO AREA [illegible] FOREMEN Blackaff 1685 Q. A. APPROVED Don Bice 3-21-83

CD BY Cindi A. Fledderman 3/21/83 G. APPROVAL [illegible] FILLED BY [illegible] 3-21-83

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

2 IP / 91 Hr. #3

STEM 07 LINE SPEC. S6-63-1 DATE 6-1-83

O NO. N/A DETAIL DWG. NO 502730 DDR. NO — ACT. NO 7177 PAGE NO. — OF —

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
4	4	½"Ø x 1½" WELD STUDS - A307 grade B CS	11553	A	
4	4	HEX NUTS ½"Ø C.S. A194-2H	11906	A	
2	0	LOCK NUTS ½"Ø HEX C.S. A194 2H			
	Bal	CLASS I HANGER MATL			

3 140' Tubes w/Side Tony Bennett Don Bice 6-2-83

ER TO AREA FOREMEN Q. A. APPROVED

C'D. BY

G. APPROVAL FILLED BY 7/3 Iverson 6-2-83

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

70/44 SL-1 PR. 1

STEM 2.14 LINE SPEC. 2-KM1-2313-3 1C DATE 6-2-83

O NO. DETAIL DWG. NO 051394 DDR. NO — ACT. NO 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
4	4	5/8" Ø 2½" LONG THREADED WELDING STUD	9185	A	
4	4	5/8" HEAVY NUT A-194 2H	11024	E	
4	4	5/8" WASHERS A-325	111716	C	
		CLASS 1 HANGER			

Dan Hess 7204 Vern Anderson 6-3-83

ELIVER TO AREA FOREMEN Q. A. APPROVED

E D BY

NG APPROVAL G. DILLON FILLED BY 7/ Iverson 6-3-83

8.2 (05-78)

Pullman Power Products

Cont I 176/188P

FIELD WAREHOUSE REQUISITION

STEM 1-12 LINE SPEC. 1-53-270-10-13 DATE 6-3-83

O. 500176 DETAIL DWG. NO SK-176-1384 DDR. NO ____ ACT. NO 7177 PAGE NO ____ OF ____

JANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
6	6	½" ϕ Threaded Welding STUDS 2½" Lg	12491	B	
	1	Nelson STUDSA-108			
6	6	½" Hex NUTS CS A194 2H	11906	A	
6	0	½" ½ Hex NUTS CS A194-2H			
		Class I Hanger Material			

LIVER TO AREA ____ FOREMEN G Lewis Q. A. APPROVED Vern Hoekman 6-3-83

CD. BY J Hutchins G. APPROVAL Michael D Thurman MIKE THURMAN FILLED BY Ell Byrd 6-3-83

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

F 8.2 (05-78)

Pullman Power Products

Priority 5/32-R (1)

FIELD WAREHOUSE REQUISITION

STEM 9 LINE SPEC. 2-56-255-10 SFL A1 DATE 6-6-83

O NO. 5/32R DETAIL DWG. NO 05734Q DDR. NO ____ ACT. NO 7177 PAGE NO ____ OF ____

NTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
6	6	7/8" X 0' 3" Lg. Threaded	9297	B	
		welding stud, ~~w/ Hex nuts~~ &			
		Manuf. from A 307 Gr. B Mat			
		Class I Hanger			

HELMO 120E ____ FOREMEN Don Bice 6-6-83 Q A APPROVED

ELIVER TO AREA Receiving

ECD BY J Hutchins G. APPROVAL ____ FILLED BY G.J Lewis 6-6-83

F 8.2 (05-78) Pullman Power Products COP/13

COLD HYDRO HGR. PR

FIELD WAREHOUSE REQUISITION

SYSTEM 1-09 LINE SPEC. 2-56-1993-1½ DATE 6/6/83

DETAIL
C NO. DWG. NO. 051409 DDR. NO. ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
8	8	½" ϕ THREADED WELDING STUDS 1½" LG	11553	A	
		~~A 36~~ ~~W/ NUTS & WASHERS (FLAT)~~			
		CLASS I HGR			
		~~CODE A~~			

DELIVER TO AREA P.U. FOREMEN J. Thomas

C'D. BY Ford D. Gregory

G. APPROVAL Michael R. Lee TECH

Q. A. APPROVED Don Bice 6-7-83

FILLED BY H. Swenson 6-7-83

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

2418 CONT II

8.2 (05-78)

Pullman Power Products

2199-27

FIELD WAREHOUSE REQUISITION

STEM 2-08 LINE SPEC. S2-1425-3" DATE 6-8-83

DETAIL
) NO. N.A DWG. NO. 2199-27 DDR. NO. N.A ACT. NO. 7177 PAGE NO. 1 OF 1

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
)-(2)		1/2" ϕ X 1' WELDED STUDS	10651	A	
		C.S - A 307 - GRADE B			
		ISSUED 1/2" X 1 1/2			
		CLASS I HANGER			
		2199-27			

-140' Ruel E Lyons A Geiger 6-8-83

LIVER TO AREA FOREMEN Q.A. APPROVED

CD BY Ron Fiske

G. APPROVAL FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

Pullman Power Products

8.2 (05-78)

FIELD WAREHOUSE REQUISITION

STEM 8 LINE SPEC. 2-56-246-3 DATE 6-8-83

DETAIL
) NO. DWG. NO. 051353 DDR. NO. ACT. NO. 7177 PAGE NO. 1 OF 1

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
2	0	5/8 X 1 3/4" LG THREADE WELDING			
		STUD ~~W/NUT~~ A 307 GRADE B			
2	2	3" ϕ PIPE CLAMPS FIG 212	B86	B	
		CLASS I HGR			

Frank McCord Don Bice 7-13-83

ELIVER TO AREA FOREMEN Q.A. APPROVED

ECD BY

William Grant 6/5/83 J Iverson 7-13-83

NG. APPROVAL FILLED BY

CONT - HGR # 78/282SL

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

STEM 07 LINE SPEC. 56-41-1 DATE 6-9-83

O NO. — DETAIL DWG. NO 78/282 SL DDR. NO — ACT. NO 7177 PAGE NO. 1 OF —

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
3 (6)		1/2" ϕ x 1 1/2" Lg WELD STUDS	10651	A	
		C.S. A307 GR B			
		CLASS I HGR MATL			
		HGR # 78-282 SL			

EB-140'-0' Robert Lyon

ELIVER TO AREA FOREMEN Q. A. APPROVED

ECD BY E. A. Moss W. L. Smith

NG. APPROVAL FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

Cont. I 176/125R

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

STEM 1-12 LINE SPEC. 1-53-270-10-B DATE 6-8-83

O NO 500176 DETAIL DWG. NO 3K176-125R DDR. NO — ACT. NO 7177 PAGE NO. — OF —

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
A5	13	Nelson Weld Studs 3 1/2" Lg A108	12491	A	
		Class I Hanger Material			

L Curtis

ELIVER TO AREA FOREMEN Q. A. APPROVED

ECD BY [illegible] 6-8-83

NG APPROVAL [illegible] 6-8-83 FILLED BY [illegible] 6-9-83

8.2 (05-78)

Pullman Power Products Cont I 176 125R

FIELD WAREHOUSE REQUISITION

STEM 1-12 LINE SPEC 1-53-270-10B DATE 6-9-83

NO. 500176 DETAIL DWG. NO SK176-125R DR. NO. ACT. NO 7177 PAGE NO. OF

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
32	32	W-Loop STUDS ½" ϕ - 3½" lg	12881	B	
		A307 GRB			
		Class I Forge Material			
		PO 12881			

G. Curtis FOREMEN Don Bice 6-10-83 Q. A. APPROVED

R TO AREA U.S. Varini

D. BY Doug Peck G. APPROVAL

7/ Swanson 6-10-83 FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

8.2 (05-78)

Pullman Power Products Cont I 176 125R

FIELD WAREHOUSE REQUISITION

STEM 1-12 LINE SPEC. 1-53-270-10B DATE 6-9-83

NO. 500176 DETAIL DWG. NO SK176-125R DR. NO. ACT. NO 7177 PAGE NO. OF

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
45	45	½" FLAT WASHER CS A325	11716	B	
45	45	HEAVY HEX NUT ½" CS A194 2H	11932	K	
45	0	½" ~~LOCK~~ NUTS CS A194 2H			
		Class I Forge Material			

G. Curtis FOREMEN Don Bice 6-9-83 Q. A. APPROVED

R TO AREA E. Pepo

D. BY Doug Peck G. APPROVAL

E. H. Bigelow 6-9-83 FILLED BY

WHITE COPY — Q.A.

3.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

STEM 12 CS LINE SPEC Cont. liner Weld Studs DATE 6-9-83

) NO. 501520 DETAIL DWG. NO NA DDR NO NA ACT. NO 7177 PAGE NO. 1 OF 1

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO	ITEM NO	HEAT NO
100	100	1/2" X 2 1/2" NELSON STUDS.	12491	B	
		GR 1010 — A 108.			
50	50	1/2" X 3 1/2" NELSON STUDS	12981	B	
		GR 1010 — A 108			
		TO BE STORED IN CLASS 1 STORAGE			
		CONT. #2 DOME BOD ROOM.			

VELASCO — Don Bice 6-9-83

LIVER TO AREA FOREMEN Q.A. APPROVED

CD. BY

G. APPROVAL FILLED BY 7:30 a.m. 6-9-83

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

2418

CONT 2
2199-27

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

STEM 2-08 LINE SPEC S2-1485-3/4" DATE 6-9-83

) NO. N/A DETAIL DWG. NO 2199-27 DDR NO N/A ACT. NO 7177 PAGE NO. 1 OF 1

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO	ITEM NO	HEAT NO
2(2)	2	1/2" ϕ X 1" LG WELDED STUDS			
		CS. A 307 GRB			
		ISSUED 1/2" X 1 1/2 L.G R.Z.			
		CLASS 1 HGR MATL			
		HGR # 2199-27			

TWR 120'-0" R. Geiger 6-10-83

ELIVER TO AREA FOREMEN Q.A. APPROVED

TED BY C.A. Moore

NG APPROVAL FILLED BY

Hgr. #46-11R

= 8.2 (05-78)

Pullman Power Products

Division of Pullman Incorporated

FIELD WA EHOUSE REQUISITION

YSTEM 1-7 LINE SPEC. 1-56-3488-3 SPL A DATE 8-17-83

O NC. DETAIL DWG. NO SK-46-11R DDR. NO ACT. NO 7177 PAGE NO. 1 OF 1

ANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
8	8	½" X 2½ NELSON Studs C.S. A ~~307 Gr B~~ 3135 1040-1020	13447	E	
8	8	½" Hex Nuts. C.S. A 194 2H W/ ~~WASHERS~~	12937	B	
8	8	½ WASHERS A-325	13244	A	
		Class I Hgr. Mat.			

Unit I 140' Elev. — Bill Kinder Sr.

ELIVER TO AREA FOREMEN

Q. A. APPROVED Don Bier 8-17-83

ECD. BY 9/17/83

NG. APPROVAL

T. J. Swenson 8-17-83

FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

9.2 (05-78)

Pullman Power Products Hgr # 22-3385C

FIELD WAREHOUSE REQUISITION

STEM 1-09 LINE SPEC. S6-524-3/4 DATE 7/11/83

NO ____ DETAIL DWG. NO. 502156 DDR. NO. ____ ACT. NO. 7177 - PAGE NO. 1 OF 1

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
4	4	1/2" ⌀ Weld studs 2 3/4 Lg CS A307 Gr B	12491	B	
	c	Class I Hanger Mat			

Fletcher — LIVER TO AREA

Mat Hall — FOREMEN

Vern Goodenough 7-11-83 — C. A. APPROVED

Lee Taylor

Lues Hadley — CC BY / G. APPROVAL

R. Geil 7-11-83 — FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

244/22K

8.2 (05-78)

Pullman Power Products
Division of Pullman Incorporated

FIELD WAREHOUSE REQUISITION

STEM 1-07 LINE SPEC. 1-S-1676-3/8 DATE 8-16-83

NO 100059 DETAIL DWG. NO. 049414 DDR. NO. ~~0005C~~ ACT. NO. 7174 PAGE NO. 1 OF 1

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO
4	4	1/2" X 2 1/2" Weld STUDS C.S. A-108 - GR 1010/1020	13447	E	
		CMTRS C-T HRG.			

ELIVER TO AREA

FOREMEN

Q.A. APPROVED 8-16-83

EC'D BY S. FOX 8-16-83

G APPROVAL

R.C. Achenbach 8-16-83

FILLED BY

8.2 (05-78)

HGR # 66/52

Pullman Power Products

FIELD WAREHOUSE REQUISITION

STEM 1-10 CONT- LINE SPEC. 56-3094-3/4" III [A] DATE 7-8-83

O NO. — DETAIL DWG. NO. 500066 DDR. NO. — ACT NO. 7177 PAGE NO. — OF —

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
4	4	1/2" ϕ X 1 1/2", C.S. WELD STUDS, GR. A307	11553	D	
		CLASS I HGR			

R. Pismenian FOREMEN — Don Bice 7-8-83 Q. A. APPROVED

R. Pismenian — T. Swenson 7-9-83 FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

8.2 (05-78)

MANGER # 46/11R

Pullman Power Products

FIELD WAREHOUSE REQUISITION

STEM — LINE SPEC. 1-56-3488-35P1 [A] DATE 7/9/83

O NO. — DETAIL DWG. NO. SK-46-11R DDR. NO. — ACT. NO. 7177 PAGE NO. — OF —

NTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO
8	8	1/2" ϕ, 2" Lg. THREADED WELDING	12491	B	
8	8	STUDS W/ HV HEX NUTS & WASHERS	12837	B	
		A-108-1010-1020 (Studs) A194 G.2H (Nuts)			
		FW # X 407 A			
		CLASS I MATERIAL			

MATT MARKET FOREMEN — R C Kim 7-5-83 Q. A. APPROVED

LIVER TO AREA Unit I 140-E11-1

G. APPROVAL — LONG 7-9-83 FILLED BY

7734-23

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

STEM 9 LINE SPEC. 56-1991-1 DATE 7-26-83

DETAIL

O NO. DWG. NO. 502734 DDR. NO. ACT. NO. 7187 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
7	7	5/8 x 12 WELD STUD	11553	A	
		CS A307 GRADE B			
		CLASS 1 HGR			

Steve Mallory 7238 Don Bice 7-12-83

LIVER TO AREA FOREMEN Q. A. APPROVED

C'D. BY William Hunt 7/26/83 T. Swenson 7/26/83

G. APPROVAL FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

72-256

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

STEM 2-09 LINE SPEC. 2-56-256-10 SPL-4 A DATE 7-11-83

DETAIL

O NO. N/A DWG. NO. SK72-C5L DDR. NO. ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
~~2~~	2	1/2" Welding Studs 1 1/2" lg CS A307 GrB	11553	A	
2	0	~~1" ø Bolts 8" UNC 6" lg~~ CS A307 GrB			
2	2	1" Nuts A-194 2H	12837	F	
2	2	1/2" ø Nuts A-194 2H	12837	B	
		CLASS 1 HGR.			

Steve Mallory Don Bice 7-12-83

LIVER TO AREA FOREMEN Q. A. APPROVED

N. Jones T. Swenson 7-12-83

G. APPROVAL FILLED BY

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

2156-93

STEM N/A LINE SPEC. SL-1993-1½ DATE 7-13-83

NO. N/A DETAIL DWG. NO 502156 DDR. NO N.A ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
1	1	½" x 1½" WELD STUD CS A307 GR B	10651	A	
		Class II Hanger Matl.			

DELIVER TO AREA FOREMEN Q. A. APPROVED

CHECKED BY Russell Anderson FILLED BY

MTG. APPROVAL

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

8.2 (05-78)

Pullman Power Products

FIELD WAREHOUSE REQUISITION

SYSTEM 8 LINE SPEC. 2-SL-246-53 DATE 7-13-83

NO. DETAIL DWG. NO 051353 DDR. NO ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO
2	2	⅝ x 2½" LG THREADED WELDING STUD A307 GRADE B	9185	A	
2	2	A194 2H 5/8 HEX NUTS	12837	C	
		CLASS 1 HGR			

DELIVER TO AREA FOREMEN Q. A. APPROVED

CHECKED BY William Grout 7/13/83 FILLED BY

MTG. APPROVAL

FN 0707

2199-37

°.2 (05-78)

Pullman Power Products
Division of Pullman Incorporated
FIELD WAREHOUSE REQUISITION

ITEM 2-08 LINE SPEC. S2-1485-3/4 DATE 8-22-83

DETAIL NO. N.A. DWG. NO 502199 DDR. NO N.A. ACT. NO 7177 PAGE NO 1 OF 1

ANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
2	2	1/2" Φ x 1 1/2 Welded Stud A307-GR-B	10651	A	
2	2	1/2" NUTS A194 2H	13193	B	
		CLASS 1 Hgr Mat.			

V. Jones — 8-22-83
LIVER TO AREA — FOREMEN — Q. A. APPROVED
D. BY
G. APPROVAL — FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

336/61R

8.2 (05-78)

Pullman Power Products
Division of Pullman Incorporated
FIELD WAREHOUSE REQUISITION

STEM 8 LINE SPEC. S2-208-3 DATE 7/7/83

DETAIL NO. DWG. NO EA10971 DDR. NO 336/61R ACT. NO 7177 PAGE NO. OF

UANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
4	4	1/2 x 2 1/2 STUD CS A307 Gd B	12077	I	
		Class I Hgr Matl			

TOMLINSON — Don Bice 7-7-83
LIVER TO AREA — FOREMEN — Q. A. APPROVED
J. Scott
J C Morehouse — T Swenson 7-7-83
G. APPROVAL — FILLED BY

8.2 (05-78)

Pullman Power Products
Division of Pullman Incorporated
FIELD WAREHOUSE REQUISITION

2730/91

STEM 07 LINE SPEC. 256-63-1 DATE 8-25-83
DETAIL
NO. N/A DWG. NO. 2730-91 DDR. NO. — ACT. NO. 7177 PAGE NO. — OF —

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
4	4	½"ø X 12" W/STUD A-307 C.S. GRADE B	10651	A	
		REORDER			
		CLASS I MAT'L FOR HANGER			

LIVER TO AREA Tom Simmons FOREMEN Q. A. APPROVED Lee M. Dyke 8-25-83
CD BY William Grout 8/25/83 FILLED BY J. Sweeney 9-25-83
G. APPROVAL

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

8.2 (05-78)

Pullman Power Products
FIELD WAREHOUSE REQUISITION

70/295L
PRIORITY 30

STEM 7 LINE SPEC. 2-56-3489-3SPL A DATE 8-24-83
DETAIL
NO. — DWG. NO. 500902 DDR. NO. 70-295L ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
4	4	½" ø x 1½" LG. THREADED WELD STUD A 307 GR. B	10651	A	
		CLASS I HANGER MATERIAL			

NIT 2 E. 41 115° 40' Tim Thorn TIM THORN MZ EX 2424 Johnson Pipe 8-24-83
ELIVER TO AREA FOREMEN Q. A. APPROVED
ECD BY C. Hunter 8-24-83 G Brown
NG APPROVAL FILLED BY
P&T

Pullman Power Products
Division of Pullman Incorporated

74-70-38 REV 4/16/79

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	1-21-81	1 of 2

DISCOUNT TERMS: | SHIPPING TERMS:

VIA:

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
C/O Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

REQ.- P.O.- R.R.- NO. F- 7177-9287

JOB COST CODE: 122 | SUBCONTRACT NO.:

VENDOR:
Cardinal Bolt
3873 W. Oquendo
Las Vegas, Nevada 89118

MAIL 4 COPIES OF INVOICES TO:
P.O. Box 367
Avila Beach, CA 93424

ITEM (LETTER)	QTY. REQ'D.	DESCRIPTION	UNIT PRICE	TOTAL	DATE REC'D.	QTY. REC'D.
A	100	7/8" x 2" Mach. Bolts A307-Gr.B	1 89	189 00		
B	100	7/8" x 3" Mach. Bolts A307-Gr.B	2 26	226 00		
C	300	1/2" x 1 1/4" Mach. Bolt A307-Gr.B	58	174 00		
D	300	1/2" x 1" Mach. Bolt A307-Gr.B	56	168 00		
E	1000	3/8" Ø Heavy Hex Nuts A194-Gr.2H	22	220 00		
		NOTE: SEE SPECIAL REQUIREMENTS ATTACHED				
		TOTAL PRICE		977 00		

NEEDED FOR: Hanger Stock (Wally Franklin)

DATE NEEDED: | DATE ORDERED: 2-5-81 | DATE PROMISED: 3-5 Days

DWG(S) ATTACHED:

PREPARED BY: R. King | APPROVED BY: | PURCHASED BY:

IMPORTANT: THIS ORDER IS SUBJECT TO ALL 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

REMARKS

REIMBURSABLE

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ | PARTIAL ☐

PREPAID: $ | COLLECT: $

RECEIVED BY:

Pullman Power Products

74-70-38 REV 6/15/79

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	1-21-81	2 of 2

DISCOUNT TERMS | SHIPPING TERMS

VIA

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

VENDOR: Cardinal Bolts
3873 W. Oquendo
Las Vegas, Nevada 89118

REQ.- P.O.- R.R.- NO. F- 7177-9287

JOB COST CODE: 122 | SUBCONTRACT NO.

MAIL 4 COPIES OF INVOICES TO:
P. O. Box 367
Avila Beach, CA 93424

SPECIAL REQUIREMENTS FOR STRUCTURAL BOLTS OR FASTENERS FOR HANGERS:

HB1. Supplier shall furnish three copies of a Manufacturer's Certificate of Com - pliance signed by manufacturer indicating that materials furnished are in compliance with this Purchase Order, with specifications, or as listed in suppliers or manufacturers catalog.

HB2. Certificate of Compliance shall be traceable to our Purchase Order and Item No.

HB3. 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.

HB4. Any nonconformance to the requirements of the Purchase Order will be considered just cuase for return of materials without cost to buyer.

HB5. Materials shall be domestically manufactured.

NEEDED FOR:

DATE NEEDED: | DATE ORDERED: | DATE PROMISED:

DWG(S) ATTACHED:

PREPARED BY: | APPROVED BY: | 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 TAGS

REMARKS

SOURCE DOCUMENT REQUIREMENTS
Corp. Appr. Vendor; May Use Site Appr. Vendor
(All) Hanger CLI, G,E, Sprinkler
Spec M-10
8724 Cardox

REIMBURSABLE

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ | PARTIAL ☐

PREPAID: $ | COLLECT: $

RECEIVED BY:

Pullman Power Products

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. Manufacturers C of C	✓		
5. Marking per P.P.P. Standard			

CARDINAL Bolt
7177-9287

PREPARED BY Ted Bradley
APPROVED BY B Farmer

DATE OF ISSUE 2/12/91
PAGE ____ OF ____

Pullman Power Products
Division of Pullman Incorporated

74-70-38 REV 4/15/70

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	3-29-82	1 of 2

DISCOUNT TERMS | SHIPPING TERMS

VIA

SHIPPING ADDRESS: Pullman Power Products
c/o Pacific Gas & Electric Co.
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

VENDOR:
Cardinal
3873 W. Oquendo
Las Vegas, NEvada 89118

REQ.- P.O.- R.R.- NO. F-7177-10651

JOB COST CODE: 122 | SUBCONTRACT NO.

MAIL 4 COPIES OF INVOICES TO:
P.O. Box 367
Avila Beach, CA 93424

ITEM (LETTER)	QTY. REQ'D.	DESCRIPTION	UNIT PRICE	TOTAL	DATE REC'D.	QTY. REC'D.
A	200	½" x 1½" Weld Studs W/1" THD. One End A307 GR. B	1 18	236 00		
		C of C	5 00	5 00		
		PLEASE SEE ATTACHED SPECIAL REQUIREMENTS				
		185 9/21/82				
		TOTAL PRICE		241 00		

NEEDED FOR: Hanger Stock

DATE NEEDED: | DATE ORDERED: 3-29-82 | DATE PROMISED: 2 weeks

DWG(S) ATTACHED:

PREPARED BY: R. KING | APPROVED BY: | 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 TAGS AND PACKAGES WITH ABOVE ORDER NUMBER.

REMARKS

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ | PARTIAL ☐

PREPAID: $ | COLLECT: $

RECEIVED BY:

Pullman Power Products

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	3-29-82	2 of 2

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

REQ.- P.O.- R.R.- NO. F- 7177- 10651

DISCOUNT TERMS	SHIPPING TERMS	JOB COST CODE:	SUBCONTRACT NO.
		122	

VIA

VENDOR:
Cardinal
3873 W. Oquendo
Las Vegas, NEvada 89118

MAIL 4 COPIES OF INVOICES TO:
P. O. Box 367
Avila Beach, CA 93424

SPECIAL REQUIREMENTS FOR STRUCTURAL BOLTS OR FASTENERS FOR HANGERS:

HB1. Supplier shall furnish three copies of a Manufacturer's Certificate of Compliance signed by manufacturer indicating that materials furnished are in compliance with this Purchase Order, with specifications, or as listed in suppliers or manufacturers catalog.

HB2. Certificate of Compliance shall be traceable to our Purchase Order and Item No.

HB3. 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.

HB4. Any nonconformance to the requirements of the Purchase Order will be considered just cuase for return of materials without cost to buyer.

HB5. Materials shall be domestically manufactured.

NEEDED FOR:

DATE NEEDED:	DATE ORDERED:	DATE PROMISED:

DAG(S) ATTACHED:

PREPARED BY:	APPROVED BY:	PURCHASED BY:
	[signature]	[signature]

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, [illegible] SHIPPING TAGS

REMARKS
SOURCE DOCUMENT REQUIREMENTS
Corp. Appr. Vendor; May Use
Site Appr. Vendor
(All) Hanger CLI, G,E, Sprinkler
Spec M-10
8724 Cardox

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $	COLLECT: $

RECEIVED BY:

Pullman Power Products

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 Pentrant			
g. Eddy Current Results			
h. Hydrostatic			
i. Partial Data Reports ASME Section			
j. NDT Personnel Qualifications			
k. Manufacturers C of C	✓		
5. Marking per P.P.P. Standard			

Carolina

P.O. # 7177-10651

PREPARED BY R. C. Kuy

APPROVED BY A. Kramer 4/7/82

DATE OF ISSUE 4-7-82

PAGE ____ of ____

Division of Pullman Incorporated

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	4/23/83	1 of 2

DISCOUNT TERMS:

SHIPPING TERMS: FOB: SHIPPOINT

VIA:

1-213-222-8102 Joanne

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA

VENDOR:
T&W NELSON DIVISION
2436 Mariondale Ave.
Los Angeles, CA 90032

REQ.- P.O.- R.R.- NO. F-7177-12491

JOB COST CODE: 121

SUBCONTRACT NO.:

MAIL 4 COPIES OF INVOICES TO:
P.O. Box 367
Avila Beach, CA 93424

ITEM (LETTER)	QTY. REQ'D.	DESCRIPTION	UNIT PRICE	TOTAL	DATE REC'D.	QTY. REC'D.
A	300	½" x 3½" NELSON STUDS CPL-A-108 Gr. 1010-1020 P.M. 4/25/83	c 191 90	575 70		
B	1000	½" x 2½" NELSON STUDS CPL-A108 1010-1020	m 684 90	684 90		
		SEE SPECIAL REQUIREMENTS ATTACHED:				
		TOTAL PRICE		1260 60		

NEEDED FOR: CONT. LINER. CLASS 1 HGR. MAT.

DATE NEEDED: ASAP

DATE ORDERED: 4-27-83

DATE PROMISED: STOCK

DWG(S) ATTACHED:

PREPARED BY: PAT MALLOY

APPROVED BY:

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 TAGS AND PACKAGES WITH ABOVE ORDER NUMBER.

REMARKS

REIMBURSABLE

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $

COLLECT: $

RECEIVED BY:

Pullman Power Products

Division of Pullman Incorporated

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

	DATE	SHEET NO.
7177	4/23/83	2 of 2

ACCOUNT TERMS	SHIPPING TERMS

VIA

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

VENDOR:
WR NELSON DIVISION
2436 Mariondale Ave.
Los Angeles, CA 90032

REQ.- P.O.- R.R.- NO. F- 7177-12491

JOB COST CODE: 121

SUBCONTRACT NO.

MAIL 4 COPIES OF INVOICES TO:
P. O. Box 367
Avila Beach, CA 93424

SPECIAL REQUIREMENTS FOR STRUCTURAL BOLTS OR FASTENERS FOR HANGERS:

HB1. Supplier shall furnish three copies of a Manufacturer's Certificate of Compliance signed by manufacturer indicating that materials furnished are in compliance with this Purchase Order, with specifications, or as listed in suppliers or manufacturers catalog.

HB2. Certificate of Compliance shall be traceable to our Purchase Order and Item No.

HB3. 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.

HB4. Any nonconformance to the requirements of the Purchase Order will be considered just cause for return of materials without cost to buyer.

HB5. Materials shall be domestically manufactured.

NEEDED FOR:

DATE NEEDED:

DATE ORDERED: 4-27-83

DATE PROMISED:

DWG(S) ATTACHED:

PREPARED BY:

APPROVED BY:

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 TAGS AND PACKAGES WITH ABOVE ORDER NUMBER.

REMARKS

SOURCE DOCUMENT REQUIREMENTS
Corp. Appr. Vendor; May Use
Site Appr. Vendor
(All) Hanger CLI, G,E, Sprinkler
Spec M-10
9724 Cardox

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $

COLLECT: $

RECEIVED BY:

Pullman Power Products

PRODUCT ENGINEERING DEPARTMENT

QUALITY ASSURANCE AND DOCUMENTATION REQUIREMENTS

	REQ'D	APPROVED BY CUSTOMER	VERIFIED BY P.P.P. Q.C.
. Vendor Quality Assurance Program - ASME Section III			
. Certified Drawings for Approval			
. 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			
. 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. Manufacturers C of C			
. Marking per P.P.P. Standard			

TRW Nelson Div.
P.O. # 7177-12491

PREPARED BY R.C. Hine

DATE OF ISSUE 4-25-83

EXHIBIT 3

QC **ORIGINAL**

Pullman Power Products

PRIORITY ~~1~~ 600 R

D.R. No 5739 /1 See pg 3
Iso. No. Various
Unit No. I
Code No. 8
Hold Tag ____ (yes) X (no)

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

DISCREPANCY REPORT /1 Enw Enw

CUSTOMER: Pacific Gas & Electric SPEC. NO: 8711 DATE: 1-17-84 /1 3-15-84
PROJECT: Diablo Canyon JOB NO.: 7177 INSPECTOR: M.MacCrae/T.O'Neill/Cornish

DISCREPANT ITEM: NONCONFORMANCE TO ASME SECTION IX, MATERIAL & PROCEDURAL REQUIREMENTS FOR WELDED STUDS. SYSTEM 14.

EXPLANATION OF DISCREPANCY:

PG&E G.C. QUALITY CONTROL REVIEWED DATE 1-18-84

The QC Inspector has identified four (4) hangers [43-6G, 43-8G, 59N-1G and 59N-2G] as having had ASTM A325 studs welded to P1 materials. ASTM A325 is not referenced in ASME Section IX as P1 material and cannot be welded to P1 materials (as has been done) using W.P.Ss 7/8 without qualifying a welding procedure using this material. At present, Pullman has not qualified a procedure to weld A325 to P1 material.

Studs were installed with full penetration double bevel welds using WPS 7/8 and E7018 electrodes.

NOTES: A325 is, by specification, a high strength fastener and the allowable carbon in this material may warrant special welding considerations, such as preheat and PWHT to ensure

MC 1/17/84 MC 1/17/84

(continued - Page 2)

RECOMMENDED DISPOSITION: INDICATE APPROVAL BY CIRCLING THE APPROPRIATE "RECOMMENDED DISPOSITION" /1 See page 3

PG&E G.C. QUALITY CONTROL REVIEWED DATE 1-29-84

A) Conduct a review of hanger packages to determine how wide spread the condition is:
   1) Document all areas where A325 bolting material was used as a welded stud.
   2) Report all locations to PG&E by revision of this DR.
B) Conduct procedure qualification for stud welds using A325 studs and P1 base material in accordance with ASME Section IX, 1983 Edition. Part QW, Article 1, Paragraph QW-192 and the following:
   1) Delete the requirement for using automatic equipment.

(continued - Page 2)

Approved By P.P.P. Field Q.A. Mgr. H Hamer Date 1/17/84 Customer J. Arnold/R Foster Date 1-29-84

FINAL DISPOSITION: ☐ In Accordance With Above
Work Completed Insp: ____ Date: ____

☐ Other (explanation and approval required))
Work Completed Insp: ____ Date: ____

EXPLANATION (IF NECESSARY): /1 Based upon correspondence with Pullman Power Products Corporate Office (see attached interoffice correspondence dated Feb. 3, 1984), and Section III, Table I-13.3 (also attached), the approved disposition of Rev 0

Continued - Page 3

P.P.P. Field Q.A. Manager /1 H Hamer Date /1 3-15-84 Customer /1 D.C. Novak Date /1 4-2-84

STEPS TO PREVENT RECURRENCE ☐ Not Applicable Memo has been issued to all engineering and QC personnel to assure that A325 studs or bolts are not used as welded studs (see attachment)

Field Q.A. Manager H Hamer 1/17/84

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

ATTACH SKETCH IF NECESSARY

ORIGINAL

Pullman Power Products

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

DISCREPANCY REPORT

△1 See page 3

D.R. NO. 5739 - page 2
ISO. NO. Various
UNIT NO. I
CODE NO. 8

CUSTOMER: Pacific Gas & Electric SPEC. NO: 8711 DATE: 1-17-84 △1 3-15-84
PROJECT: Diablo Canyon JOB NO.: 7177 INSPECTOR M.MacCrae/T.O'Neill/Cornish

EXPLANATION OF DISCREPANCY: (Continued from page 1)

notch toughness in the final welded joint.

In some cases, A325 bolts have been used to fabricate weld studs by cutting the head off the bolt. Material quality and weldability are indeterminate as the material was purchased for an application other than for welding.

The attached copies of field warehouse requisitions and hanger drawings document the use of A325 material on component supports for System 14 (component cooling water) in Unit I. The possibility exists that A325 material may have been used in other locations.

Attached are the receiving reports and documentation for the studs referenced on the warehouse requisitions. For P.O. 7177-6882, Receiving Report 2100, there are no mill test reports, only a Certificate of Compliance as required by the P.O. exists.

For P.O. 7177-7523, Receiving Report 2372, a mill test report was received and is included.

RECOMMENDED DISPOSITION: (Continued from Page 1)

2) Perform welding using the SMAW process (WPS 7/8) using E7018 electrodes.
3) Prepare studs using a double bevel groove weld (chisel point). Back grind root before welding second side.
4) No preheat required.
5) Report results to PG&E by revision of this DR;

OR,

~~X~~ A) ASWR hangers 43-6G, 43-8G, 59N-1G and 59N-2G and rework to remove the A325 studs. Install new studs using A-36 or other P1 material.
B) Conduct review as noted in 1A. Report results to PG&E for disposition of specific hangers;

OR,

PG&E to disposition. PER ENGINEERING EVALUATION, ACCEPT-AS-IS. REF TELECOPY FROM CLYDE NICHOLS TO BOB TORSTROM/J ARNOLD, DATED 1.27.84.

1.27.84

ORIGINAL

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

DISCREPANCY REPORT

D.R. NO. 5739 - Page 3 /1
ISO. NO. Various
UNIT NO. I
CODE NO. 8

CUSTOMER: Pacific Gas & Electric SPEC. NO: 8711 DATE: 1-17-84 /1 3-15-84
PROJECT: Diablo Canyon JOB NO.: 7177 INSPECTOR: M.MacCrae/T.O'Neill/Cornish

/1 RECOMMENDED DISPOSITION: (Continued from Page 2)

/1 (4) PG&E to disposition THE SUBJECT SUPPORTS WILL BE REWORKED PER DCN # DCI-EP-19109. INCLUDE A COPY OF THIS DR IN EACH APPLICABLE HANGER PACKAGE. CLOSE DR AFTER A COPY (OF THIS DR) IS INCLUDED IN EACH PACKAGE. NOTE: AS A RESULT OF A PG&E REVIEW, 43-46, 43-56, 43-76, 43-96, 59N-36 AND 59N-46 (NOT ADDRESSED ON THIS DR), WILL ALSO BE REWORKED PER DCN # DCI-EP-19109.

/1 EXPLANATION: (Continued from Page 1)

this DR cannot be accepted as written. In addition, the condition of welding performed without a qualified weld procedure has not yet been addressed by disposition approval. Request re-evaluation of Rev 0 Disposition and response to lack of qualified weld procedure.

DR 5739 ⚠

INTEROFFICE CORRESPONDENCE

DATE February 3, 1984

TO H. W. Karner

FROM C. M. Neary

SUBJECT Welding of A325 Bolts & DR 5739

I have received DR 5739 and the CMTR for 5/8" A325 Bolts, Heat No. E51206. I have evaluated the weldability of this material (to C.S. Plate with E7018) from both a Code and a metallurgical standpoint:

Code Evaluation

If these welds fall under ASME III, Subsection NF, the welding qualification must conform to ASME Section IX. The WPS used (WPS 7/8) is qualified for P-1 materials only. A325 may not be considered a P-1 material, as shown below:

	Allowed % Carbon	Tensile Requirements
ASME P-1	.4% Max. (SA 372)	95 KSI (SA 724)
A 325	.3% Min.	120 KSI
HT E51206	.47% Actual	133 KSI Actual

A welding qualification must be performed for A 325 to P-1 materials.

Metallurgical Evaluation

Materials such as A 325 with elevated carbon contents and tensile strengths as shown above cannot be considered similar to A 105 and other P-1 material.

These bolts use their high carbon content to form martinsite. Uncontrolled welding of this material may result in cracking. Testing should be performed to determine the sensitivity of this material to cracking during welding.

C M Neary

C. M. Neary
QEG Welding Engineer

CMN/pas

cc: A.A. Eck
E.F. Gerwin
File

DR 5739A

TABLE I-13.3
YIELD STRENGTH VALUES S, FOR BOLTING MATERIALS FOR CLASS 1, 2, 3, AND MC COMPONENT SUPPORTS

	Nominal Composition	P-No.	Gr. No.	Spec. No.	Type or Grade	Class	Notes	Min. Yield Strength, ksi	Min. Ult. Tensile Strength, ksi	Yield Strength Intensity, ksi, for Metal Temp., °F, Not Exceeding									
										100	200	300	400	500	600	650	700	750	800
	Carbon Steels																		
	C	...	...	SA-194	2H	...	(1) (2)	...	...	...	...	...	...	...	...	...	...	...	...
	C	1	1	SA-307	B	...	...	36	58	36.0	32.3	31.9	30.8	29.1	26.6	26.1	25.9	...	...
S81	C	...	...	SA-325	1	...	(2) (6)	81	105	81.0	73.9	71.6	69.3	...	...	...	...	...	...
	Low Alloy Steels																		
	1Cr-0.2Mo	...	...	SA-194	7	...	(1)	...	...	...	...	...	...	...	...	...	...	...	...
	1Cr-0.2Mo	...	...	SA-193	B7	...	...	105	125	105.0	98.0	94.1	91.5	88.5	85.3	83.0	80.6	77.5	74.0
	1Cr-0.2Mo	...	...	SA-193	B7	...	...	95	115	95.0	86.5	85.1	82.3	80.1	77.1	75.1	73.0	70.1	66.9
	1Cr-0.2Mo	...	...	SA-193	B7	...	...	75	100	75.0	69.9	67.2	65.4	63.2	60.9	59.2	57.5	55.4	52.7
	1Cr-½Mo-V	...	...	SA-193	B16	...	...	105	125	105.0	102.0	99.6	97.5	95.4	92.5	90.3	88.2	85.8	83.1
	1Cr-½Mo-V	...	...	SA-193	B16	...	...	95	110	95.0	92.1	90.0	88.2	86.4	83.7	81.7	79.9	77.5	75.3
	1Cr-½Mo-V	...	...	SA-193	B16	...	...	85	100	85.0	82.5	80.7	78.9	77.1	75.0	73.1	71.4	69.4	67.2
	1Cr-½Mo	...	...	SA-320	L7	...	...	105	125	105.0	98.0	94.1	91.5	88.5	85.3	83.0	80.6	77.5	74.0
	1¾Ni-¾Cr-¼Mo	...	...	SA-320	L43	...	...	105	125	105.0	99.0	95.7	91.8	88.5	84.3	82.1	79.2	76.4	72.6
	AISI 4037	...	...	SA-320	L7A	≤2½	(2) (3)	105	125	105.0	98.0	94.1	91.5	...	...	...	...	...	...
	AISI 4037, 4340	...	...	SA-354	BC	≤2½	(2) (3)	109	125	109.0	102.0	98.5	95.6	92.8	88.7	86.0	82.9	...	...
	AISI 4037, 4340	...	...	SA-354	BC	>2½ & <4	(2) (3)	99	115	99.0	92.5	89.4	86.9	84.3	80.5	78.1	75.3	...	...
	AISI 4037, 4340	...	...	SA-354	BD	≤1½	(2) (3)	125	150	125.0	116.9	112.9	109.8	106.5	101.8	98.6	95.0	...	...
	1Cr-½Mo-V	...	...	SA-540	B21	1	...												
	1Cr-1Mn-¼Mo	...	...	SA-540	B22	1	...												
	2Ni-¾Cr-¼Mo	...	...	SA-540	B23	1	...	150	165	150.0	143.4	138.6	134.4	130.2	124.2	120.2	116.8	...	...
	2Ni-¾Cr-⅓Mo	...	...	SA-540	B24	1	...												
	1Cr-½Mo-V	...	...	SA-540	B21	2	...												
	1Cr-1Mn-¼Mo	...	...	SA-540	B22	2	...												
	2Ni-¾Cr-¼Mo	...	...	SA-540	B23	2	...	140	155	140.0	133.8	129.3	125.4	121.8	116.1	112.1	108.9	...	...
	2Ni-¾Cr-⅓Mo	...	...	SA-540	B24	2	...												
	1Cr-½Mo-V	...	...	SA-540	B21	3	...												
	1Cr-1Mn-¼Mo	...	...	SA-540	B22	3	...												
	2Ni-¾Cr-¼Mo	...	...	SA-340	B23	3	...	130	145	130.0	124.1	120.5	116.4	112.9	107.8	104.1	101.1	...	...
	2Ni-¾Cr-⅓Mo	...	...	SA-540	B24	3	...												

1Cr–½Mo–V	...	...	SA-540	B21	4	...													
1Cr–1Mn–¼Mo	...	...	SA-540	B22	4	...													
2Ni–¾Cr–¼Mo	...	...	SA-540	B23	4	...	120	135	120.0	114.6	110.7	107.7	104.1	99.3	96.3	93.3	...	...
2Ni–¾Cr–⅓Mo	...	...	SA-540	B24	4	...													
Low Alloy Steels																			
1Cr–½Mo–V	...	...	SA-540	B21	5	...													
1Cr–1Mn–¼Mo	...	...	SA-540	B22	5	...													
2Ni–¾Cr–¼Mo	...	...	SA-540	B23	5	...	105	120	105.0	100.2	97.2	93.9	90.9	87.0	84.3	81.6	...	...
2Ni–¾Cr–⅓Mo	...	...	SA-540	B24	5	...													
1Cr–½Mo–V	...	...	SA-540	B21	5	...													
1Cr–1Mn–¼Mo	...	...	SA-540	B22	5	...													
2Ni–¾Cr–¼Mo	...	...	SA-540	B23	5	...	100	115	100.0	95.4	92.7	89.4	86.7	82.8	80.2	77.7	...	...
2Ni–¾Cr–⅓Mo	...	...	SA-540	B24	5	...													
High Alloy Steels																			
Precipitation Hardened Steels																			
12Cr	...	...	SA-437	B4B	...	...	105	145	105.0	100.5	97.2	94.8	92.7	90.6	89.7	89.1	...	...
12Cr	...	...	SA-437	B4C	...	...	85	115	85.0	81.6	78.9	76.8	75.0	73.8	72.9	72.0	...	...
S80 17Cr–4Ni–4Cu	...	...	SA-564	630	...	(5)													
17Cr–4Ni–4Cu	...	...	SA-705	630	...	(5)	115	140	115.0	106.3	101.9	98.3	95.2	92.8	91.5	...	...	...
Austenitic Stainless Steels																			
18Cr–8Ni	8	1	SA-193	B8	1	...													
18Cr–8Ni	8	1	SA-193	B8A	1A	...	30	75	30.0	25.0	22.5	20.7	19.4	18.2	17.9	17.7	17.3	16.8
18Cr–10Ni–Cb	8	1	SA-193	B8C	1	...													
18Cr–10Ni–Cb	8	1	SA-193	B8CA	1A	...	30	75	30.0	27.5	25.6	23.9	22.5	21.4	21.0	20.6	20.5	20.3
16Cr–12Ni–2Mo	8	1	SA-193	B8M	1	...													
16Cr–12Ni–2Mo	8	1	SA-193	B8MA	1A	...	30	75	30.0	25.8	23.3	21.4	19.9	18.8	18.5	18.1	17.8	17.6
18Cr–10Ni–Ti	8	1	SA-193	B8T	1	...													
18Cr–10Ni–Ti	8	1	SA-193	B8TA	1A	...	30	75	30.0	25.4	22.7	20.6	19.1	18.2	17.8	17.5	17.3	17.2
18Cr–8Ni	8	1	SA-320	B8	...	...	30	75	30.0	25.0	22.5	20.7	19.4	18.2	17.9	17.7	17.3	16.8
18Cr–10Ni–Cb	8	1	SA-320	B8C	...	...	30	75	30.0	27.5	25.6	23.9	22.5	21.4	21.0	20.6	20.5	20.3
18Cr–10Ni–Ti	8	1	SA-320	B8T	...	...	30	75	30.0	25.4	22.7	20.6	19.1	18.2	17.8	17.5	17.3	17.2
18Cr–8Ni	8	1	SA-320	B8F	...	...	30	75	30.0	25.0	22.5	20.7	19.4	18.2	17.9	17.7	17.3	16.9
16Cr–12Ni–2Mo	8	1	SA-320	B8M	...	...	30	75	30.0	25.8	23.3	21.4	19.9	18.8	18.5	18.1	17.8	17.6

Notes to Table I-13.3 on next page.

Table I-13.3

DR 5739 Δ

NOTES TO TABLE I-13.3

GENERAL NOTE:

The tabulated values of tensile strength and yield strength are those which the Committee believes are suitable for use in design calculations required by this Section. At temperatures above room temperature, the values of tensile strength tend toward an average or expected value which may be as much as 10% above the tensile strength trend curve adjusted to the minimum specified room temperature tensile strength. At temperatures above room temperature, the yield strength values correspond to the yield strength trend curve adjusted to the minimum specified room temperature yield strength. Neither the tensile strength nor the yield strength values correspond exactly to either "average" or "minimum" as these terms are applied to a statistical treatment of a homogeneous set of data.

Neither the ASME Material Specifications nor the rules of this Section require elevated temperature testing for tensile or yield strengths of production material for use in Code components. It is not intended that results of such tests, if performed, be compared with these tabulated tensile and yield strength values for ASME Code acceptance/rejection purposes for materials. If some elevated temperature test results on production material appear lower than the tabulated values by a large amount (more than the typical variability of material and suggesting the possibility of some error) further investigation by retest or other means should be considered.

NOTES:

(1) No yield or tensile strength specified. Assume to be the same as equivalent grade in SA-193-B7. Then the yield strength may be taken as the same for that grade.

(2) No welding permitted.

(3) The maximum tensile strength shall not exceed the minimum specified tensile strength by more than 40.0 ksi. Where the specification does not limit hardness, the maximum surface hardness shall not exceed the hardness values corresponding to the maximum tensile strength, as determined from the applicable tables in SA-370.

(4) This material has reduced toughness at room temperature after exposure for about 5000 hr at 600°F and after shorter exposure above 650°F.

S80 (5) These values apply to material that has been age-hardened at 1100°F.

S81 (6) Yield strength values are applicable to Type 1 for bolt sizes 122 through and including 1½ in.

INTEROFFICE CORRESPONDENCE

DATE JANUARY 17, 1984

TO ALL FIELD ENGINEERS/QC INSPECTORS

FROM H.W. KARNER/SKIP CORNISH

SUBJECT WELDED STUDS (A325)

There have been several cases identified where A325 bolts have had the heads removed and have been used as a welded stud in hanger applications. This material is not qualified for use in welded applications by our weld procedures. A DR has been submitted to PG&E concerning this matter.

Welded studs must be A36 or other P1 material. If there are any questions, contact your Supervisor.

Harold W. Karner
QA/QC Manager

Skip Cornish
Chief Field Engineer

HWK:SC:sam

SF 8.2 (05-78) Pullman Power Products HK 2154

FIELD WAREHOUSE REQUISITION

SYSTEM 1-14 LINE SPEC. 1-K2 DATE 3-9-83

SO NA DETAIL DWG. NO. 049266 DDR. NO. NA ACT. NO. 7177 PAGE NO. ____ OF ____

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
4	4	5/8" Ø X 2 3/4" Long Threaded weld studs A325 C.S.	6782	B	
		CLASS 1 HNG-57N-1G FW NA			

Reeds area 140 DELIVER TO AREA Roland Reed FOREMEN

R R Harden 1078 Q. A. APPROVED

Vidaurri REC'D. BY

John Lee Barnes ENG. APPROVAL

Isabel Barnes #439 FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

F 8.2 (05-78)

Pullman Power Products

Division of Pullman Incorporated

FIELD WAREHOUSE REQUISITION

YSTEM 1-K1 LINE SPEC. 1-K2 DATE 3-7-83

O NO. NA DETAIL DWG. NO. 049266 DDR. NO. NA ACT. NO. 7177 PAGE NO. ____ OF ____

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO
6	6	5/8" Ø X 2" Long Threaded welding Stud A 325 C.S.	6782	B	
		Issued 5/8" X 2 3/4" Lg. Bolt A325			
		CLASS 1 HNG 57N-1C FW NA			

[illegible] DELIVER TO AREA [illegible] FOREMEN

Fred Reyna 3-7-83 Q. A. APPROVED

[illegible] REC'D BY

[illegible] ENG. APPROVAL

FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

Hgr # 43/6E

SF 8.2 (05-78)

Pullman Power Products
Division of Pullman Incorporated
FIELD WAREHOUSE REQUISITION

DR 5739

SYS 1-14 LINE SPEC. L-K2-317-12-B DATE 3-22-83

ISO NO. 049255 DETAIL DWG. NO. 500043 DDR. NO. _____ ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
10	10	5/8" Ø x 0'-2" lg. Bolts A 325 Issue 21 2 3/4" lg.	6992	D	
		(weld studs, Heads to be cut in field)			
10	10	Hex Nuts A 194 2H w/ Washers	7543	F	
		→	11716	C	
		Class I Hgr.			

South I DELIVER TO AREA — R.W. Lanier Co. FOREMEN — Fred Bauer 3-24-83 Q.A. APPROVED

REC'D. BY John Co Jones — FILLED BY

ENG. APPROVAL

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

DR 5739

SF 8.2 (05-78)

Pullman Power Products

Division of Pullman Incorporated

FIELD WAREHOUSE REQUISITION

SYSTEM 1-14 LINE SPEC. 1-K2-314-12 DATE 3-16-83

ISO NO. N/A DETAIL DWG. NO 049266 DDR NO. N/A ACT. NO. 7177 PAGE NO. ____ OF ____

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO	HEAT NO.
10	10	5/8" ø x 2 3/4" Long ~~Machine Pulled Studs~~ (BOLTS-SHEAR HEADS) C.S. A-325	6892	B	
10	10	5/8" Hex Nuts and Washers A194 2H	11024	E	
		→	11716	C	
		CLASS I Hanger #59N1/2G			

DELIVER TO AREA Jack S. Williams FOREMEN

REC'D. BY

ENG. APPROVAL

Fred Bauer 3-17-83 Q. A. APPROVED

FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

DR 5139

Hgr. # 43-86

F 8.2 (05-78)

Pullman Power Products

Division of Pullman Incorporated

FIELD WAREHOUSE REQUISITION

SYSTEM 1-14 LINE SPEC. 1-K2-318-12B DATE 3-26-83

ISO NO. 049255 DETAIL DWG. NO. 500043 DDF NO. ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
10	9	5/8" Ø x 0'-2¾ lg. Bolts c.s. A 325	7523	C	-
		(weld studs, Heads to be cut in field).			
10	9	⅝ Hex Nuts A 194 2H (c.s.) w/washers.	7523	C	
		Class I Hgr. Mat.			

Cnt. T — B&O Foreman — Fred Bauer 3-26-83

DELIVER TO AREA — FOREMEN — Q. A. APPROVED

REC'D. BY — Volunteer

ENG. APPROVAL — FILLED BY #833

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

CARDINAL INDUSTRIAL ORDER FORM

ORDER NO. CI 2572

TF RECEIVED [illegible]

P.O.# [illegible]

IP VIA [illegible]

TERMS: [illegible]

O.B. PLANT–DESTINATION [illegible]

SALESMAN [illegible]

IPPING DATE 3-17-79

BUYER R. Lott

LL TO:

Pullman Power Products
PO Box 307
Wilsonville, Oregon 97070

SHIP TO:

Pullman Power Products
c/o Pacific Gas & Electric
Diablo Canyon Power Plant
7 Mile North of Avila, Calif

FOR INFORMATION ONLY

QUANTITY	SIZE OR DESCRIPTION	DETAIL	CONTAINERS NUMBER	CONTAINERS TYPE	PACKED BY	INSP. BY
[illegible]	3/4 - 10 x 3-1/4 A325 Hex Bolts	A				
[illegible]	7/8 - 9 x 5 Ditto	B				
[illegible]	3/8 - 11 x 2-3/4 Ditto	C				
[illegible]	3/8 - 11 A194 2H Nuts	D				
[illegible]	7/8 - 9 A194 2H Jam Nuts	E				
[illegible]	1 - 8 A194 2H Jam Nuts	F				
	Mill Test Reports					

GENERAL CONSTRUCTION
Diablo Canyon
Date APR 13
Checked K. Maley

RECEIVED
APR 16
PULLMAN POWER PRODUCTS
JOB NO. 7177

INSTRUCTIONS:

QR 5739

TOTAL NO. CONTAINERS	ORDER COMPLETED BY	ORDER TAKEN BY

UMD 1020

Cardinal

INDUSTRIAL PRODUCTS CORPORATION

(TOLL FREE) 800-634-6861
3873 WEST OQUENDO ✦ PHONE (NEVADA) 702-739-1966
LAS VEGAS, NEVADA 89118

TO:

Pullman Power Products
P.O. Box 367
Avila Beach, CA 93424

REPORT OF CHEMICAL AND PHYSICAL TEST

P.O. Item — DESCRIPTION OF MATERIAL AND SPECIFICATIONS — CF-1

Letter	QUANTITY	DESCRIPTION	CUSTOMER ORDER NO.	OUR ORDER NO.	SPECIFICATION	SHIPPING DATE
A	32	3/4 - 10 X 3-1/4" Hex Bolts	F7177-7523	CI 1297	ASTM A325	3-30-79
B	32	7/8 - 9 X 5" Hex Bolts	"	"	"	"
C	20	3/8 - 11 X 2-3/4" Bolts	"	"	"	"

FOR INFORMATION ONLY

CHEMICAL ANALYSIS

ITEM NO.	GRADE	HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	V	
A		N53869	.39	.97	.013	.018	.23					
B		N35224	.34	.87	.005	.020	.25					
C		E51206	.47	.84	.024	.015	.20					

MECHANICAL PROPERTIES

ITEM NO.	TENSILE STRENGTH PSI	YIELD STRENGTH PSI	PROOF LOAD LBS.	ELONGATION PERCENT IN 2"	PER CENT RED. AREA	HARDNESS BHN	HARDNESS R/C	MINIMUM TEMPERING TEMP.
A	150,000		28,400				33	300°F
			Good					
B	138,000		39,250				28	800°F
			Good					
C	133,700		19,200				30/31	800°F
			Good					

APPROVED
M. W. KELLOGG
Q.A.

We hereby certify that the foregoing data is a true copy of the data furnished us by the producing mill or the data resulting from tests performed by Cardinal Foundry and/or Cardinal Industrial Products Corporation.

C. P. Evans
AUTHORIZED AGENT

SWORN TO AND SUBSCRIBED BEFORE ME THIS 30 DAY OF May 19 79
Mary Richardson

Dr 5739

Cardinal

INDUSTRIAL PRODUCTS CORPORATION

(TOLL FREE) 800-634-6861
3873 WEST OQUENDO ✦ PHONE (NEVADA) 702-739-1966
LAS VEGAS, NEVADA 89118

TO:

Pullman Power Products
P.O. Box 367
Avila Beach, CA 93424

CF-2

DESCRIPTION OF MATERIAL AND SPECIFICATIONS

P.O. Item Letter	QUANTITY	DESCRIPTION	CUSTOMER ORDER NO.	OUR ORDER NO.	SPECIFICATION	SHIPPING DATE
D	20	5/8 - 11 Hvy Hex Nut	F7177-7523	CI 12970	ASTM A194 2H	3-30-79
E	24	7/8 - 9 Jam Nuts	"	"	"	"
F	24	1 - 8 Jam Nuts	"	"	"	"

FOR INFORMATION ONLY

CHEMICAL ANALYSIS

ITEM NO.	GRADE	HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	V
D		A84700	.42	.81	.015	.015	.29				
E		Y730796	.47	.76	.015	.021	.28				
F		KA0111	.40	.75	.032	.014	.25				

APPROVED
M. W. KELLOGG
Q. A.
Diablo Canyon Project
INITIALS

MECHANICAL PROPERTIES

ITEM NO.	MANUFACTURING PROCESS	PROOF LOAD LBS.	PROOF LOAD TEST METHOD	HARDNESS BHN	HARDNESS R/C	HARDNESS AFTER 24 HRS. BHN	HARDNESS AFTER 24 HRS. R_B	CHARPY IMPACT TEST FT. LBS. AVG.	CHARPY IMPACT TEST TEMP.	MINIMUM TEMPERING TEMP.
D	Hot Forged	39,550	Mandrel		28/32		99			550°C
			Good							
E	"		N/A	278		231				850°F
F	"		N/A		28/32		100			550°C

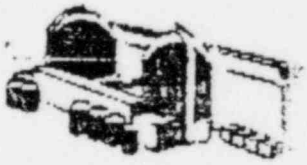
I hereby certify that the foregoing data is a true copy of data furnished us by the producing mill or the data resulting from tests performed by Cardinal Foundry and/or Cardinal Industrial Products Corporation.

C W Ebersin
AUTHORIZED AGENT

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 30 DAY OF Mar 1979
Marty Richardson

DE 5739

Diablo Canyon Project



PACIFIC GAS AND ELECTRIC COMPANY
BECHTEL POWER CORPORATION

FACSIMILE COVER LETTER

TIME: _____

DATE: 1/27/84 SHEET: 1 OF 3

TO:

COMPANY: JOBSITE - GC

CITY & STATE: _____

ATTENTION: BOB TORSTROM / J. ARNOLD - GC

TELEPHONE NUMBER OF TELECOPIER:

JOBSITE (GC): 805-595-2060

JOBSITE (NPO): _____

ONSITE: _____

OTHER: _____

TOTAL NUMBER OF PAGES, INCLUDING COVER LETTER: 3

IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL ILEANA/ALBA (415) 768-

TRANSMITTAL SPEED: _____ MINUTES

WE ARE TRANSMITTING FROM A PANAFAX MY1200 AUTOMATIC MACHINE (415) 768-1667

CONFIRMATION NUMBER: 805-541-7505

FROM: CLYDE NICHOLS EXTENSION: 8-0293

SPECIAL INSTRUCTION:

TIME SENT OUT:

P.O. BOX 3965 • SAN FRANCISCO, CALIFORNIA

0022P/001P

DR 5139

DR 5739

THE FOLLOWING IS PG&E'S DISPOSITION FOR THE ABOVE DISCREPANCY

1. THIS DISCREPANCY IS LIMITED TO THE WESTINGHOUSE DESIGNED SUPPORTS 43/4G THRU 96 AND 59 N/4G THRU 4G.

2. THE A325 MATERIAL WHEN NO TYPE IS SPECIFIED IN P.O IS SUPPLIED IN T. THE TYPE 1 CONDITION (REF SECTION 1.2.0. OF THE A325 MATERIAL SPECIFICATION).

3. THE A325 TYPE 1 MATERIAL HAS A COMPOSITION SIMILAR TO THAT OF P-1 MATERIALS (e.g. A105, etc...). THERE SHOULD BE NO PROBLEMS WITH WELDABILITY. THERE ARE NO SPECIAL PREHEAT / POSTWELD HEAT TREATMENT REQUIREMENTS FOR THE 5/8" SIZE USED. THE A325, TYPE 1 CAN BE CONSIDERED (ASSUMED) TO BE A P-1 MATERIAL EVEN THOUGH IT IS NOT SO CALLED OUT IN SECTION IX. A325, TYPE 1 IS SUPPLIED IN A QUENCHED AND

DR 5739

TEMPERED CONDITION. AFTER WELDING TO A36 IT WOULD BE IN A NORMALIZED CONDITION AND WOULD NOT HAVE THE SAME ~~PROPERTIES~~ PHYSICAL PROPERTIES AS IN THE QUENCHED & TEMPERED CONDITION. THE PHYSICAL PROPERTIES & ALLOWABLES WOULD HAVE TO BE ASSUMED TO BE THOSE OF BOLTS (A307 GRADE B) NORMALLY USED IN THIS APPLICATION.

4. USING THESE A307 GRADE B ALLOWABLES WE HAVE QUALIFIED THESE SUPPORTS USING THESE BOLTS PER THE REQUIREMENTS OF AISC 7th EDITION.

BASED ON THE ABOVE THESE SUPPORTS ARE ACCEPTABLE FOR USE AS IS.

BOB: PLS NOTE THAT IF FARTHER BACKUP DATA IS NEEDED WE CAN GET IT FROM BECHTEL M&RS. (i.e., WELD DATA etc....).

DR 5139

Chris and Bob Bayer

DR 5739 where we welded A325 bolts to carbon steel with a double bevel chisel point prep on bolt using WPS 7/8 E7018 electrodes with a background. No preheat on N.D.E. The following is PG&E's disposition for the above discrepancy:

1. This discrepancy is limited to the Westinghouse designed supports 43/4G thru 9G and 59 N/1G thru 4G.

2. The A325 material when no type is specified in P.O. is supplied in the type 1 condition (Ref. Section 1.2 of the A325 material specification).

3. The A325 Type 1 material has a composition similar to that of P.1 materials (e.g. A105, etc...). There should be no problems with weldability. There are no special preheat/post-weld Heat Treatment requirements for the 5/8" size used; The A325, Type 1 can be considered (assumed) to be a P-1 material even though it is not called out in Section IX. A325, Type 1 is supplied in a quenched and tempered condition. After welding to A36 it would be in a normal lzed condition and would not have the same physical properties as in the quenched and tempered condition. The physical properties and allowables would have to be assumed to be those of bolts (A307 Grade B) normally used in this application.

4. Using these A307 Grade B allowables, we have qualified these supports using these bolts per the requirements of AISC 7th Edition.

Based on the above, these supports are acceptable for use as is.

Bob: PL's note that if further back-up data is needed we can get it from Bechtel M & QS, Vic, weld data, etc...).

DR 5739

PG&E
WORK REQUEST

File
QA
P. Watson
P. Mokry
H. Kanner

~~CLASS ONE~~

NON CLASS ONE
REQUIRES QUALITY ASSURANCE

~~NON CLASS ONE~~

3.6.84

NUMBER PPP-M-196

INITIATED BY: N.A. GAUDIUSO DATE: 3.5.84

PG&E G.C.
QUALITY CONTROL
REVIEWED & APPROVED
J.E. Ehrenz
DATE: 3/6/84

DIRECTED TO: PULLMAN POWER PRODUCTS
NAME OF CONTRACTOR

REQUIRED DUE DATE: 3.6.84

DESCRIPTION OF WORK: MOCK-UP WELDING OF A325 BOLTS TO A36 MATERIAL.

NOTE: WORK TO BE PERFORMED BY B. HUDSON (STENC. # VI) AND J. WHITLEY (STENC. # 3N).
WORK TO PTGC MECHANICAL DEPT. DIRECTION.

DIRECT ANY QUESTIONS TO NICK GAUDIUSO X2728.

SAN NO.
—

DRAWING NO.	DCN	CCO	MCO
DR 5739.			

JOB NUMBER		DIV	LOC	ACCT	ACTV	SPEC ID
GM	167027	~~18~~ 22	~~40~~	365	40	—

ACCOUNTING

ESTIMATED MATERIAL (10) A325 BOLTS (2"LG x 5/8"Φ) W/NUTS & WASHERS
A36 PLATE MATERIAL, 3/4" THICK, ~10" WIDE.

ESTIMATED MANDAYS: 1

ACTUAL MANDAYS: _____

SIGNATURE OF REQUESTER

PACIFIC GAS AND ELECTRIC COMPANY
RESIDENT ENGINEER APPROVAL

J. ARNOLD / R. Tourtellotte (Signature) 3-6-84 (Date)

CONTRACTOR APPROVAL: CFE (TITLE) (Signature) 3-6-84 (Date)

COMPLIANCE: _____ DATE: _____

PACIFIC GAS AND ELECTRIC ACCEPTANCE: _____ (Signature) (Date)

DISTR: WHITE, GREEN & YELLOW — CONTRACTOR
PINK — PG&E RESIDENT ENGINEER FIELD COPY
GOLD — PG&E ADMIN. FILE COPY

DR 5739
TITLE

(G-116)
REV. 8-4-83

QA-2

PHILADELPHIA ELECTRIC COMPANY
QUALITY ASSURANCE DEPARTMENT

INSPECTION REPORT

RECEIVING REPORT NO 3646

JOB NO. 7177

APPLICABLE TO: (CHECK) RECEIVING ☒ SUBCONTRACTOR ☐

HOLD
☐ MILL TEST REPORTS ☐ X-RAYS
☐ OTHERS

VENDOR ALLIED NUT & BOLT P.O. NO. 7177-12492 DATE 6-23-83

MANUFACTURER INSPECTED BY John Rich DATE 6-23-83

ITEM	PART NAME	QUANTITY	MATERIAL
A	5/8" X 3" LG. BOLTS	200	C.S. A325
B	5/8" X 2" LG. BOLTS	200	C.S. A325

ITEM OR DWG. NO.	QUANTITY	HEAT NO. OR SYMBOL	IDENTIFICATION VERIFIED	DOCUMENTATION VERIFIED	RADIOGRAPHS APPROVED	REMARKS
A	200		JR 6-23-83	JR 6-23-83		
B	200		JR 6-23-83	JR 6-23-83		

DR 5739

CLASS 1

Pullman Power Products
Division of Pullman Incorporated

14-30-38 REV 4/15/76

FIELD REQUISITION -- PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	4/21/83	1 of 2

DISCOUNT TERMS | SHIPPING TERMS

VIA

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA

VENDOR:
ALLIED NUT & BOLT
P.O. BOX 670
KING OF PRUSSIA, PA 19406

REQ.- / P.O.- NO. F-7177-12492 / R.R.-

JOB COST CODE: 122

SUBCONTRACT NO. 3646

MAIL 4 COPIES OF INVOICES TO:
P.O. Box 367
Avila Beach, CA 93424

ITEM (LETTER)	QTY. REQ'D.	DESCRIPTION	UNIT PRICE	TOTAL	DATE REC'D.	QTY. REC'D.
A	200	5/8" x 3" LG BOLTS C.S. A325	1 09	218 00		
B	200	5/8" x 2" LG BOLTS C.S. A325	91	182 00		
		SEE SPECIAL REQUIREMENTS ATTACHED:				
		TOTAL PRICE		400 00		

NEEDED FOR: HGRS. STOCK FOR WAREHOUSE

DATE NEEDED: | DATE ORDERED: 6-7-83 | DATE PROMISED: 1 week

DWG(S) ATTACHED:

PREPARED BY: PAT MALLOY | APPROVED BY: | PURCHASED BY:

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

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

REMARKS

REIMBURSABLE

CLASS I

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $ COLLECT: $

RECEIVED BY:

3

DR 5739

Pullman Power Products

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

RR 3646

P.O. NO. 7177	DATE 4/21/83	SHEET NO. 2 of 2	
DISCOUNT TERMS	SHIPPING TERMS		
VIA			

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

REQ.- P.O.- NO. F- 7177- 12492 R.R.-

JOB COST CODE: 122

SUBCONTRACT NO. 3646 QR 573

VENDOR:
ALLIED NUT & BOLT
P.O. BOX 670
KING OF PRUSSIA, PA 19406

MAIL 4 COPIES OF INVOICES to:
P. O. Box 367
Avila Beach, CA 93424

SPECIAL REQUIREMENTS FOR STRUCTURAL BOLTS OR FASTENERS FOR HANGERS:

HB1. Supplier shall furnish three copies of a Manufacturer's Certificate of Compliance signed by manufacturer indicating that materials furnished are in compliance with this Purchase Order, with specifications, or as listed in suppliers or manufacturers catalog.

HB2. Certificate of Compliance shall be traceable to our Purchase Order and Item No.

HB3. 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.

HB4. Any nonconformance to the requirements of the Purchase Order will be considered just cause for return of materials without cost to buyer.

HB5. Materials shall be domestically manufactured.

ORDERED FOR:			
DATE NEEDED:	DATE ORDERED: 6-7-83	DATE PROMISED:	
DOC(S) ATTACHED:			
PREPARED BY:	APPROVED BY:	PURCHASED BY:	

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

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

REMARKS

SOURCE DOCUMENT REQUIREMENTS
Corp. Appr. Vendor; May Use
Site Appr. Vendor
(All) Hanger CLI, G,E, Sprinkler
Spec M-10
8724 Cardox

CLASS I

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $ COLLECT: $

RECEIVED BY:

Pullman Power Products

RR 3646

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. Manufacturers C of C	✓		✓ JRide 6-23-83
5. Marking per P.P.P. Standard			

Allied Nut & Bolt

P.O. # 7177-12492

CLASS 1

DR 5739

PREPARED BY R. C. King

APPROVED BY I Spurlock 6-3-83

DATE OF ISSUE 4-25-83

PAGE [redacted] of

RR3646

3646

RR3646

ALLIED NUT & BOLT CO.

520 HERTZOG BLVD. • P.O. BOX 670 • KING OF PRUSSIA, PA 19406

215-275-2200

MERCHANDISE NOT RETURNABLE WITHOUT OUR WRITTEN CONSENT. ALL CLAIMS FOR DAMAGES OR VARIATIONS MUST BE MADE WITHIN TEN DAYS AFTER RECEIPT OF GOODS.

SOLD TO	SHIPPED TO
Pullman Power Products	Pullman Power Products
	c/o Pacific Gas & Electric
Box 367	Diablo Canyon Power Plant
	7 miles North of
Avila Beach, CA 93424	Avila Beach, CA 93424

SERVICE CHARGE 1½% PER MONTH UNPAID BALANCE

D 51008

TERMS: 2% 10 NET 30

TWX: 5106600000

DATE INVOICE	CUST. ORDER NO.	SALESMAN	COMPLETE / PARTIAL	SHIPPED VIA	FREIGHT PPD/COL	T.C.S.	WEIGHT
6/14/83	P-7177-12492	JLR					

QTY. ORDER	QTY. SHIPPED	CODE NO.	DESCRIPTION
100	200		3/8-11 x 3 A325 Type I Bolt
200	200		3/8 x 2

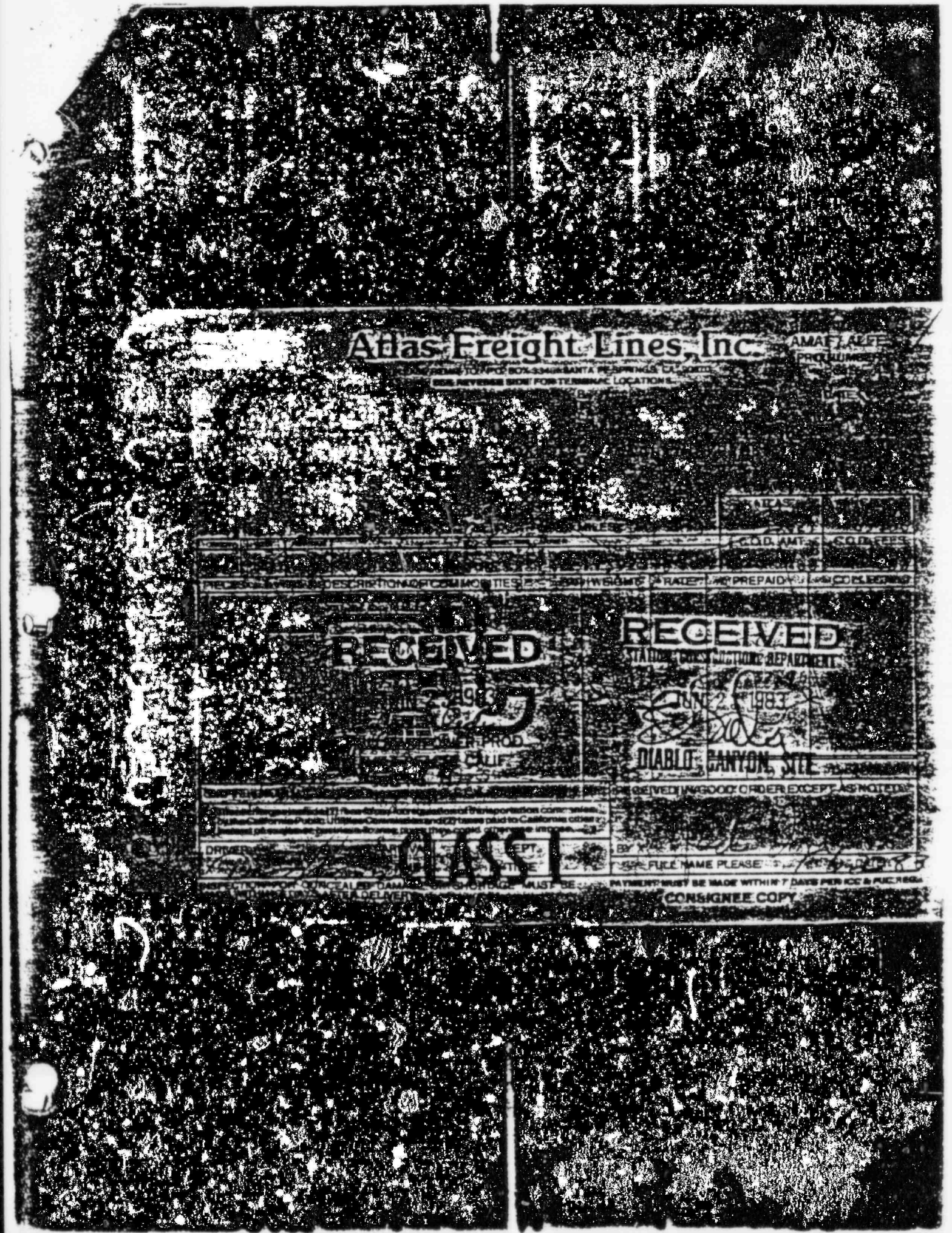
RECEIVED
JUN 23 1983
PULLMAN POWER PROD.
AVILA BEACH, CALIF.
JOB No. 7177

RECEIVED
STATIONS CONSTRUCTION DEPARTMENT
JUN 23 1983
DIABLO CANYON SITE

PACKING LIST

CLASS I

DR 5739


Atlas Freight Lines, Inc.
RECEIVED
CALIF
RECEIVED
DIABLO CANYON SITE
CLASS 1
CONSIGNEE COPY

RR 3646

ALLIED NUT & BOLT CO.

520 HERTZOG BLVD. • P.O. BOX 670 • KING OF PRUSSIA, PA. 19406
215-275-2200

CERTIFICATE OF COMPLIANCE

CUSTOMER: PULLMAN POWER PRODUCTS

SHIPPED TO: DIABLO CANYON POWER PLANT

SHIPPED FROM: KING OF PRUSSIA, PA

CUSTOMER P.O. # F 7177 - 12492

OUR INVOICE # D 51008

APPROVED
PULLMAN POWER PRODUCTS
Q.A.
P.G.&E. Diablo Canyon Project
JRide 6-23-83
INITIALS

MATERIAL FURNISHED:

200 - 5/8-11 x 3 Heavy hex structural bolt
200 - 5/8-11 x 2 Same

We certify that to the best of our knowledge as contained in the records of Allied, that the material shown on the above P.O. and Invoice numbers does conform to the A.S.T.M. Specification A-325 covering High-Strength Bolts for Structural Steel Joints, including Suitable Nuts and Plain Hardened Washers.

ALLIED NUT & BOLT CO., INC.
King of Prussia, Pa. 19406

DR 5739

CLASS 1

PAGE 1 OF 1

PULLMAN POWER PRODUCTS
QUALITY ASSURANCE DEPARTMENT

INSPECTION REPORT

RECEIVING REPORT NO. 2100

JOB NO. 2177

APPLICABLE TO: (CHECK) RECEIVING [✓] SUBCONTRACTOR [ ]

HOLD
[ ] MILL TEST REPORTS [ ] X-RAYS
[ ] OTHERS ____

VENDOR Texas Bolt P.O.NO. 2177-6882 DATE ____

MANUFACTURER Texas Bolt ____ INSPECTED BY R Richardson DATE 12/4/58

ITEM	PART NAME	QUANTITY	MATERIAL
A.	5/8" x 2" Bolt w/2 nuts	50	A325
B.	5/8 x 2 3/4" Bolt w/2 nuts	50	
C.	3/4 x 3" Bolt w/2 nuts	20	

FOR INFORMATION ONLY

ITEM OR DWG. NO.	QUANTITY	HEAT NO. OR SYMBOL	IDENTIFICATION VERIFIED	DOCUMENTATION VERIFIED	RADIOGRAPHS APPROVED	REMARKS
A	50	—	RAR 12/4/58	RAR 12/4/58		
B	50	—	RAR 12/4/58	RAR 12/4/58		
C	20	—	RAR 12/4/58	RAR 12/4/58		
						DR 5739

Pullman Power Products
Division of Pullman Incorporated

24-70-32 REV 4/15/76

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	10-10-78	1 of 2

DISCOUNT TERMS	SHIPPING TERMS
1% 10	FOB-Houston

VIA

SHIPPING ADDRESS:
PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

VENDOR:
Texas Bolt
P.O. BOX 211
Houston TX 77001
ATT: Don Evans

FOR INFORMATION ONLY

REQ.- P.O.- R.R.- NO. F-7177-6882

JOB COST CODE: 122

SUBCONTRACT NO.

MAIL 4 COPIES OF INVOICES TO:
P.O. BOX 367
Avila Beach, CA 93424

QR 5735

ITEM (LETTER)	QTY. REQ'D.	DESCRIPTION	UNIT PRICE		TOTAL		DATE REC'D.	QTY. REC'D.
A	50	5/8" Ø, 2" lg. A325 Bolts w/2 Nuts Each	C 54	51	27	26		
B	50	5/8" Ø. 2 3/4" lg. A325 Bolts w/2 Nuts Each	C 60	49	30	25		
C	20	3/4" Ø, 3" lg. A325 Bolts w/2 Nuts Each	C 80	18	16	04		
		SPECIAL REQUIREMENT ATTACHED						
		TOTAL PRICE			73	55		

NEEDED FOR: 365/07 Hanger

DATE NEEDED:	DATE ORDERED:	DATE PROMISED:
A.S.A.P.	10/16/78	Stock

ORG(S) ATTACHED:

PREPARED BY:	APPROVED BY:	PURCHASED BY:
C. Heinzenberger		

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

REMARKS

REIMBURSABLE

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $

COLLECT: $

RECEIVED BY:

Pullman Power Products
Division of P[illegible] Incorporated

74-73-28 REV 6/15/76

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

Bill Went

DR 5735

JOB NO.	DATE	SHEET NO.
7177	10-10-78	2 of 2

DISCOUNT TERMS	SHIPPING TERMS
1% 10	FOB- Houston

VIA

SHIPPING ADDRESS:
Pullman Power Products
c/o Pacific Gas and Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

VENDOR:
Texas Bolt

REQ.- P.O.- R.R.- NO. F- 7177-

JOB COST CODE:

SUBCONTRACT NO.

MAIL 4 COPIES OF INVOICES TO:
P.O. Box 367
Avila Beach, CA 93424

ITEM (LETTER)	QTY. REQ'D.	SPECIAL REQUIREMENTS: DESCRIPTION	UNIT PRICE	TOTAL	DATE REC'D.	QTY. REC'D.
		1. Three copies of a Certificate of Compliance signed by mfg's. representitive.				
		2. Certificate of Compliance shall be traceable to our Purchase Order & Order No.				
		3. All required documentation shall be sent the day of each shipment to Pullman Power Products, P.O. Box 367, Avila Bch., CA 93424, Attn: Q.A. Dept.				
		4. Any nonconformance to the requirements of the P.O. will be considered just cause for return of materials without cost to buyer.				
		5. Certificates of Compliance shall indicate all the requirements of ASTM A325				
		6. Materials shall be domestically manufactured.				
		7. Items set forth in this Purchase Order are for use in nuclear safety related components subject to reporting requirements pursuant to Section 206 of the Energy Reorganization Act of 1974, as implemented by 10 CFR 21. Notice of any defects identified by Vendor pursuant to such law shall be immediately made to the Director of Quality Assurance, Pullman Power Products, P.O. Box 3308, Williamsport, PA 17701.				
			PRICE			

FOR INFORMATION ONLY

NEEDED FOR:

DATE NEEDED:

DATE ORDERED:

DATE PROMISED:

DWG(S) ATTACHED:

PREPARED BY:

APPROVED BY:

PURCHASED BY:

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

OUR ORDER NUMBER MUST APPEAR ON ALL INVOICES BILLS OF LADING

REMARKS

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $

COLLECT: $

RECEIVED BY:

PRODUCT ENGINEERING DEPARTMENT

QUALITY ASSURANCE AND DOCUMENTATION REQUIREMENTS

	Req'd	Approved by Customer	Verified by M.W.K. Q.C.
1. Vendor Quality Assurance Program - ASME Section III	✓		RLR
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. certificate of compliance	✓		RLR
5. Marking per M.W.K. Standard			

FOR INFORMATION ONLY

TEXAS BOLT

PO# 7177-6882

DR 5739

PREPARED BY R. Richardson DATE OF ISSUE 10/13/06

PAGE OF

PO 7177-6882

FROM: TEXAS BOLT
P.O. BOX 1211
HOUSTON, TEXAS

TO PULLMAN POWER PROD.
DIABLO CANYON POWER PLANT
AVILA BEACH, CALIF

ITEM

A mf (50) - 5/8" X 2" A325 BOLTS W/2 NUTS EACH
B (50) - 5/8 X 2 3/4 A 325 BOLTS W/2 NUTS EACH
C (20) - 3/4 X 3" A325 BOLTS W/2 NUTS EACH

FOR INFORMATION ONLY

RECEIVED
JUN 30 1978
PULLMAN POWER PRODUCTS
AVILA BEACH, CALIF.
JOB NO. 7177

DR5739

TEXAS BOLT COMPANY

Manufacturers of Industrial Fasteners

3233 WEST 11TH ST. • P. O. BOX 1211
HOUSTON, TEXAS 77001

PHONE: 869-7111
AREA CODE 713

CABLE: "TEXBOLT"

November 21, 1978

Pullman Power Corporation
Division of Pullman Incorporated
P. O. Box 367
Avila Beach, California 93424

Your Order No. F7177-6882 (128803)

Gentlemen:

We hereby certify that the Bolts and Nuts on your above order were produced, inspected, and/or tested in accordance with ASTM A325 specifications. These products meet all applicable requirements.

Very truly yours,

FOR INFORMATION ONLY

Edward J. Chiranza

APPROVED
M. W. KELLOGG
Q. A.
P.G.&E. Diablo Canyon Project
RAR 12/4/78
INITIALS

EJC/tb

State of Texas
County of Harris

Subscribed and sworn to before me this 21st day of November, 1978.

Glenda Schulz
Notary public in and for Harris County, Texas.
My commission expires Oct 20, 1980.

DR 5739

QA - 3

PULLMAN POWER PRODUCTS
QUALITY ASSURANCE DEPARTMENT

PAGE 1 OF 1

RECEIVING REPORT NO. 2372

JOB NO. 7177

INSPECTION REPORT

HOLD

APPLICABLE TO: (CHECK) RECEIVING ☑ SUBCONTRACTOR ☐ ☐ MILL TEST REPORTS ☐ X-RAYS ☐ OTHERS

VENDOR Cardinal P.O.NO. 7177-7523 DATE

MANUFACTURER INSPECTED BY R Richardson DATE 4/18/79

ITEM	PART NAME	QUANTITY	MATERIAL
A	3/4" x 3 1/4" Bolts	32	A325
B	7/8" x 5" "	32	"
C	5/8" x 2 3/4" "	20	"
D	5/8 Hvy Hex Nut	20	A194-2H
E	3/4 " " "	24	"
F	1" " " "	24	"

FOR INFORMATION ONLY

ITEM OR DWG. NO.	QUANTITY	HEAT NO. OR SYMBOL	IDENTIFICATION VERIFIED	DOCUMENTATION VERIFIED	RADIOGRAPHS APPROVED	REMARKS
A	32		RAR 4/18/79	RAR 4/18/79		
B	32					
C	20					
D	20					
E	24			4/19/79 RAR		Notified Richard
F	24			4/19/79 RAR		on 4/18/79 - Pulled 4/19/79
						OK - Ray
						DR 5735

Pullman Power Products
Division of Pullman Incorporated

74-70-38 REV 4/15/70

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	3-26-79	1 of 2

DISCOUNT TERMS | SHIPPING TERMS | VIA

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

VENDOR:
CARDINAL
3873 W. Quendo
Las Vegas, Nevada 89118
Attn: Mick Donovan

FOR INFORMATION ONLY

REQ.- P.O.- R.R.- NO. F- 7177-7523

JOB COST CODE: 121 | SUBCONTRACT NO.

MAIL 4 COPIES OF INVOICES TO:
P. O. Box 367
Avila Beach, CA 93424

DR 5737

ITEM (LETTER)	QTY. REQ'D.	DESCRIPTION	UNIT PRICE	TOTAL	DATE REC'D.	QTY. REC'D.
A	32	3/4 - 10 X 3 1/4" Hvy Hx Mach Bolts A325	2 26	72 32		
B	32	7/8 - 9 X 5" Hvy Hx Mach Bolts A325	2 61	83 52		
C	20	5/8 - 11 X 2 3/4" Hvy Hx Mach Bolts A325	2 02	40 40		
D	20	5/8 - 11 Hvy Hx Mach ~~Bolts~~ Nut ~~A325~~ A194-2H	47	9 40		
E	24	7/8" Ø Hvy Hx Half Nuts A194-2H	2 72	65 28		
F	24	1" Ø Hvy Hx Half Nuts A194-2H	3 09	74 16		
		CERTS		75 00		
		SPECIAL REQUIREMENTS ATTACHED				
		CB1a. Chemical and Physical analysis shall be actual, not typical and in accordance with requirements of ASTM A194-2H for nuts and A325 for bolts.				
		TOTAL PRICE		420 08		

NEEDED FOR: EQUIP ANCH MOD UNIT I & II REORDER

DATE NEEDED:	DATE ORDERED:	DATE PROMISED:
IMMEDIATELY	3-21-79	Week

DWG(S) ATTACHED:

PREPARED BY:	APPROVED BY:	PURCHASED BY:
Herman Van	[signature]	R. Nott

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

REMARKS

REIMBURSABLE

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $ | COLLECT: $

RECEIVED BY:

Pullman Power Products

74-70-38 REV 6/15/78

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	3-26-79	2 of 2

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

REC.- P.O.- R.R.- NO. F- 7177- 7523

DISCOUNT TERMS | SHIPPING TERMS

JOB COST CODE: 121 | SUBCONTRACT NO.

VIA

VENDOR: CARDINAL

MAIL 4 COPIES OF INVOICES TO:
P. O. Box 367
Avila Beach, CA 93424

DR 5736

FOR INFORMATION ONLY

	SPECIAL REQUIREMENTS FOR STRUCTURAL BOLTS OR FASTENERS FOR CIVIL STEEL
CB2.	Supplier shall furnish three copies of Manufacturer's Test Reports.
CB3.	Manufacturers' Test Reports shall be traceable to our Purchase Order and Item No.
CB4.	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.
CB5.	Any nonconformance to the requirements of the Purchase Order will be considered just cause for return of materials without cost to buyer.
CB6.	Materials shall be domestically manufactured.
CB7.	Lot number shall be entered on containers and Mill Test Reports. The Heat or Heat Code Number shall be marked or tagged on each bundle.

NEEDED FOR:

DATE NEEDED: | DATE ORDERED: | DATE PROMISED:

DWG(S) ATTACHED:

PREPARED BY: | APPROVED BY: | 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,

REMARKS

NON-RETURNABLE

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $ | COLLECT: $

RECEIVED BY:

PRODUCT ENGINEERING DEPARTMENT

TY ASSURANCE AND DOCUMENTATION REQUIREMENTS

	Req'd	Approved by Customer	Verified by M.W.K. Q.C.
Quality Assurance Program - Section III	✓		RWR
ied Drawings for Approval			
ified Procedures for Approval			
Welding			
Weld Repairs			
Heat Treatment			
Ultrasonic			
. Radiograph			
.. Magnetic Particle			
g. Liquid Penetrant			
h. Eddy Current			
4. Documentation			
a. Mill Reports	✓		RWR
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. Manufacturers C of C			
5. Marking per M.W.K. Standard	✓		RWR

FOR INFORMATION ONLY

CARDINAL
PO#7177-7523

DR 5739

PREPARED BY _____ DATE OF ISSUE 3/29/79

PAGE _____ OF _____

PRODUCT ENGINEERING DEPARTMENT

QUALITY ASSURANCE AND DOCUMENTATION REQUIREMENTS

	Req'd	Approved by Customer	Verified by M.W.K. Q.C.
1. Vendor Quality Assurance Program - ASME Section III	✓		RAR
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	✓		RAR
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. Manufacturers C of C			
5. Marking per M.W.K. Standard	✓		RAR

FOR INFORMATION ONLY

CARDINAL

PO# 777-7523

PREPARED BY

APPROVED BY Donald R Lucka

DR 5739

DATE OF ISSUE 3/29/79

PAGE ____ OF ____

EXHIBIT 4

INTEROFFICE CORRESPONDENCE

Dist. To All QC Insp

DATE MAY 31, 1984

TO DISTRIBUTION

FROM H. KARNER

SUBJECT ACCEPTABLE STUD MATERIALS FOR CARBON STEEL WELDING (REF: DR 5891)

DR 5891 identified cases where A-490 and A-193-B7 stud materials, which are not listed in ASME Section IX or AWS D1.1, were welded with a carbon steel welding procedure qualified for welding ASME P-1 materials and D1.1 prequalified materials only.

To prevent recurrence of this discrepancy, only the following stud materials shall be considered acceptable for welding with carbon steel welding procedures:

1) A-36 bar stock

2) Nelson studs

3) A-307 Gr B studs (A-307 bolts with the heads removed are NOT acceptable).

All other stud materials will require written QA/QC approval prior to welding with a carbon steel WPS.

Harold W. Karner
QA/QC Manager

HWK:CN:sam

Distribution:

QC	QA	Engineering-Piping/ Hangers/Rupture Restraints
Engler	Cochrane	
Charboneau	Prewitt	Kapsalis
Neary	Kimmel	Cornish
Clark	McJilton	
J. Watson	Hosman	Superintendents-General Formen
Nolle	McGregor	
		Mokry

All individuals on distribution shall sign, date and return a copy of this memorandum upon receipt.

Signature Date

COPY

PACIFIC GAS AND ELECTRIC COMPANY

PG&E

77 BEALE STREET, SAN FRANCISCO, CALIFORNIA 94106 TELEPHONE (415) 781-4211

July 5, 1984

EXHIBIT 5

Thomas S. Moore, Esq., Chairman
Dr. John H. Buck
Dr. W. Reed Johnson
Atomic Safety and Licensing Appeal Board
U. S. Nuclear Regulatory Commission
4350 East-West Highway
East-West Tower, 5th Floor
Bethesda, MD 20814

Re: Docket No. 50-275, OL-DPR-76
Docket No. 50-323
Diablo Canyon Units 1 and 2
Response to Footnote 21 of Memorandum and Order
Dated June 28, 1984 (ALAB-775)

Gentlemen:

In response to footnote 21 of the decision of the Appeal Board dated June 28, 1984 (ALAB-775), the Affidavit of P. W. Karner is enclosed. As can be seen from the Affidavit, the prior responses of applicant to allegations concerning the use of #307 material remain true and correct.

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

Very truly yours,

ORIGINAL SIGNED BY
Dan G. Lubbock

Enclosure

cc: Service List

8407160305

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of PACIFIC GAS AND ELECTRIC COMPANY (Diablo Canyon Nuclear Power Plant, Units 1 and 2)	Docket Nos. 50-275 50-323

AFFIDAVIT OF H. W. KARNER

STATE OF CALIFORNIA)
) ss.
CITY AND COUNTY OF SAN FRANCISCO)

The above, being duly sworn, deposes and says:

My name is Harold W. Karner. I am employed by Pullman Power Products as Manager, Quality Assurance/Quality Control, at Diablo Canyon Power Plant. On May 31, 1984, I issued an interoffice memorandum to all Pullman QA/QC inspectors onsite which stated, inter alia, that "A-307 bolts with the heads removed are NOT acceptable." My intention when issuing the memo was not to imply that the prior use of A-307 bolts as studs was technically unacceptable, but merely to procedurally stop a practice which had evoked enough controversy that its continuation was not deemed desirable.The memo was written to specifically address DR-5892, which referenced A-490 and A-193-B7 studs, and to provide additional controls on the type of carbon steel stud material which can be welded without extra case-by-case authorization.

8407160307

The May 31, 1984 memo does not in any way alter the position taken in PGandE's Response to Joint Intervenors' Motion to Reopen the Record on the Issue of Construction Quality Assurance, Attachment C, pages 12-13. A-307 Grade B bolts/studs are weldable and have been properly welded and meet all specification and code requirements for weldability, chemical composition, strength, and traceability.

There was no technical reason why I included the statement regarding the use of A-307 Grade B bolts as studs. I only meant that from that date forward, Pullman welders could no longer make A-307 Grade B studs from A-307 Grade B bolts without prior QA/QC approval.

I have read the preceding two pages and the information outlined therein is true and accurate to the best of my knowledge.

Dated: July 5, 1984

H. W. Karner

Subscribed and sworn to
before me this 5th day
of July, 1984

C. T. Neal-Madison

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

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

SEAL

Standard Specification for CARBON STEEL EXTERNALLY THREADED STANDARD FASTENERS[1]

This standard is issued under the fixed designation A 307; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification[2] covers the chemical and mechanical requirements of two grades of carbon steel externally threaded standard fasteners, in sizes ¼ in. (6.35 mm) through 4 in. (104 mm). This specification does not cover requirements for externally threaded fasteners having heads with slotted or recessed drives or for mechanical expansion anchors. The fasteners covered by this specification are frequently used for the following applications:

1.1.1 *Grade A Bolts*, for general applications, and

1.1.2 *Grade B Bolts*, for flanged joints in piping systems where one or both flanges are cast iron.

1.2 If no grade is specified in the inquiry, contract, or order, Grade A bolts shall be furnished.

1.3 Nonheaded anchor bolts, either straight or bent, to be used for structural anchorage purposes, shall conform to the requirements of Specification A 36 with tension tests to be made on the bolt body or on the bar stock used for making the anchor bolt.

1.4 Suitable nuts are covered in Specification A 563. Unless otherwise specified, the grade and style of nut for each grade of fastener, of all surface finishes, shall be as follows:

Fastener Grade and Size	Nut Grade and Style[3]
A, ¼ to 1½ in.	A, hex
A, over 1½ to 4 in.	C, heavy hex
B, ¼ to 4 in.	A, heavy hex

[3] Nuts of other grades and styles having specified proof load strengths (Specification A 563, Table II) greater than the specified grade and style of nut are also suitable.

1.5 The values stated in inch-pound units are to be regarded as the standard.

1.6 Supplementary Requirement S1 of an optional nature is provided, which describes additional restrictions to be applied when bolts are to be welded. It shall apply only when specified in the inquiry, order, and contract.

2. Applicable Documents

2.1 *ASTM Standards:*

A 36 Specification for Structural Steel[4]

A 153 Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware[5]

A 370 Methods and Definitions for Mechanical Testing of Steel Products[6]

A 563 Specification for Carbon and Alloy Steel Nuts[7]

A 706 Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement[8]

A 751 Methods, Practices, and Definitions for Chemical Analysis of Steel Products[9]

B 454 Specification for Mechanically Deposited Coatings of Cadmium and Zinc on Ferrous Metals[9]

2.2 *American National Standards*[10]

ANSI B1.1 Unified Screw Threads

ANSI B18.2.1 Square and Hex Bolts and Screws

[1] This specification is under the jurisdiction of ASTM Committee F-16 on Fasteners, and is the direct responsibility of Subcommittee F 16.02 on Steel Bolting.

Current edition approved May 28 and Aug. 27, 1982. Published October 1982. Originally published as A 307 – 47 T. Last previous edition A 307 – 80.

[2] For ASME Boiler and Pressure Vessel Code applications see related Specification SA-307 in Section II of that Code.

[3] *1983 Annual Book of ASTM Standards*, Vol 01.04.

[4] *1983 Annual Book of ASTM Standards*, Vol 01.03.

[5] *1983 Annual Book of ASTM Standards*, Vol 01.01, 01.02, 01.03, 01.04, 01.05, and 15.08.

[6] *1983 Annual Book of ASTM Standards*, Vol 01.03 and 01.04.

[7] *1983 Annual Book of ASTM Standards*, Vol 01.04.

[8] *1983 Annual Book of ASTM Standards*, Vol 01.01, 01.02, 01.03, 01.04, 01.05, and 03.05.

[9] *1983 Annual Book of ASTM Standards*, Vol 01.04 and 02.05.

[10] May be obtained from American National Standards Institute, Inc., 1430 Broadway, New York, N. Y. 10018.

3. Ordering Information

3.1 Orders for externally threaded fasteners (including nuts and accessories) under this specification shall include the following:

3.1.1 ASTM designation and date of issue,

3.1.2 Name of product, that is, hex or heavy hex.

3.1.3 Grade, that is, A or B (If no grade is specified, Grade A bolts are furnished.

3.1.4 Quantities (number of pieces by size including nuts).

3.1.5 Fastener size and length.

3.1.6 *Washers*—Quantity and size (separate from bolts).

3.1.7 *Galvanizing*—Specify hot dip, mechanical (4.4) or other finish required.

3.1.8 Specify if inspection at point of manufacture is required.

3.1.9 Specify if certified test report is required (see 9.2), and

3.1.10 Specify additional testing (9.3) or special requirements.

4. Materials and Manufacture

4.1 Steel for bolts shall be made by the open-hearth, basic-oxygen, or electric-furnace process.

4.2 Bolts may be produced by hot or cold forging of the heads or machining from bar stock.

4.3 Bolt threads may be rolled or cut.

4.4 When specified, galvanized bolts shall be hot-dip zinc coated in accordance with the requirements of Class C of Specification A 153. When specified by the purchaser to be mechanically galvanized, bolts covered by this specification shall be mechanically zinc coated and the coating and coated fasteners shall conform to the requirements for Class 50 of Specification B 454, or to the coating thickness, adherence, and quality requirements for Class C of Specification A 153.

5. Chemical Requirements

5.1 Steel shall conform to the following chemical requirements:

	Grade A Bolts	Grade B Bolts
Phosphorus, max, %	0.08	0.04
Sulfur, max, %	0.15	0.15

5.2 Resulfurized material is not subject to rejection based on product analysis for sulfur.

5.3 Bolts are customarily furnished from stock, in which case individual heats of steel cannot be identified.

5.4 Application of heats of steel to which bismuth, selenium, tellurium, or lead has been intentionally added shall not be permitted for Grade B bolts.

5.5 Chemical analyses shall be performed in accordance with Methods A 751.

6. Mechanical Requirements

6.1 Bolts shall not exceed the maximum hardness required in Table 1. Bolts less than three diameters in length, or bolts with drilled or undersize heads shall have hardness values not less than the minimum nor more than the maximum hardness limits required in Table 1, as hardness is the only requirement.

6.2 Bolts 1½ in. in diameter or less, other than those excepted in 6.1, shall be tested full size and shall conform to the requirements for tensile strength specified in Table 2.

6.3 Bolts larger than 1½ in. in diameter, other than those excepted in 5.1, shall preferably be tested full size and when so tested, shall conform to the requirements for tensile strength specified in Table 2. When equipment of sufficient capacity for full-size bolt testing is not available, or when the length of the bolt makes full-size testing impractical, machined specimens shall be tested and shall conform to the requirements shown below:

	Tensile Strength, ksi (MPa)	Elongation in 2 in. or 50 mm, %
Grade A and Grade B bolts	60 (415) min 100 (690) max	18 min
Grade B bolts only		

In the event that bolts are tested by both full size and by machine test specimen methods, the full-size test shall govern if a controversy between the two methods exists.

6.4 For bolts on which both hardness and tension tests are performed, acceptance based on tensile requirements shall take precedence in the event that there is controversy over low readings of hardness tests.

7. Dimensions

7.1 Unless otherwise specified, threads shall be the Coarse Thread Series as specified in the latest issue of ANSI B1.1, having a Class 2A tolerance.

7.2 Unless otherwise specified, Grade A bolts shall be hex bolts with dimensions as given in the latest issue of ANSI B 18.2.1. Unless otherwise specified, Grade B bolts shall be heavy hex bolts with dimensions as given in the latest issue of ANSI B 18.2.4.

7.3 Unless otherwise specified, bolts to be used with nuts or tapped holes which have been tapped oversize, in accordance with Specification A 563, shall have Class 2A threads before hot dip or mechanical galvanizing. After galvanizing, the maximum limit of pitch and major diameter may exceed the Class 2A limit by the following amount:

Diameter, in.	Oversize Limit, in. (mm)[A]
Up to 7/16, incl	0.016 (0.41)
Over 7/16 to 1, incl	0.021 (0.53)
Over 1	0.031 (0.79)

[A] These values are the same as the minimum overtapping required for galvanized nuts in Specification A 563.

7.4 The gaging limit for bolts shall be verified during manufacture or use by assembly of a nut tapped as nearly as practical to the amount oversize shown above. In case of dispute, a calibrated thread ring gage of that same size (Class X tolerance, gage tolerance plus) shall be used. Assembly of the gage, or the nut described above, must be possible with hand effort following application of light machine oil to prevent galling and damage to the gage. These inspections, when performed to resolve disputes, shall be performed at the frequency and quality described in Table 3.

8. Test Methods

8.1 The material shall be tested in accordance with Supplement III of Methods A 370.

8.2 Standard square and hex head bolts only shall be tested by the wedge tension method except as noted in 6.1. Fracture shall be in the body or threads of the bolt without any fracture at the junction of the head and body. Other headed bolts shall be tested by the axial tension method.

8.3 Speed of testing as determined with a free running crosshead shall be a maximum of 1 in. (25.4 mm)/min for the tensile strength tests of bolts.

9. Number of Tests and Retests

9.1 The requirements of this specification shall be met in continuous mass production for stock, and the manufacturer shall make sample inspections to ensure that the product conforms to the specified requirements. Additional tests of individual shipments of material are not ordinarily contemplated. Individual heats of steel are not identified in the finished product.

9.2 When specified in the order, the manufacturer shall furnish a test report certified to be the last completed set of mechanical tests for each stock size in each shipment.

9.3 When additional tests are specified on the purchase order, a lot, for purposes of selecting test samples, shall consist of all material offered for inspection at one time that has the following common characteristics:

9.3.1 One type of item,

9.3.2 One nominal size, and

9.3.3 One nominal length of bolts.

9.4 From each lot, the number of tests for each requirement shall be as follows:

Number of Pieces in Lot	Number of Samples
800 and under	1
801 to 8 000	2
8 001 to 22 000	3
Over 22 000	4

9.5 If any machined test specimen shows defective machining it may be discarded and another specimen substituted.

9.6 Should any sample fail to meet the requirements of a specified test, double the number of samples from the same lot shall be tested, in which case all of the additional samples shall meet the specification.

10. Marking

10.1 Bolt heads shall be marked (by raised or depressed mark at the option of the manufacturer) to identify the manufacturer. The manufacturer may use additional marking for his own use.

11. Inspection

11.1 If the inspection described in 11.2 is required by the purchaser it shall be specified in the inquiry, order, or contract.

11.2 The inspector representing the purchaser shall have free entry to all parts of the manufacturer's works that concern the manufacture of the material ordered. The manufacturer shall afford the inspector all reasonable facilities to satisfy him that the material is being furnished in accordance with this specification. All tests and inspections required by the specification that are requested by the purchaser's representative shall be made before shipment, and shall be conducted as not to interfere unnecessarily with the operation of the works.

12. Rejection

12.1 Unless otherwise specified, any rejection based on tests specified herein shall be reported to the manufacturer within 30 working days from the receipt of samples by the purchaser.

SUPPLEMENTARY REQUIREMENT

The following supplementary requirement shall apply only when specified in the purchase order or contract.

S1. Bolts Suitable for Welding

S1.1 The material described in this section is intended for welding. This supplemental section, by additional chemical composition restrictions and by a carbon equivalent formula, provides assurance of weldability by chemical composition control.

S1.2 Welding technique is of fundamental importance when bolts produced to this supplementary section are welded. It is presupposed that suitable welding procedures for the steel being welded and the intended service will be selected.

S1.3 All of the requirements of this supplemental section apply in addition to all of the chemical, mechanical, and other requirements of the base specification, A 307 for Grade B.

S1.4 Because of the embrittling effects of welding temperatures on cold-forged steel, this supplemental section is limited to hot-forged bolts, or, if not forged, then to bolts produced from hot-rolled bars without forging or threaded bars, bars studs, or stud bolts produced from hot-rolled bars without forging. Cold-forged bolts, or cold-drawn threaded bars, if they are given a thermal treatment by heating to a temperature of not less than 1500°F (815°C) and air-cooled are also suitable.

S1.5 *Chemical Requirements:*

S1.5.1 *Heat Chemical Analysis*—Material conforming to the following additional analysis limitations shall be used to manufacture the product described in this supplementary requirement.

Carbon	0.30 %, max
Manganese	1.00 %, max
Phosphorus	0.04 %, max
Sulfur	0.05 %, max
Silicon	0.50 %, max

S1.5.2 *Carbon Equivalent (Source—ASTM Specification A 706)*—In addition to the heat chemical analysis requirements in S1.5.1, the heat analysis shall be such as to provide a carbon equivalent (CE) not exceeding 0.55 when calculated as follows:

$$CE = \%C + \frac{\%Mn}{6} + \frac{\%Cu}{40} + \frac{\%Ni}{20} + \frac{\%Cr}{10} + \frac{\%Mo}{50} - \frac{\%V}{10}$$

S1.6 *Analysis Reports*—If requested on the order or contract, the chemical composition of each heat of steel used and the calculated carbon equivalent for each heat shall be reported to the purchaser.

S1.7 Product (Check) Verification Analysis—A Chemical analysis may be made by the purchaser or his representative from bolts selected from each heat of steel. The analysis thus determined shall not exceed the values specified in S1.5.2 by more than the following amounts.

	%
Carbon	+0.03
Manganese	+0.06
Phosphorus	+0.005
Sulfur	+0.008
Silicon	+0.05

TABLE 1 Hardness Requirements for Bolts

Bolt Size, in.	Grade	Hardness, Brinell		Hardness, Rockwell B	
		min	max	min	max
All	A	121	241[A]	69	100[A]
	B	121	212	69	95

[A] Except when tested by wedge tension test.

TABLE 2 Tensile Requirements for Full-Size Bolts

Bolt Size, in.	Threads per inch	Stress Area,[A] in.^{2}	Tensile Strength, lbf[B] Grades A and B, min	Tensile Strength, lbf[B] Grade B only, max[C]
¼	20	0.0318	1 960	3 180
⅜	18	0.0524	3 100	5 240
⅜	16	0.0775	4 650	7 750
½	14	0.1063	6 350	10 630
	13	0.1419	8 500	14 190
⅝	12	0.182	11 000	18 200
¾	11	0.226	13 550	22 600
⅞	10	0.334	20 050	33 400
1	8	0.462	27 700	46 200
1	8	0.606	36 350	60 500
1¼	7	0.763	45 800	76 300
1¼	7	0.969	58 150	96 900
1½	6	1.155	69 300	115 500
1½	6	1.405	84 300	140 500
1¾	5	1.90	114 000	190 000
2	4½	2.50	150 000	250 000
2¼	4½	3.25	195 000	325 000
2½	4	4.00	240 000	400 000
2¾	4	4.93	295 000	493 000
3	4	5.97	358 000	597 000
3¼	4	7.10	426 000	710 000
3½	4	8.33	499 500	833 000
3¾	4	9.66	579 500	965 000
4	4	11.08	665 000	1 110 000

[A] Area calculated from the formula

$$A_s = 0.7854(D - 0.9743/n)^2$$

where

A_s = stress area,
D = nominal diameter of bolt, and
n = threads per inch.

[B] 1 lbf = 4.448 N.

[C] Based on 60 ksi (414 MPa).

[D] Based on 100 ksi (689 MPa).

TABLE 3 Sample Sizes and Acceptance Numbers for Inspection of Hot Dip or Mechanically Galvanized Threads

Lot Size	Sample Size[A, B]	Acceptance Number[A]
2 to 90	13	1
91 to 150	20	2
151 to 280	32	3
281 to 500	50	5
501 to 1 200	80	7
1 201 to 3 200	125	10
3 201 to 10 000	200	14
10 001 and over	315	21

[A] Sample sizes of acceptance numbers are extracted from "Single Sampling Plan for Normal Inspection" Table IIA, MIL-STD-105D.

[B] Inspect all bolts in the lot if the lot size is less than the sample size.

Designation: A 320 – 82

Standard Specification for ALLOY STEEL BOLTING MATERIALS FOR LOW-TEMPERATURE SERVICE[1]

This standard is issued under the fixed designation A 320; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This specification has been approved for use by agencies of the Department of Defense and for listing in the DoD Index of Specifications and Standards.

1. Scope

1.1 This specification[2] covers alloy steel bolting materials for pressure vessels, valves, flanges, and fittings for low-temperature service. The term "bolting material" as used in this specification covers rolled, forged, or strain hardened bars, bolts, screws, studs, and stud bolts. The bars shall be hot-wrought. The material may be further processed by centerless grinding or by cold drawing. Austenitic stainless steel may be solution annealed or annealed and strain-hardened.

1.2 Several grades are covered, including both ferritic and austenitic steels designated L7, B8, etc. Selection will depend on design, service conditions, mechanical properties, and low-temperature characteristics.

NOTE 1—The committee formulating this specification has included several grades of material that have been rather extensively used for the present purpose. Other compositions will be considered for inclusion by the committee from time to time as the need becomes apparent. Users should note that hardenability of some of the grades mentioned may restrict the maximum size at which the required mechanical properties are obtainable.

1.3 Nuts for use with this bolting material are covered in Section 9.

1.4 Supplementary Requirement S1 of an optional nature is provided. It shall apply only when specified in the inquiry, contract and order.

1.5 The values stated in inch-pound units are to be regarded as the standard.

2. Applicable Documents

2.1 *ASTM Standards:*

A 29 Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought and Cold-Finished[3]

A 194 Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service[4]

A 276 Specification for Stainless and Heat-Resisting Steel Bars and Shapes[3]

A 325 Specification for High-Strength Bolts for Structural Joints[5]

A 370 Methods and Definitions for Mechanical Testing of Steel Products[4]

2.2 *American National Standards Institute Standards:*[6]

B18.2.1 Square and Hex Bolts and Screws

B18.3 Hexagon Socket and Spline Socket Screws

B18.22.1 Plain Washers

3. Ordering Information

3.1 The inquiry and order for material under this specification shall include the following as required to describe the material adequately:

3.1.1 ASTM Designation A 320 latest issue, and analysis by grade as selected from Table 1,

3.1.2 Minimum mechanical properties re-

[1] This specification is under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.22 on Valves and Fittings.

Current edition approved July 30, 1982. Published September 1982. Originally published as A 320 – 48 T. Last previous edition A 320 – 81.

[2] For ASME Boiler and Pressure Vessel Code applications, see related Specification SA-320 in Section II of that Code.

[3] *1983 Annual Book of ASTM Standards*, Vol 01.05.

[4] *1983 Annual Book of ASTM Standards*, Vol 01.01.

[5] *1983 Annual Book of ASTM Standards*, Vol 01.04.

[6] Available from American National Standards Institute, 1430 Broadway, New York, N.Y. 10018.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Thomas S. Moore, Chairman
Dr. John H. Buck
Dr. W. Reed Johnson

June 28, 1984
(ALAB-775)

In the Matter of	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket Nos. 50-275 OL 50-323 OL
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)	)	

Joel R. Reynolds, John R. Phillips and Eric Havian, Los Angeles, California, and David S. Fleischaker, Oklahoma City, Oklahoma, for the San Luis Obispo Mothers for Peace, et al., joint intervenors.

Robert Ohlback, Philip A. Crane, Jr., Richard F. Locke and Dan G. Lubbock, San Francisco, California, and Arthur C. Gehr, Bruce Norton and Thomas A. Scarduzio, Jr., Phoenix, Arizona, for Pacific Gas and Electric Company, applicant.

Joseph Rutberg, Henry J. McGurren and Lawrence J. Chandler, for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

1. On March 20, 1984, we issued ALAB-763 containing our findings of fact and conclusions of law with respect to the adequacy of the applicant's current design quality assurance program and the sufficiency of its design verification efforts to establish the efficacy of the design

of the Diablo Canyon facility.[1] The operating license proceeding had been reopened on the motion of the joint intervenors,[2] and the trial of the issues involved consumed fifteen hearing days. In ALAB-763, we concluded that

> [t]he applicant's verification efforts provide adequate confidence that the Unit 1 safety-related structures, systems and components are designed to perform satisfactorily in service and that any significant design deficiencies in that facility resulting from defects in the applicant's design quality assurance program have been remedied. Accordingly, we conclude that there is reasonable assurance that the facility can be operated without endangering the health and safety of the public. As a result, the license authorization previously granted . . . remains in effect. . . .[3]

Previously in ALAB-756, issued December 19, 1983,[4] we detailed the reasons underlying our earlier order denying, after four days of hearing, the joint intervenors' motion to reopen the record on the issue of the asserted inadequacy of the applicant's construction quality assurance program.[5] In denying that motion, we found that the joint intervenors had

---

[1] 19 NRC ___.

[2] In addition, the Governor of California filed a motion to reopen the record on the issue of the adequacy of the applicant's design quality assurance program and that motion was also granted.

[3] 19 NRC at ___ (slip opinion at 101).

[4] 18 NRC 1340.

[5] See Order of October 24, 1983 (unpublished).

failed to present new evidence of a significant safety issue.[6]

We now have before us two additional motions of the joint intervenors to reopen the record in the Diablo Canyon operating license proceeding. The first, filed February 14, 1984, again seeks to reopen on the issue of the adequacy of the applicant's design quality assurance program.[7] The second, filed February 22, 1984, seeks to reopen on the issues of the adequacy of the applicant's construction quality assurance program and the applicant's character and competence. Both motions are accompanied by the affidavits

---

[6] ALAB-756, supra, 18 NRC at 1354-55.

[7] The joint intervenors' motion is phrased in the alternative. They first endeavor to augment the evidentiary hearing record of the reopened design quality assurance proceeding with the materials accompanying the motion. Alternatively, they seek to reopen the record for further hearing. The joint intervenors attempt to augment the hearing record based on a colloquy between applicant's counsel and us at the end of the evidentiary hearing concerning the formal closing of the record. See Tr. D-3246. They have misapprehended the import of those remarks. Our comment was intended to accommodate, as a matter of administrative convenience, such matters as a party's belated motion to admit an exhibit that had been marked for identification at trial but, through an oversight, had not been moved into evidence. We did not (and could not properly) provide for the wholesale augmentation of the evidentiary record now sought by the joint intervenors. Supplementing the record with the materials proffered by the joint intervenors would require, at a minimum, the consent of all parties. Accordingly, the motion to augment the record is denied and we shall treat the motion solely as one to reopen the record.

of several individuals currently working, or previously employed, at the Diablo Canyon facility. The affidavits and supplementary documentary exhibits fill hundreds of pages and set forth, by the joint intervenors' count, some 200 charges of purported inadequacies in the design, construction, or quality assurance practices at the plant. Further, the joint intervenors supplemented each reopening motion with additional material after the motions were filed.[8]

The applicant and the NRC staff filed lengthy responses opposing both reopening motions.[9] The responses contain numerous detailed affidavits and voluminous documentary materials addressing the allegations in the joint intervenors' filings. Thereafter, the joint intervenors

---

[8] See Joint Intervenors' Supplement To February 14, 1984 Motion To Augment Or, In the Alternative, To Reopen The Record (March 1, 1984); Joint Intervenors' Supplement To February 22, 1984 Motion To Reopen The Record On The Issues Of Construction Quality Assurance And Licensee Character And Competence (March 3, 1984).

[9] See Pacific Gas And Electric Company's Answer In Opposition To Joint Intervenors' Motion To Augment Or, In The Alternative, To Reopen The Record (March 6, 1984); NRC Staff's Answer To Joint Intervenors' Motion To Augment Or, In The Alternative, To Reopen The Record (March 15, 1984); Pacific Gas And Electric Company's Answer In Opposition To Joint Intervenors' Motion To Reopen The Record On The Issue of Construction Quality Assurance And Licensee Character And Competence (March 19, 1984); NRC Staff's Answer To Joint Intervenors' Motion To Reopen The Record On Construction Quality Assurance And Licensee Character And Competence (April 11, 1984).

filed a reply to the applicant's response to the motion concerning design quality assurance,[10] and then filed a second supplement to that motion[11] to which both the applicant and the staff responded.[12] By order of May 23, 1984, we provided the joint intervenors with an opportunity to reply to the applicant's and the staff's final responses to both motions.[13] The order stated that any reply must be accompanied by the affidavits of qualified individuals and clearly establish, for the matters raised by the joint intervenors' filings, why the responses of the applicant and the staff are insufficient. It also indicated that the joint intervenors must demonstrate the significance to plant safety of their assertions as well as identify each remaining issue of disputed material fact with regard to

---

[10] See Joint Intervenors' Reply To Answer Of Pacific Gas And Electric Company To Motion To Augment Or, In The Alternative, To Reopen The Record (March 15, 1984).

[11] See Joint Intervenors' Supplement To Motion To Augment Or, In The Alternative, To Reopen The Record (April 6, 1984).

[12] See Answer Of Pacific Gas And Electric Company To Joint Intervenors' Supplement To Motion To Augment Or, In The Alternative, To Reopen The Record (April 23, 1984); NRC Staff Response To Joint Intervenors' Supplement To Motion To Augment, Or In The Alternative, To Reopen The Record (April 25, 1984).

[13] See Order of May 23, 1984 (unpublished).

their charges. The joint intervenors filed their reply on June 12.

2. Our earlier decision denying joint intervenors' motion to reopen the record on the issue of the adequacy of the applicant's construction quality assurance program reiterated the three-pronged standard the proponent of a reopening motion must satisfy:

> "[t]he motion must be both timely and addressed to a significant safety or environmental issue. Vermont Yankee Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973); . . . Georgia Power Co. (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), ALAB-291, 2 NRC 404, 409 (1975). Beyond that, it must be established that 'a different result would have been reached initially had [the material submitted in support of the motion] been considered.' Northern Indiana Public Service Co. (Bailly Generating Station, Nuclear-1), ALAB-227, 8 AEC 416, 418 (1974)."[14]

We previously have held that, for a reopening motion to be timely presented, the movant must show that the issue sought to be raised could not have been raised earlier.[15] In ALAB-756, we highlighted what constitutes a "significant safety issue" for motions predicated on asserted deficiencies in a construction quality assurance program. We stated there that

---

[14] ALAB-756, supra, 18 NRC at 1344.

[15] Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973). See Detroit Edison Co. (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1764-65 (1982).

> perfection in plant construction and the facility quality assurance program is not a precondition for a license under either the Atomic Energy Act or the Commission's regulations. What is required instead is reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety. . . .
>
> . . . In order for new evidence to raise a "significant safety issue" for purposes of reopening the record, it must establish either that uncorrected. . . errors endanger safe plant operation, or that there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely. . . .[16]

Although the focus of ALAB-756 was a motion to reopen on the issue of construction quality assurance, what we said there is equally applicable to reopening motions directed to the issue of design quality assurance.

Further, the Commission has emphasized in this very proceeding that the proponent of a reopening motion must present "'significant new evidence . . . that materially affects the decision,'" not "bare allegations or simple submission of new contentions."[17] At a minimum, therefore, the new material in support of a motion to reopen must be set forth with a degree of particularity in excess of the basis and specificity requirements contained in 10 CFR 2.714(b) for admissible contentions. Such supporting

---

[16] ALAB-756, supra, 18 NRC at 1344 (citations omitted).

[17] CLI-81-5, 13 NRC 361, 362-63 (1981).

information must be more than mere allegations; it must be tantamount to evidence. And, if such evidence is to affect materially the previous decision (as required by the Commission), it must possess the attributes set forth in 10 CFR 2.743(c) defining admissible evidence for adjudicatory proceedings. Specifically, the new evidence supporting the motion must be "relevant, material, and reliable."[18]

The joint intervenors' new motions to reopen on the issues of the adequacy of the applicant's design and construction quality assurance programs, like their earlier motion denied in ALAB-756, fail to meet these standards. We

---

[18] In other words, only facts raising a significant safety issue, not conjecture or speculation, can support a reopening motion. The facts must be relevant to the proposition they support, and probative of the safety issue presented. General statements are of no value. Similarly, although hearsay may be admissible in NRC proceedings, it must be shown to be reliable if it is to be considered as support for the motion.

Also embodied in the reliability requirement of 10 CFR 2.743(c) is the notion that evidence presented in affidavit form must be given by competent individuals with knowledge of the facts or experts in the disciplines appropriate to the issues raised. Because the competence (or even the existence) of unidentified individuals is impossible to determine, statements of anonymous persons -- so-called anonymous affidavits -- cannot be considered as evidence to support a motion. For adjudicatory proceedings, in camera filings and requests for protective orders are available in appropriate circumstances to protect the legitimate interests of a party or other person. This situation should be contrasted to the staff's responsibilities outside the adjudicatory arena where even anonymous charges receive attention. The staff has, in fact, investigated a vast number of such allegations with respect to Diablo Canyon.

have carefully examined each of the joint intervenors' charges with their supporting materials and the responses of the applicant and the staff. Our scrutiny of the motions leads us to conclude that the joint intervenors have failed to present new evidence of any significant safety issue that could have an effect on the outcome of the licensing proceeding.[19] Among other things, the movants have not presented evidence that establishes uncorrected design or construction errors that endanger safe plant operation. Nor have they demonstrated that there has been a breakdown of the applicant's quality assurance program that raises legitimate doubt that the facility can operate safely.[20]

---

[19] The joint intervenors' reply to the applicant and staff responses filed pursuant to our May 23, 1984 order was accompanied by numerous supporting affidavits. Despite our instruction that the reply address why the responses of the applicant and staff are insufficient for "each matter raised . . . [or] asserted," the joint intervenors' reply "do[es] not individually address all of . . . the matters raised." Reply at 5. Further, in some instances, the reply raises entirely new issues. Although joint intervenors indicate that they had insufficient time to comply with our order, no request for an extension of time was filed. In any event, the joint intervenors concede that "few [of the noted] deficiencies will be demonstrably 'significant' if considered individually." Reply at 6. The movants are apparently content, therefore, to rely on the cumulative significance of the numerous purported deficiencies, none of which individually has been shown to be safety significant.

[20] For example, a number of the allegations focus on deficiencies in the methodology, practices, and quality assurance associated with the computer design of small bore (less than 2" diameter) pipe supports. The staff also found (Footnote Continued)

Moreover, our searching review of the motions reveals nothing that causes us to question the continuing validity of the conclusions we reached in ALAB-756 and ALAB-763 -- conclusions that followed extensive evidentiary explorations of construction and design quality assurance at Diablo Canyon. For these reasons, the motion to reopen on the issue of the applicant's design quality assurance program is denied and, with the reservation noted in the footnote below, the motion to reopen on the issue of the applicant's construction quality assurance program is also denied.[21]

(Footnote Continued)
the number of errors occurring in this type of calculation to be higher than expected (NRC Staff's Answer To Joint Intervenors' Motion To Augment Or In the Alternative, To Reopen The Record (March 15, 1984), Knight Affidavit at 14). A staff imposed license condition required the applicant to redo all computer-based small bore pipe support calculations -- including additional physical effects not addressed in the original analyses. Transcript of May 9, 1984 Meeting between NRC staff and applicant at 15-23, 247. We note that the result of this program, with the reanalysis of all but 15 of 357 supports completed, shows that all of the supports meet design criteria, and no modifications are necessary. Letter from J. Schuyler to D. Eisenhut (June 11, 1984) (DCL-84-223), attachment at 1-5. Thus, errors in the small bore pipe support computer calculations, though numerous, have had no effect on the design adequacy of the supports.

[21] We reserve ruling on one matter raised by the joint intervenors' reopening motion on the issue of construction quality assurance until we receive further information from the applicant. In its February 22, 1984 motion at page 12, the joint intervenors charge that the applicant improperly used, as studs for the containment liner, A307 hardware bolts with the heads removed. According to an affidavit accompanying the applicant's response, the use of such bolts was permissible. Pacific Gas And Electric Company's Answer
(Footnote Continued)

As previously indicated, the number of diverse allegations of purported deficiencies contained in the joint intervenors' motions is very large. Even discounting the substantial repetition in the two motions, the affidavits and other documentary materials proffered as new evidence in support of the movants' charges are extensive.[22] When the

---

(Footnote Continued)
In Opposition To Joint Intervenors' Motion To Reopen The Record On The Issue of Construction Quality Assurance And Licensee Character And Competence, supra note 9, Attachment C at 12-13. As an exhibit to their June 12, 1984 reply, the joint intervenors have attached a May 31, 1984 Pullman Power Products "Interoffice Correspondence" memorandum dealing with this issue. That memorandum is addressed to "Distribution" from "H. Karner" and concerns the subject of "Acceptable Stud Materials For Carbon Steel Welding (Ref: DR 5891)." The memorandum states, inter alia, that "(A-307 bolts with the heads removed are NOT acceptable)," and is signed by Harold W. Karner, QA/QC Manager.

The applicant shall inform us by July 6, 1984 why, in the words of the Pullman memorandum, A-307 bolts with the heads removed are not acceptable. The applicant's explanation shall be accompanied by appropriate affidavits of qualified experts and shall address the movants' charge, the applicant's prior response to that charge, and the recent Pullman memorandum.

[22] Not only does some of the same material accompany both motions, there is substantial repetition within the supporting materials accompanying each of the joint intervenors' motions. Additionally, the material purportedly supporting each motion is lumped together in a manner that lacks essential organization. Further, some of this material consists of anonymous statements. See note 18, supra. The movants have also included in their filings considerable material that is irrelevant and immaterial to many of their claims. Thus, the unorganized nature of the supporting material, combined with the massive amount of irrelevant matter in movants' filings, has made our task of

(Footnote Continued)

applicant and staff responses and supporting materials are added to the joint intervenors' filings, the papers run well over a thousand pages. Individual treatment of each of the movants' varied charges -- matters that do not readily lend themselves to being grouped together -- would consume many pages but have no practical precedential value. Such a decision would add little of consequence to the already expansive administrative record of this proceeding.

3. The joint intervenors' second reopening motion (dated February 22, 1984) also seeks to reopen the record on the issue of the applicant's "demonstrated lack of corporate character and competence . . . to manage and operate the Diablo Canyon project."[23] In support of this portion of their motion, the joint intervenors recite a number of instances of purported applicant misconduct dating from 1967 to mid-1983. They claim that these historical examples

---

(Footnote Continued)
analyzing joint intervenors' claims extremely time-consuming and difficult. Indeed, the very nature and manner of presentation of the joint intervenors' filings provide grounds for denying the motion. Rather than follow that course, we have painstakingly plowed through all of movants' papers. If we have missed some pertinent fact buried in the midst of their filings, the movants should not now be heard to complain: the movants failed to separate the wheat from the chaff and to present the material in an organized and persuasive manner.

[23] Joint Intervenors' Motion To Reopen The Record On The Issues Of Construction Quality Assurance And Licensee Character And Competence at 1.

demonstrate the applicant's deficient character and lack of competence to design, construct, and operate the facility.

To these historical examples, the joint intervenors add a lengthy list of alleged deficiencies in the applicant's design and construction quality assurance programs from their most recent motions to reopen the record. They argue that these new charges and supporting materials, combined with their previously recited historical evidence, in effect, create a pattern and practice of deficient character and incompetence on the part of the applicant that constitute significant new evidence to support reopening the record on this issue.

The joint intervenors' motion to reopen the record on the issue of the applicant's character and competence is denied. The movants' historical examples of alleged applicant misconduct are not timely presented. Moreover, the movants' new list of purported deficiencies fails to present evidence of a significant safety issue that could have an effect on the outcome of the proceeding.

The past incidents of alleged applicant misconduct relied upon by the joint intervenors occurred too long ago to be properly considered in a motion to reopen the record without a showing why this issue could not have been raised earlier. No such showing has even been attempted by the movants. Nor can the tardy presentation of these historical examples be saved by bootstrapping them to a series of more

recent charges. Indeed, all of the movants' examples are matters of public record and most of them have been used previously by the movants to support earlier reopening motions on other issues, or have been used already as evidence in the Diablo Canyon operating license proceeding.[24] Moreover, taken in proper context, none of these historical examples, singularly or in combination, establishes that the applicant's character and competence are insufficient to design, construct and operate the Diablo Canyon facility. Similarly, the joint intervenors' new charges of quality assurance program deficiencies do not establish that the applicant lacks the requisite character and competence to operate the plant. As we have already indicated, none of the new charges raises a significant safety issue.

---

[24] Two of the major historical examples relied upon by the joint intervenors involve claims that the applicant failed to conduct adequate geological studies resulting in an improperly located Diablo Canyon facility, and the applicant's poor management practices and policies led to the alleged inadequate redesign of the facility. We note, however, that these items have been thoroughly aired in these proceedings. The early geologic studies are treated in LBP-79-26, 10 NRC 453 (1979) and ALAB-644, 13 NRC 903 (1981). Similarly, management's involvement in the seismic redesign of the Diablo Canyon facility following the discovery of the Hosgri fault is dealt with in ALAB-763, 19 NRC __ (March 20, 1984) (slip opinion at 87-89).

For the foregoing reasons, the joint intervenors' motions to reopen the record, with one reservation,[25] are denied.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

---

[25] See note 21, supra.

Diablo Plant Problems Hidden, Official Says

By ROBERT A. ROSENBLATT, *Times Staff Writer*

WASHINGTON—A quality-control inspector at the Diablo Canyon nuclear power plant has resigned in protest over working conditions, charging that Pacific Gas & Electric Co. covered up serious design problems and ignored his complaints of harassment by construction workers, it was learned Thursday.

"My personal safety has been compromised," the inspector, Timothy J. O'Neill, said in a letter of resignation to the Pullman Power Products Co., the piping contractor at the plant. He quit Tuesday, after a year on the job.

On July 10, workers doused him with a fire hose, and on Monday, "somebody in a crowd walking behind me and another inspector said: 'A .44 would take care of them,' " O'Neill said in a telephone interview from his home in Baywood Park, Calif., seven miles from the plant.

O'Neill plans to file an affidavit today with the Nuclear Regulatory Commission asking for an investigation.

"Licensing the plant in this atmosphere would reward management for inciting criminal harassment and for ordering a criminal cover-up," he said in the affidavit, which was read to The Times by O'Neill's lawyer, Thomas Devine.

The Nuclear Regulatory Commission previously had scheduled a meeting next Thursday to discuss Diablo Canyon. It was tentatively scheduled to vote at that meeting on giving the plant a license to operate at full power. PG&E, which owns the plant near

Please see PROBLEMS, Page 17

PROBLEMS: Diablo Canyon Cover-Up Charged

Continued from Page 3

San Luis Obispo, currently has a low-power permit to generate electricity at up to 5% of capacity.

"There are very firm rules against harassment," PG&E spokesman Dick Davin said by telephone from San Francisco. "That is not to say it can't happen. But we have taken steps to tell everyone we will not tolerate it, and people are subject to firing for engaging in it."

O'Neill said in his affidavit that the Diablo project uses poor welding procedures, with insufficient training for workers, and materials of dubious quality.

Many welded metal studs holding up pipe supports have an excessive carbon content and could become dangerously brittle, O'Neill said. The pipe supports, in turn, are crucial for the nuclear plant's safety, because they buttress the pipes carrying water to cool the reactor during an emergency, according to O'Neill.

The former inspector said he complained that the steel often used in welding was of insufficient quality, only to have his concerns ignored.

"Everyone told me it was acceptable," he said during the telephone interview. "They force you to go out of the system by telling you everything is acceptable."

O'Neill said he had been criticized as a "nit-picker" for requiring quality standards on the work he inspected.

PG&E said its personnel had responded to O'Neill's complaints with careful inquiries but found his charges invalid.

"We have been bending over backwards for this guy," said PG&E spokesman Davin. "We have had meetings with him to be sure we understood his concerns. We investigated them, and we met with him to explain the results of the investigations. His concerns were not legitimate."

O'Neill said he has acted as a confidential informant for the Nuclear Regulatory Commission, providing information about welding and design problems at the plant.

O'Neill's attorney, Devine, said he will ask the Nuclear Regulatory Commission for an independent third-party investigation of his client's allegations that substandard materials and techniques are used at the plant.

EXHIBIT O

PACIFIC GAS AND ELECTRIC COMPANY
STATION CONSTRUCTION DEPARTMENT
DIABLO CANYON PROJECT

Procedure MFI-2-7

Date June 5, 1984

MECHANICAL DEPARTMENT PROCEDURE

Rev. 16

TITLE: INSTRUCTIONS TO FIELD ENGINEERS AND INSPECTORS -HANGERS-

Page 1 of 4

APPROVED: DAV BRT

FIELD STAFF ENGINEER

1.0 SCOPE

This instruction outlines the duties and responsibilities of Field Engineers and Inspectors in the Mechanical Pipe Hanger group.

2.0 RESPONSIBILITY

The Lead Mechanical Pipe Support Supervisor is responsible for implementing this instruction.

3.0 APPLICATION

This instruction applies to pipe hanger group activities related to installation and erection of pipe hangers under the jurisdiction of the Mechanical Group.

4.0 QUALIFICATIONS

Each Field Engineer and Inspector shall be fully qualified for his assigned duties by past work experience and on-site training. He shall be required to have a working knowledge of ASME Section I, III, IX, XI, ANSI B31.1 and B31.7, AWS Codes, AISC Specifications, State of California's Safety Orders, and specifications and drawings pertaining to his assigned work.

5.0 DUTIES

Field Engineers and Inspectors in the hanger group may be involved in on-site receiving, storage, handling, erection, fit-up, welding, bolting, cleaning, and initial support preinspection and in-process or final inspection. This may include any of the following.

5.1 Perform preinspection of pipe supports prior to release for installation.

5.2 Inspect the handling and placement of support structures.

5.3 Insure that plant equipment and structures are stored properly and protected at all times.

5.4 Insure that changes in support design are properly reviewed and documented.

5.5 Assist the contractor in arriving at a reasonable resolution with all problems associated with Company supplied design or materials.

5.6 Follow through on obtaining answers to contractor's questions or acting on his complaints.

6.0 PREINSPECTION OF PIPE SUPPORTS

Pipe support detail drawings are issued to the hanger group for preliminary walkdown and review prior to being released for installation. These drawings are stamped, in red, "Issued For Pre-Inspection". The Pipe Support Field Engineer performs the following functions:

6.1 Preinspection and drawing clarification. This may include inspections of existing portions of supports, resolution of interferences and initiation of various forms required by other site procedures (i.e. Civil C-51, C-64 or C-73 forms). The Field Engineer verifies the ability of modifications required by design to fit the existing portions of installed supports and inspects for any other obvious work items or deficiencies.

6.2 The Field Engineer may request craft layout assistance from the mechanical contractor, Pullman Power Products. This may include drilling of exploratory holes for concrete anchor bolts to assure design constructability.

6.3 Preparation of pipe support fabrication requests as required.

6.4 Initiation of "Design Tolerance Clarification" forms as required (ref: PEI-12).

6.5 Redlining of the pipe support detail for clarification. All redlining will conform to tolerances approved by engineering for use by construction Field Engineers (i.e.: Pullman Power Products ESD-223). All redlining shall be ballooned, initialed and dated by the responsible pipe support Field Engineer.

6.6 Provide a list of work items required to complete the support.

6.7 Assemble the document package for release to the contractor. This package will include the redlined "Pre-Inspection Copy" of the support drawing.

Note: Pullman Power Products pipe support engineers may perform the preinspection functions outlined above at the request of PG and E.

7.0 MATERIAL RECEIPT, HANDLING AND STORAGE

7.1 Materials received by PG and E shall be handled and stored in accordance with General Construction Q.A. Procedure GCP-11.1.

7.2 Materials received by contractors shall be handled and stored in accordance with their respective Quality Assurance manuals and approved procedures.

8.0 INSTALLATION

8.1 As items are moved from storage to the erection site, a random check may be made to assure only those items specified in approved drawings are used.

8.2 Pipe hanger installation shall conform to all applicable specifications and the contractor's quality requirements. Discrepancies shall be processed in accordance with applicable Pullman Power Products and PG and E Quality Control procedures.

8.3 Only those welding processes and procedures submitted by the contractor, and approved by PG and E, shall be used. Filler metal shall conform to the contractor's procedures and specifications.

8.4 The contractor's installations and records shall be monitored to insure that work quality and production rate are maintained. Inspectors may do random checks or establish hold points in the contractor's program. Hold points can be established by written notification to the contractor or by noting on the pipe support process sheet. The quantity of inspections shall be determined by the pipe support supervisor. Results of inspections shall be noted on the contractor's process sheet for the support.

9.0 DRAWING APPROVAL AND MODIFICATION

9.1 Class I Hangers are designed and approved by PG and E's Engineering Department.

9.1.1 All changes made to PG and E pipe support drawings that are outside of ESD-223 tolerances shall be referred to the Pipe Support Design Tolerance (PSDTC) group or other approved method for resolution and documented per ESD-223, ESD-253 and MFI-2-7.

-7

9.1.2 All changes to large bore pipe support drawings shall be shown on the as-built drawings. The as-builts drawings may be reviewed for compliance with Pullman Power Products ESD-223 by PG and E Field Engineering. Accepted as-built drawings are forwarded to PG and E's Engineering department through General Construction Drawing Control. Rejected as-builts are transmitted to the contractor for on Attachment #1 of MFI-2-7.

9.2 Non-Class I Hanger Design and Installation for PG and E code class E piping:

9.2.1 Large Bore hangers are designed by Grinnell Company and PG and E. Small bore (non-Class I) hangers are designed by PG and E or field designed and installed by the contractor (Pullman Power Products).

10.0 REFERENCES

10.1 Specification 8711.

10.2 Contractor's Quality Assurance Manual.

10.3 PG and E Quality Assurance Manual.

10.4 ASME Section I, III, IX, and XI.

10.5 ANSI B31.1 and B31.7.

10.6 AWS D1.0-69.

10.7 AISC Manual of Steel Construction.

10.8 MFI-2-2, MFI-2-10.

10.9 COSHA

10.10 Pullman Power Products ESD-223.

10.11 Pullman Power Products ESD-253.

10.12 Project Engineering Instruction PEI-12.

10.13 Project Instruction PI-23 (IDI's).

MFI-2-7
11-26-82
ATTACHMENT #1

PACIFIC GAS AND ELECTRIC COMPANY
STATION CONSTRUCTION DEPARTMENT
DIABLO CANYON PROJECT

LARGE BORE AS-BUILT CHECKLIST

Support No._____ Rev._____ DCN_____ Unit_____

References: ESD-223 (Installation and Inspection of Pipe Supports)

THE ATTACHED DRAWING IS BEING REJECTED FOR THE FOLLOWING REASON(S):

_____ 1. Lack of/or missing information.

_____ 2. Material (type, size, etc.)

_____ 3. Welds (type, size, etc.)

_____ 4. Dimensions (gaps, etc.) Support Location to be shown from a known feature of the pipe.

_____ 5. Anchor Bolts/Welded Studs (spacing, misalignment, edge distance, etc.)

_____ 6. Comments (modifications, problems, etc.)

Reviewed by:_____

Date:_____

EXHIBIT 10

Diablo inspector claims threats forced him out

By Carl Neiburger
Staff Writer

An inspector at the Diablo Canyon nuclear power plant said today he was harassed into quitting on Tuesday after being threatened by workers, sprayed with a fire extinguisher and struck in the face by a rope.

Timothy J. O'Neill, 27, of Los Osos, made the charges in a petition filed with the Nuclear Regulatory Commission.

He said the campaign of intimidation came as he was being chewed out for raising safety issues by his superiors at Pullman Power Products, a major Diablo Canyon subcontractor, and officials of Pacific Gas and Electric Co., which owns the nuclear plant.

PG&E representative Richard P. Davin denied that O'Neill had been harassed or that officials had disparaged his concerns:

"We bent over backwards to try to understand what his concerns were," Davin said. "We investigated them. We met with him to go over what he found."

O'Neill, however, said that a PG&E quality control supervisor, rather than bending over backward to understand him, criticized him as inflexible and ordered him to follow procedures which, he said, violated regulations.

O'Neill said he went to work at the plant last summer to earn money to complete his engineering technology degree at Cal Poly, which he has attended since 1980.

"I had heard the stories," he said. "I had heard the place was screwed up. I didn't believe it. I wanted to check it out for myself."

He said he became a target for criticism by strictly enforcing codes and insisting on observing welding procedures. He said he clashed with his foreman in May when he found a reinforcing bar had been severed during construction work.

O'Neill said he wanted to write up the problem but his supervisor ordered him to supervise welders instead and wait till he had time to report the severed rebar. O'Neill said he had too much work and wouldn't have time later.

Then, he said, the other incidents began:

- Two welders, who said they had been squirting hand-pumped water fire extinguishers at each other, squirted water over O'Neill and a work report he was writing.
- O'Neill said he and a fellow inspector overheard a welder behind them saying, "My .44 to the back will take care of both of them."
- On Tuesday, a worker threw a rope which struck O'Neill in the face. He said he suspects it wasn't accidental because, "Everybody was standing behind him (the worker), saying, 'Watch it, that's harassment.' "

O'Neill said that was when he decided to quit.

Davin denied that O'Neill was ever discouraged from writing reports but said he was told not to be out of his work area. O'Neill replied that he had to leave the area to copy documents needed to write the reports.

Davin said the water incident involved not a fire extinguisher but paper drinking cups and not more than a few ounces could have hit O'Neill.

As to the .44 threat, Davin said the worker hasn't been identified so there is no way of determining if it happened.

EXHIBIT 1

RESUME OF

TIMOTHY J. O'NEILL

JUNE 1983

PERMANENT ADDRESS:

3507 Winway
San Mateo, CA 94403
(415) 345-2270

PRESENT ADDRESS:

1355 12th Street
Los Osos, CA 93402
(805) 528-5529

CAREER OBJECTIVE

To secure a challenging position as a welding engineer in the construction industry; to obtain a professional engineer's license; and to establish my own consulting firm dealing with welder training, qualification testing, and procedure development for the construction industry.

EMPLOYMENT HISTORY

7/82 to 9/82 — State of California, Department of Corrections
California Mens Colony
P.O. Box A
San Luis Obispo, CA 93409

Hired as Welding Instructor/Supervisor for Vocational Welding curriculum. Duties included classroom and lab instruction in preparation for all-position certification using SMAW and FCAW processes to AWS D1.1-83 and Los Angeles County code requirements. Other duties included inspection of bend test coupons, maintenance of certification records, and general process instruction using SMAW, GTAW, GMAW, FCAW, SAW, and OAC in a high-security prison environment.

6/81 to 9/81 — Westinghouse Electric Corporation, Marine Division
Hendy Avenue
Sunnyvale, CA 94088

Hired as Junior Welding Engineer. Primary responsibilities involved welding procedure development for various alloys and processes. Completed procedure development for vertical and overhead welding of HY-100 material using pulsed-spray GMAW process to Navy (NAVSHIPS 9010) submarine hull specifications. Also worked on developing hand-held SAW procedure for copper-nickel alloy, and square-wave AC SAW procedure for narrow-groove welding of HY-80.

5/80 to 9/80 — Hired as Welding Technician for technical support of submarine missile launch tube construction. Duties included training and certification of welders to military specifications, maintenance of qualification records and traceability, testing of incoming materials and filler alloys, welding of procedure qualification test plates, evaluation of performance and procedure qualification test specimens, and technical assistance for automatic and semi-automatic GMAW, GTAW, FCAW, SAW, and SMAW of HY-80 and Monel alloys.

RESUME OF

TIMOTHY J. O'NEILL

JUNE 1983

PERMANENT ADDRESS:

3507 Winway
San Mateo, CA 94403
(415) 345-2270

PRESENT ADDRESS:

1355 12th Street
Los Osos, CA 93402
(805) 528-5529

CAREER OBJECTIVE

To secure a challenging position as a welding engineer in the construction industry; to obtain a professional engineer's license; and to establish my own consulting firm dealing with welder training, qualification testing, and procedure development for the construction industry.

EMPLOYMENT HISTORY

7/82 to 9/82 — State of California, Department of Corrections
California Mens Colony
P.O. Box A
San Luis Obispo, CA 93409

Hired as Welding Instructor/Supervisor for Vocational Welding curriculum. Duties included classroom and lab instruction in preparation for all-position certification using SMAW and FCAW processes to AWS D1.1-83 and Los Angeles County code requirements. Other duties included inspection of bend test coupons, maintenance of certification records, and general process instruction using SMAW, GTAW, GMAW, FCAW, SAW, and OAC in a high-security prison environment.

6/81 to 9/81 — Westinghouse Electric Corporation, Marine Division
Hendy Avenue
Sunnyvale, CA 94088

Hired as Junior Welding Engineer. Primary responsibilities involved welding procedure development for various alloys and processes. Completed procedure development for vertical and overhead welding of HY-100 material using pulsed-spray GMAW process to Navy (NAVSHIPS 9010) submarine hull specifications. Also worked on developing hand-held SAW procedure for copper-nickel alloy, and square-wave AC SAW procedure for narrow-groove welding of HY-80.

5/80 to 9/80 — Hired as Welding Technician for technical support of submarine missile launch tube construction. Duties included training and certification of welders to military specifications, maintenance of qualification records and traceability, testing of incoming materials and filler alloys, welding of procedure qualification test plates, evaluation of performance and procedure qualification test specimens, and technical assistance for automatic and semi-automatic GMAW, GTAW, FCAW, SAW, and SMAW of HY-80 and Monel alloys.

RESUME OF

TIMOTHY J. O'NEILL

JUNE 1983

PERMANENT ADDRESS:

3507 Wirmway
San Mateo, CA 94403
(415) 345-2270

PRESENT ADDRESS:

1355 12th Street
Los Osos, CA 93402
(805) 528-5529

CAREER OBJECTIVE

To secure a challenging position as a welding engineer in the construction industry; to obtain a professional engineer's license; and to establish my own consulting firm dealing with welder training, qualification testing, and procedure development for the construction industry.

EMPLOYMENT HISTORY

7/82 to 9/82 — State of California, Department of Corrections
California Mens Colony
P.O. Box A
San Luis Obispo, CA 93409

Hired as Welding Instructor/Supervisor for Vocational Welding curriculum. Duties included classroom and lab instruction in preparation for all-position certification using SMAW and FCAW processes to AWS D1.1-83 and Los Angeles County code requirements. Other duties included inspection of bend test coupons, maintenance of certification records, and general process instruction using SMAW, GTAW, GMAW, FCAW, SAW, and OAC in a high-security prison environment.

6/81 to 9/81 — Westinghouse Electric Corporation, Marine Division
Hendy Avenue
Sunnyvale, CA 94088

Hired as Junior Welding Engineer. Primary responsibilities involved welding procedure development for various alloys and processes. Completed procedure development for vertical and overhead welding of HY-100 material using pulsed-spray GMAW process to Navy (NAVSHIPS 9010) submarine hull specifications. Also worked on developing hand-held SAW procedure for copper-nickel alloy, and square-wave AC SAW procedure for narrow-groove welding of HY-80.

5/80 to 9/80 — Hired as Welding Technician for technical support of submarine missile launch tube construction. Duties included training and certification of welders to military specifications, maintenance of qualification records and traceability, testing of incoming materials and filler alloys, welding of procedure qualification test plates, evaluation of performance and procedure qualification test specimens, and technical assistance for automatic and semi-automatic GMAW, GTAW, FCAW, SAW, and SMAW of HY-80 and Monel alloys.

EXHIBIT 2

1355 12th Street
Los Osos, CA 93402
July 24, 1984

Mr. Harold W. Karner, QA/QC Manager
Pullman Power Products Corporation
P. O. Box 367
Avila Beach, CA 93424

Dear Mr. Karner:

It is with sincere regret that I am forced to submit this letter of resignation, in protest of working conditions that do not provide the required freedom from harassment for me to perform my duties in accordance with Federal law. Recent events have indicated that my personal safety has been compromised, and I can no longer work in an atmosphere of harassment and intimidation.

Over the past year, I have seen quality problems at Diablo Canyon, and I have tried to work within the system as much as possible to resolve these problems. When it is obvious that the system is not responding, I have a legal responsibility to go outside of the system. As an inspector, I endeavored to work to the letter of our approved procedures, and if these seemed unworkable, I took steps to offer what I felt to be viable solutions. For these actions I have been physically harassed, verbally intimidated, and threatened with disciplinary action. The organizations participating in any or all of the above illegal activities include Pullman craft, craft management, engineering, quality assurance, quality control, PG&E quality control management via the Quality Hotline, and PG&E project engineering. These acts do not provide the organizational freedom mandated by 10CFR50, Appendix B, Criteria 1.

This action is taken neither lightly nor voluntarily. I would like to continue my employment at Diablo Canyon, as I feel I can make a quality difference; however under the present conditions this is not possible. Management must assume its legal responsibilities and provide sufficient organizational freedom for QC inspectors to perform their legally mandated duties without fear of harassment or reprisal.

Very truly yours,

Timothy J. O'Neill

Timothy J. O'Neill

P.S. Within 48 hours, I expect to receive by return mail the promised report on the distribution of my July 14, 1984 letter among the craft which it concerned (enclosed).

TO: [illegible], QA/QC MANAGER
S. [illegible] ENGLER, ASST QA/QC MGR.
J. WATSON, SUPERVISOR
K. FOELKER, LEAD

FROM: T. O'NEILL, QC INSPECTOR

SUBJECT: UNAUTHORIZED USE OF FIRE EXTINGUISHER

THIS LETTER IS TO DOCUMENT, PER INSTRUCTIONS OF SUPERVISOR J. WATSON, THE INCIDENT DISCUSSED WITH LEAD K. FOELKER AND SUPERVISOR WATSON THE MORNING OF JULY 13, 1984.

ON TUESDAY, JULY 10, WHILE PERFORMING A QC WORKMANSHIP INSPECTION ON SUPPORT 4H-228R, I WAS SQUIRTED WITH A HAND-PUMP FIRE EXTINGUISHER BELIEVED TO BE PG+E # 107. THIS RESULTED IN MYSELF AND CONSTRUCTION DRAWING FOR SUPPORT 4H-228R BECOMING WET. REQUIRED INFORMATION ON THE DRAWING WAS ALSO SMEARED, AS THE INK IS WATER-SOLUBLE. ON JULY 13, FIRE EXTINGUISHER WAS LOCATED ON ELEV. 55' AUX. II, IN THE STAIRWELL.

WHEN THIS INCIDENT OCCURRED, I WAS LOCATED ON LINE 19^{B}, APPROXIMATELY 8' EAST OF K LINE, IN THE "DUCK POND" ON ELEV. 64', UNIT II AUXILIARY BUILDING. THE WATER STREAM FROM PUMP FIRE EXTINGUISHER WAS DIRECTED AT ME FROM ELEV. 55' PIPE TUNNEL, THROUGH THE WALL PENETRATION WHERE SUPPORT 4H-228R IS LOCATED.

CIRCUMSTANCES AND PERSONNEL IN THE AREA OF THE PIPE TUNNEL INDICATE THIS COULD BE A FORM OF RETALIATION FOR A HARASSMENT INCIDENT DOCUMENTED ON JUNE 6, 1984. ALTHOUGH INCIDENTS OF THIS TYPE MAY APPEAR TO BE MINOR HORSEPLAY, THEY BECOME SERIOUS WHEN THEY IMPEDE AN INSPECTOR IN THE PERFORMANCE OF INSPECTIONS, OR IF DONE IN RETALIATION. THIS LETTER SERVES NOTICE THAT I WILL NOT TOLERATE SUCH ACTS, AND THAT I EXPECT MANAGEMENT TO TAKE ANY STEPS DEEMED NECESSARY TO PREVENT RECURRANCE.

SHOULD FURTHER DISCUSSION OF THIS MATTER BE NECESSARY, I WILL BE AVAILABLE AT YOUR EARLIEST CONVENIENCE

TJO 7/24/84

Timothy J. O'Neill/160

[illegible]

EXHIBIT 3

AFFIDAVIT

My name is Timothy J. O'Neill. I am giving this sworn statement freely, and without any threat or inducement, to John Clewett, who has identified himself to me as an attorney working with the Government Accountability Project of the Institute for Policy Studies, in Washington, D.C.. I have decided to speak openly and confidentially to those persons responsible for the regulatory agencies that govern construction and operation of Diablo Canyon Nuclear Power Plant (DCPP), which is owned and operated by Pacific Gas and Electric Company, (PG&E).

I am concerned over the quality of safety-related items I have seen installed at DCPP, and I do not feel the current level of quality is adequate to allow start-up and power operation of the plant. Additionally, I am concerned that the Nuclear Regulatory Commission (NRC) and PG&E are not sufficiently addressing quality problems presented to them by concerned workers at the plant. It is my opinion that a thorough investigation of quality control/quality assurance systems in operation for PG&E and subcontractors on site be conducted to determine the extent of quality control and design breakdowns at DCPP, specifically on piping and pipe supports. I also feel the cost of DCPP should be carefully evaluated to determine the extent of PG&E's and their subcontractor's incompetence in design and construction, as I do not feel this cost should be borne by the rate payers of PG&E.

I am currently employed as a Level II visual, dimensional, and welding inspector for Pullman Power Products, a major subcontractor at DCPP responsible for the installation of piping and pipe supports. My responsibilities include in-process inspection of pipe supports and piping, final inspection of the completed pipe support to verify conformance to design drawings,

and recently, auditing of completed pipe supports for problems discovered during the quality assurance phase of construction. My qualifications include nine years of employment in the welding industry, and a considerable amount of education pertaining to the technical and engineering aspects of welding. I have received an Associate of Science degree in Welding Technology from the College of San Mateo, in San Mateo, California. This is a nationally-acclaimed program in welding technology, and persons have been hired directly out of this two-year program as welding engineers. I have also completed engineering requirements for a Bachelor of Science degree in Engineering Technology--Welding Engineering, at California Polytechnic State University, San Luis Obispo, California. I am currently twelve general-education units short of fulfilling all graduation requirements, and expect to complete these by June, 1984. Over the last nine years I have worked as a welder, welding technician, welding engineer, and welding instructor. I hold a valid community college level teaching credential in the state of California as a welding instructor.

My major concerns over the construction quality of safety-related items at DCPP are the following:

1. Use of unqualified procedures and materials for welded applications, and in some cases, no written procedures for the items involved. Conformance to referenced codes and standards is not adequate, and in other cases, selection of weldable materials is poor, indicating lack of research of the material prior to welding.
2. Document control and review is less than adequate, and in some cases, designs are completely re-designed during construction and as-built (design analysis performed on the completed structure after construction). This leads to rejection and rework due to exceeding allowable stresses, and in some cases the item is completely redone.

3. The overall level of training for craft, engineering and quality control personnel at Pullman is very low. Craft workers are not trained as to the specification requirements, which leads to QC rejection and rework. Engineers are not trained in aspects of welding such as good joint design and process selection, which also results in rework and rejection. Finally, QC inspectors are not trained according to the referenced codes and standards, and those that are aware of code requirements are intimidated by lead persons into accepting workmanship that is nonconforming to referenced codes.

4. Intimidation of inspectors by craft supervision and QC leadmen/supervisors. QC management uses craft supervision input to judge inspectors performance. Inspectors who don't "work with the craft" are reassigned to areas where less craft interaction occurs, or are terminated for reasons such as being late too many times, absences excessive, etc. Company policy in these cases is selectively applied.

5. NRC investigations are superficial and directed only at specifics, rather than an overall problem. It seems the NRC is looking for ways to accept nonconformances, rather than ordering subcontractors and the client, PG&E, to do the job right. It appears that the NRC allows nonconformances to referenced welding codes and specifications. Investigators are in cases, misled by the client.

The remainder of this affidavit will detail specific examples to support the preceeding concerns. The documentation herein is presented to the examining parties with the understanding that its content will be held in strict confidence. As an employee of Pullman Power Products, I was required to sign a statement that I would not divulge Company information. The documents presented herein are for information only, and as such are not controlled items according to Pullman's specifications, however I

believe that I would be fired if Pullman was aware of who supplied these documents.

I. USE OF UNQUALIFIED MATERIALS AND PROCEDURES FOR WELDING, LACK OF WRITTEN PROCEDURES FOR BOLTING INSTALLATIONS

The way to build a nuclear power plant, as mandated by the 10CFR50 requirements, is to first design the plant, specify all procedures to be used in writing, and then proceed with construction. A further requirement is a quality control/quality assurance program to assure the designed level of quality is present. In this manner, the end result is a product that conforms to the intended design requirements. Two of the most crucial aspects of of the design are that the materials selected for construction will have been shown adequate for their selected task, and that procedures used with these materials are shown to be able to produce the required end result. Only then is the plant built, using specified materials and procedures. In the case of welding, standard codes are used to specify the way welding is to be done. These are the codes of the American Welding Society and the American Society of Mechanical Engineers (AWS and ASME, respectively). The codes referenced for use at DCPP are ASME Section IX--Welding Procedure and Performance Qualifications, and AWS D1.1--Structural Welding Code for Steel. These codes are industry standards for critical welding requirements.

To fabricate items to a code, you must adhere to all aspects of the referenced code. The code will specify acceptable materials for use, and means to qualify materials intended for use that are not referenced in the code. These requirements differ between AWS and ASME codes due to their intents. ASME IX is primarily oriented toward pressure vessel fabrication, while AWS is geared toward structural steel erection. Piping and pipe supports encompass both areas, and the existing procedures at DCPP

are to use those areas of each code that apply to the item in question, and ignore other items in the referenced code. This is a nonconformance to the code requirements, and it appears that the NRC allows such nonconformances. These are in the area of using joint designs and materials specified and qualified for ASME welding, and transferring these unilaterally to welding performed under AWS code requirements, in violation of AWS prescribed welded joint design details. In other cases, materials are used that are unqualified to either of the referenced codes. These codes do not say you cannot use these materials, only that you must qualify the welding procedure that you intend to use. This welding procedure shall be qualified prior to use, to prevent costly rework that must eventually come from PG&E ratepayers and shareholders.

A good example of the use of unqualified procedures and materials concerns welded studs used throughout the plant on safety-related systems, primarily the containment spray system in both Unit One and Unit Two. PG&E approved specifications call for the use of ASTM A-307 or A-108 as materials for welded studs, to be welded in accordance with AWS D1.1--1982 Edition, Section 7. Several nonconformances exist here. Section 7 applies to automatic stud welding, which requires a procedure qualification that Pullman has not performed. Pullman uses welding procedures qualified to ASME IX for manually welding these studs, to a joint design specification that is nonconforming to the ASME welding procedure specification, and the AWS code requirements. Additionally, A-108 and A-307 are not referenced in either code as a recommended material for welding. Attachment 1 is a typical specification for use of these welded studs. The above-referenced nonconformances represent a serious breakdown of quality assurance, as these installations are indeterminate as to weld quality. The whole purpose of using a code is defeated by this process. Furthermore, A-307 is a fastener specification, as will be described subsequently, and it is not intended to be welded.

In welded applications, the governing factor in material selection is carbon content. Ths higher the carbon in the material, the more carefully it has to be welded. All materials listed in referenced welding codes have carbon limitations in their ASTM specifications to ensure weldability. A-307 is a material intended for bolts, and by specification, there is no limit on the amount of carbon allowed in the material. This makes weldability indeterminate without certified chemistry data from the manufacturer, which is not required according to the ASTM A-307 specification, which is included as Attachment 2.

The reason why carbon is unspecified in A-307 material is because the material is intended to be used as a mechanical fastener, i.e., a bolt, and is not intended to be used for welded applications. If excessive carbon were in a material, the welded joints would be weak and brittle without the use of special welding procedures, i.e., preheating the material prior to welding.

The generic problem with Pullman's PG&E approved program of welding studs is that in many cases, the components are purchased as bolts and the heads cut off to make a stud. This is evident from Attachment 3, which are several Pullman field warehouse requisitions (FWR) for studs. Attachment 5 is a purchase order showing that the purchased material conforms to the requirements for A-307 bolts. The A-307 specification requires A-36 material for "non-headed structural anchors", however it is my contention that this must be specified on the purchase order if this is desired. This would be the material of choice for welded applications. Attachment 6 shows the use of A-325 high strength bolts for welded applications as well. This is again, a completely unqualified and unsound material to be welding. These conditions were discovered while searching warehouse copies of FWR's for the QA department, in cases where material traceability was lost. QA is required to include the original FWR in the system package, and many times this is lost due to poor document control.

As a result of discovering the use of the referenced nonconforming materials, I wrote a discrepancy report to PG&E identifying the problem. My DR was re-written to exclude all reference to A-307 and A-108, although the Pullman QA/QC Manager Harold Karner did consider the use of A-325 serious. Attachment 7 shows a memo generated after my DR was submitted. Karner said there was no problem with A-307, as it was essentially A-36 material. His reference was the paragraph in the A-307 specification saying nonheaded structural anchors were to be of A-36 material. I pointed out we were not purchasing nonheaded anchors, and Karner informed me that Pullman's corporate welding engineer had evaluated A-307 and found it to be acceptable, although he could not provide documentation to that effect. It is my contention, and that of metallurgists consulted, that A-307 is not a weldable material due to its indeterminate carbon content, and the lack of a heat or chemistry traceability requirement by specification. I have not yet seen the re-written DR, although I have requested to on two occasions. I have also forwarded a copy of my original DR to the Region V office of the NRC for their evaluation of the content of the DR, and the method by which this report is handled by Pullman and PG&E.

The indeterminate quality resulting from the unqualified use of A-325, A-307, and A-108 materials extends throughout many safety-related systems at Diablo Canyon. In order to be reasonably assured that the safety-related functions of these supports is not impaired, a thorough reevaluation of all installations of this type is recommended, if not replacement of the studs in question.

In another classic example of poor material selection from a welding standpoint, PG&E specifies that all stainless steel materials for use at DCPP have a minimum carbon content of .04. This is shown on Attachment 8. This specification should read a maximum carbon content of .04, as this will reduce the like-

lihood of carbide precipitation resulting in loss of corrosion resistance in welded joints. As installed, the materials are not likely going to last as long as requirements referenced in the Final Safety Analysis Report. The higher-carbon stainless steel is cheaper to purchase, however it could be inadequate for performing according to the design of the plant for the design life of the plant. I have addressed a memo to Pullman management on this subject, and to date recieved no reply.

II. INADEQUATE DOCUMENT CONTROL

Another major generic defect in the quality control system at DCPP is that there is inadequate control of the documentation to which the plant is supposed to be built. When a work package arrives in the field, it often has not been adequately reviewed to ensure that the work can be done as the design drawings specify. When, as is often the case, the work cannot be done per design, field engineers are authorized to write "quick fixes", which are now referred to with the more euphemistic term "Pipe Support Design Tolerance Clarification". These are PG&E approved deviations from Pullman ESD 223 (Pipe Support Fabrication and Erection Specification referenced to Procurement Document 8711). Attachment 9 illustrate some of the poorer examples of quick fixes. These are still called "quick fixes" in Unit Two, and assigned a QF number for reference.

These documents make it very difficult for the field inspectors to do their work, as it is often necessary to trace through a large number of voided and superceeded quick fixes to determine what the actual design requirements are. PG&E has a planned rejection rate of 40% for supports failing design requirements as a result of these changes to design. Pullman specifications also state a quick fix cannot be partially voided or superceeded, however many times QC comments or acceptance on a voided quick fix is left intact in violation of specifications.

III. INADEQUATE TRAINING OF CRAFT, ENGINEERING, AND QC

To compound the problems caused by inadequate procedures, materials, and document control, quality control personnel are handicapped by inadequate training to achieve an effective QC function. Training is sporadic and unprofessionsl, and usually right before an upcoming event, such as the ASME audit in August, 1983. They are not focused on learning, they are generally focused on intimidating personnel into changing embarassing problems for management by threatening implicitly that "the next time this happens, it will be your job". Supervisors stand up in front of training sessions and tell you to take as much time as you need to make an inspection, and then tell you you're too slow and you have to make more inspections than you're doing as you're holding up production.

Other methods of training include handing the inspector a package of reading materials and a sheet to sign saying that he or she has read them. No effort is made to test whether the inspector understands what he supposedly read, except in the training program held prior to certification as an inspector. In some cases, the answers to these tests were lying right on the table during a closed-book exam. There is no incentive to display any initiative nor is anyone encouraged to search out the relevant codes and specifications, as management is afraid someone will "read into " a specification something that may embarass the management.

Craft workers are not trained by their supervision as to the procedures or specifications they are required to adhere to in construction. Welders are only required to pass a welding test, there is no additional training here and this is a rarity on nuclear construction projects according to my research. Most welders get anywhere from four to twelve working days of training prior to certification at nuclear projects under construction.

IV. INTIMIDATION OF QUALITY CONTROL PERSONNEL BY CONSTRUCTION SUPERVISION AND QC MANAGEMENT/SUPERVISION

Consistent with the reluctance to properly train inspectors to do a good job and know the specifications they are required to inspect to, there is a serious problem of intimidation of QC inspectors who do not "work with the craft". As our own supervision in most cases is more concerned with production pressures than quality, inspectors who don't adhere to the program are subjected to intimidation by QC leadmen and supervisors. QC leadmen are also very unknowlegable when posed with everyday questions pertaining to acceptance standards of items not addressed in the specifications, and their response in some cases is that if it is not referenced in the specification as being rejectable, you must accept it. QC supervisors, when placed in situations where a field inspector will not accept items that are rejectable, will often accept the item so production can continue, instead of forcing the craft to do it right. The QA/QC Manager Harold Karner has a history of listening to production before his own field personnel. There was an incident where an inspector wrote up a report on a Superintendent for harassment and intimidation, with threats to go to the NRC. Karner tore up the report, exonerated Rich Babineau the Superintendent, and the inspector was fired for excessive absenteeism. Although he was excessively absent, stated policy was not followed and he was terminated, I feel, for alleging that the incident would be reported to the NRC.

If QC inspectors insist upon enforcing the codes and standards to which the plant is supposed to be built, they will be fired. This recently happened to Steve Lockert, a fellow Cal Poly Welding Engineering graduate. Steve was finding many items embarassing to QC management, and he was fired for being out of his work area on a "wild goose chase" as stated in his termination notice. There are no wild geese at Diablo Canyon, and Steve has rightly appealed his firing to the Dept. of Labor.

OFFICIAL SEAL
KATHI M. COOK
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SAN LUIS OBISPO COUNTY
MY COMMISSION EXPIRES FEBRUARY 22, 1985

815 Morro Bay Blvd.
Morro Bay, CA 93442

V. INEFFECTIVE NRC OVERSIGHT

These problems would be less crucial if the NRC were likely to notice and resolve problems. In fact, it appears that the NRC is little more than a branch of PG&E. For example, in the wake of Steve Lockert's firing, the NRC audited my records and Steve's for the purpose of supporting allegations made by Steve. I was questioned in the presence of the QC manager Frany Lyautey by NRC investigator Dennis Kirsch. When Kirsch asked Lyautey about the whereabouts of Lockert's records, Lyautey replied, "When the man quit, I took possession of his records and initialed them all". When later asked about Lyautey's comment that Lockert quit, Kirsch replied that he didn't care what Frank Lyautey told him. It seems to me that the NRC should be concerned when a deliberate attempt is made to mislead its investigators. In another incident, myself and a fellow inspector, Craig Meagher, were told by a Bechtel production superintendent that a purge of equipment from Unit One prior to an NRC walkdown in October was," To create the impression for the NRC that a very small workforce was operating in Unit One." This also seems to be a deliberate attempt to mislead the NRC.

VI. CONCLUSION

Each of the points touched on above will be expanded a great deal in forthcoming statements, with supporting documentation. The result of these problems is that the quality of many items at DCPP is indeterminate, and therefore there is a significant breakdown of the quality assurance program in effect. In order to allay public fears and concerns, I believe the circumstances warrant a thorough investigation by the appropriate authorities, including the NRC Office of Investigations and the United States Department of Justice.

Subscribed and sworn to before
me this 23rd day of January, 1984

Timothy J. O'Neill
Timothy J. O'Neill

Kathi M. Cook
Notary Public: My commission expires 2-22-85

11

OFFICIAL SEAL
KATHI M. COOK
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SAN LUIS OBISPO COUNTY
MY COMMISSION EXPIRES FEBRUARY 22, 1985

815 Morro Bay Blvd.
Morro Bay, CA 93442

V. INEFFECTIVE NRC OVERSIGHT

These problems would be less crucial if the NRC were likely to notice and resolve problems. In fact, it appears that the NRC is little more than a branch of PG&E. For example, in the wake of Steve Lockert's firing, the NRC audited my records and Steve's for the purpose of supporting allegations made by Steve. I was questioned in the presence of the QC manager Frany Lyautey by NRC investigator Dennis Kirsch. When Kirsch asked Lyautey about the whereabouts of Lockert's records, Lyautey replied, "When the man quit, I took possession of his records and initialed them all". When later asked about Lyautey's comment that Lockert quit, Kirsch replied that he didn't care what Frank Lyautey told him. It seems to me that the NRC should be concerned when a deliberate attempt is made to mislead its investigators. In another incident, myself and a fellow inspector, Craig Meagher, were told by a Bechtel production superintendent that a purge of equipment from Unit One prior to an NRC walkdown in October was," To create the impression for the NRC that a very small workforce was operating in Unit One." This also seems to be a deliberate attempt to mislead the NRC.

VI. CONCLUSION

SAFECO TITLE INSURANCE

Staple

STATE OF CALIFORNIA
COUNTY OF San Luis Obispo } SS.
On this the 23rd day of January 1984 before me the undersigned, a
Notary Public in and for said County and State, personally appeared
Timothy J. O'Neill

personally known
to me or proved to me on the basis of satisfactory evidence to be the
person whose name is subscribed to the within instrument
and acknowledged that he executed the same.

Kathi M Cook
Signature of Notary

FOR NOTARY SEAL OR STAMP

OFFICIAL SEAL
KATHI M. COOK
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SAN LUIS OBISPO COUNTY
MY COMMISSION EXPIRES FEBRUARY 22, 1985

815 Morro Bay Blvd.
Morro Bay, CA 93442

Staple

CAL-375 (Rev. 8-82) Ack. Individual

AREA I-G	LINE 2-SS-2372-6 B	HANGER SYMBOL, DATA PT. 55&5B H.I. VERT. RESTR. 20/39R
EL 140'-0"	C.S. SYSTEM	LOC ON DWG 501520

SHEET 8 OF 15

FOR INFORMATION ONLY

1. Epoxy grouting:

   a) Use Ceilcote - 658M high temperature epoxy grout.
   b) Apply per manufacturer's recommended installation instructions and in accordance with procedures approved by Project Engineering.

2. Studs and Nuts

   a) All studs shall be Nelson stud ASTM A 108 Grade 1010 - 1020 or ASTM A307 Grade B.
   b) All studs shall be installed in accordance with spec. 8831 and shall be welded per AWS D1.1 (1982) Sect. 7.
   c) All studs shall be torque-tested in accordance with AWS D1.1 1982 Sect. 7.
   d) The installation torque for all studs shall be one half of the test value as specified in (c) with a tolerance of + 10%..
   e) Washer shall be provided when the hole size is 1/8" larger than the bolt diameter.
   f) The studs shall have lock nuts. Where existing studs will be used and insufficient threads are available for use of lock nuts, spoiling of the threads is acceptable.

3. Installation tolerances shall be in accordance with DCM-M9 unless otherwise noted on hanger drawings.

4. Lugs:

   a) For location of shear lugs, see the base plate drawing.
   b) THE HEIGHT OF THE SHEAR LUG SHALL BE CHOSEN, SUCH 12 CS THAT THE TOP OF THE SHEAR LUG SHALL BE FLUSH OR BEYOND THE FACE OF THE BASE PLATE

APPROVED FOR CONSTRUCTION 6/2/83 PG&E 6-1-83

CONTROLLED COPY OF

DC-2-E-P-6948 REV 2

SK- 20/39R REV. 2

ATTACHMENT 1	DSGN HK	DRAWING NO 051372		
	DWN GDL			
	CHKD [illegible] 1-20-83			
OJECT: DIABLO CANYON	UNIT: 2	SHT 234 OF SHTS	P G & E CO	ISSUE REV

SPECIFICATION FOR LOW-CARBON STEEL EXTERNALLY AND INTERNALLY THREADED STANDARD FASTENERS

SA-307

(Identical with ASTM Specification A 307-68 except that Grade A Bolts and Nuts have been deleted)

(a) This specification covers the ical and mechanical requirements of arbon steel externally and internally ded standard fasteners, 4 in. and ss diameter, frequently used for lowing applications:

Grade B Bolts, for flanged joints in systems where one or both flanges st iron.

Nonheaded anchor bolts, either or bent, to be used for structural age purposes, shall conform to the ments of the Specification for al Steel (ASTM Designation: with tension tests to be made on body or on the bar stock used ing the anchor bolts.

and Manufacture

Steel for bolts shall be made by earth, basic-oxygen, or elec- ce process.

el for nuts shall be made by the rth, basic-oxygen, electric-fur- essemer process.

ts may be produced by hot or ng of the heads or machining stock.

threads may be rolled or cut.

may be produced by hot old punching, cold forging, or from bar stock.

of ASTM Standards, Part 4.

Chemical Requirements

3. (a) Steel for bolts and nuts shall conform to the following chemical requirements:

	Grade B	
	Bolts	Nuts
Phosphorus, max, per cent	0.04	0.12
Sulfur, max, per cent	0.05	0.15

(b) Resulfurized material is not subject to rejection based on check analysis for sulfur.

(c) Bolts and nuts are customarily furnished from stock, in which case individual heats of steel cannot be identified.

Mechanical Requirements

4. (a) Bolts shall meet the hardness requirements specified in Table I. This shall be the only requirement for bolts which are too short or which have insufficient threads for tension testing or which have drilled or undersize heads that are weaker than the threaded section of the bolt.

TABLE I.—HARDNESS REQUIREMENTS FOR BOLTS

Bolt Size, in.	Grade	Hardness			
		Brinell		Rockwell B	
		Min	Max	Min	Max
All	B	121	207	69	95

(b) Bolts, other than those excepted in Paragraph (a), shall be subject to a tension test as specified in Section 6. Where both hardness and tension tests are performed, acceptance on the basis of the tensile requirements shall take precedence where the minimum requirements are the subject of controversy.

(c) Bolts 1½ in. and under in diameter when tested in full size shall meet the requirements for tensile strength specified in Table II.

(d) Bolts 1¼ to 3 in. in diameter, inclusive, shall be tested preferably in full size and shall meet the requirements for tensile strength specified in Table II. But when equipment of sufficient capacity for such tests is not available, they shall meet the following requirements on machined specimen tension tests:

	Tensile Strength, psi	Elongation in 2 in., per cent
Grade B bolts	60 000 min 100 000 max	18 min ...

(e) Nuts shall meet the hardness requirement specified in Table III. Hardness shall be the only requirement for jam, slotted and castle nuts and for nuts larger than 1½ in. in size.

(f) Nuts 1½ in. and under in size shall meet the proof loads specified in Table III.

(g) Nuts 1¾ to 1½ in., inclusive, in size shall preferably meet the requirements

ATTACHMENT 2 - 6/10

TABLE II.—TENSILE REQUIREMENTS FOR FULL SIZE BOLTS.

Bolt Size, in.	Threads per inch	Stress Area, sq in.[a]	Tensile Strength, lb	
			Grades min[b]	Grade B min.[c]
¼	20	0.0318	1 900	3 180
5/16	18	0.0524	3 100	5 240
⅜	16	0.0775	4 650	7 750
7/16	14	0.1063	6 350	10 630
½	13	0.1419	8 500	14 190
9/16	12	0.182	11 000	18 200
⅝	11	0.226	13 550	22 600
¾	10	0.334	20 050	33 400
⅞	9	0.462	27 700	46 200
1	8	0.606	36 350	60 600
1⅛	7	0.763	45 800	76 300
1¼	7	0.969	58 150	96 900
1⅜	6	1.155	69 300	115 500
1½	6	1.405	84 300	140 500
1¾	5	1.90	114 000	190 000
2	4½	2.50	150 000	250 000
2¼	4½	3.25	195 000	325 000
2½	4	4.00	240 000	400 000
2¾	4	4.93	295 800	493 000
3	4	5.97	358 200	597 000
3¼	4	7.10	426 000	710 000
3½	4	8.33	499 800	833 000
3¾	4	9.66	579 600	966 000
4	4	11.08	664 800	1 108 000

[a] Area calculated from the formula:

$$A_s = 0.7854\left(D - \frac{0.9743}{n}\right)^2$$

where:
A_s = stress area,
D = nominal diameter of bolt, and
n = threads per inch.

[b] Based on 60 000 psi.
[c] Based on 100 000 psi.

for proof load specified in Table III, but when equipment of sufficient capacity for such tests is not available they shall meet the hardness requirements specified in Table III.

Dimensions

5. (a) Unless otherwise specified, threads shall be the Coarse Thread Series as specified in the latest issue of the USA Standard for Unified Screw Threads (USAS B1.1), having a class 2A tolerance for bolts and class 2B tolerance for nuts.

(b) Unless otherwise specified, Grade B bolts shall be Heavy Hex Bolts with dimensions as given in the latest issue of USA Standard B18.2.1.

TABLE III.—HARDNESS AND PROOF LOAD REQUIREMENTS FOR NUTS.

Nut Size, in.	Threads per Inch	Proof Load, lb[a]	Brinell Hardness, min
¼	20	2 850	...
5/16	18	4 700	...
⅜	16	7 000	...
7/16	14	9 550	...
½	13	12 750	...
9/16	12	16 400	...
⅝	11	20 350	...
¾	10	30 050	...
⅞	9	41 600	...
1	8	54 550	...
1⅛	7	68 550	...
1¼	7	87 700	104
1⅜	6	103 950	104
1½	6	126 450	104
1¾ to 4, incl.	...	...	104

[a] Based on 90,000 psi mandrel stress for nut sizes ¼ to 2¼ in., inclusive; 77,000 psi for 3 in.; and 67,000 psi for 3¼ to 4 in., inclusive.

(c) Unless otherwise specified, nuts for Grade B bolts shall be Heavy Hex Nuts with dimensions as given in the latest issue of USA Standard for Square and Hex Nuts (USAS B18.2.2).

Methods of Test

6. (a) The material shall be tested in accordance with Supplement III of the Methods and Definitions for Mechanical Testing of Steel Products, (ASTM Designation: A 370).[a]

(b) Standard square and hexagon bolts only shall be tested by the wedge tension method. Fracture shall be in the body or threads of the bolt without any fracture at the junction of the head and body. Other headed bolts shall be tested by the axial tension method.

(c) Nuts shall be tested by the axial proof load method.

(d) Speed of testing as determined with a free running crosshead shall be a maximum of 1 in. per min for the tensile strength tests of bolts and the proof load determination on nuts.

Number of Tests and Retests

7. (a) The requirements of this specification shall be met in continuous mass production for stock, and the manufacturer shall make sam... ensure that the produ... specified requirements ... of individual shipments ... not ordinarily contempla... heats of steel are not ... finished product.

(b) When specified in ... manufacturer shall furni... certified to be the lea... mechanical tests for eac... each shipment.

(c) When additional test... on the purchase order ... poses of selecting test samp... sist of all material offered for ... at one time that has the follo... mon characteristics:

(1) One type of item, that ... nuts,

(2) One nominal size, and

(3) One nominal length of bo...

(d) From each lot, the ... tests for each requirement, sha... follows:

Number of Pieces in Lot	
800 and under	
801 to 8 000	
8 001 to 22 000	
Over 22 000	

(e) If any machined test ... shows defective machining it may be ... carded and another specimen ... tuted.

(f) Should any sample fail to meet ... requirements of a specified test, two ... the number of samples from the ... lot shall be tested, in which case all ... the additional samples shall meet ... specification.

Marking

8. Bolt heads shall be marked ... raised or depressed mark at the option ... the manufacturer) to identify the ma... facturer. The manufacturer may ... additional marking for his own use.

Inspection

9. (a) If the inspection described ... Paragraph (b) is required by the pu... chaser it shall be specified in the inquiry, order, or contract.

ATTACHMENT 2
PAGE 2 OF 3

(b) The inspector representing the purchaser shall have free entry, at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works that concern the manufacture of the material ordered. The manufacturer shall afford the inspector all reasonable facilities, without charge, to satisfy him that the material is being furnished in accordance with these specifications. All tests (except check analysis) and inspection shall be made at the place of manufacture prior to shipment, unless otherwise specified, and shall be so conducted as not to interfere unnecessarily with the operation of the works.

Rejection

10. Unless otherwise specified, any rejection based on tests specified herein shall be reported to the manufacturer within thirty working days from the receipt of samples by the purchaser.

ATTACHMENT 2
PAGE 3 OF 3
TJO

8.2 (05-78)

Pullman Power Products

Priority 5 (1) 5/32R

FIELD WAREHOUSE REQUISITION

STEM 9 LINE SPEC. 2-56-255-10 SPL A1 DATE 6-6-83

O NO. 5/32R DETAIL DWG. NO. 05749 DDR. NO. _____ ACT. NO. 7177 PAGE NO. ____ OF ____

NTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
6	6	7/8" X 0' 3" Lg. Threaded welding stud, ~~with nuts~~ Manuf. from A307 Gr. B Mat	9287	B	
		Class I Hanger			

DELIVER TO AREA Containment — FOREMEN J. Kinslow — Q.A. APPROVED Don Bice 6-6-83

RECD BY [signature] — FILLED BY [signature] 6-6-83

ING APPROVAL

ATTACHMENT 3

DUE TO TYPO ERROR

THERE IS NO

ATTACHMENT 4.

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	1-21-81	1 of 2

DISCOUNT TERMS | SHIPPING TERMS

VIA

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
C/O Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

VENDOR:
Cardinal Bolt
3873 W. Oquendo
Las Vegas, Nevada 89118

REQ.- P.O.- A.R.- NO. F- 7177-9287

JOB COST CODE: 122

SUBCONTRACT NO.

MAIL 4 COPIES OF INVOICES TO:
P.O. Box 367
Avila Beach, CA 93424

ITEM (LETTER)	QTY. REQ'D.	DESCRIPTION	UNIT PRICE	TOTAL	DATE REC'D.	QTY. REC'D.
A	100	7/8" x 2" Mach. Bolts A307-Gr.B	1 89	189 00		
B	100	7/8" x 3" Mach. Bolts A307-Gr.B	2 26	226 00		
C	300	1/2" x 1 1/4" Mach. Bolt A307-Gr.B	58	174 00		
D	300	1/2" x 1" Mach. Bolt A307-Gr.B	56	168 00		
E	1000	3/8" ø Heavy Hex Nuts A194-Gr.2H	22	220 00		
		NOTE: SEE SPECIAL REQUIREMENTS ATTACHED				
		TOTAL PRICE		977 00		

NEEDED FOR: Hanger Stock (Wally Franklin)

DATE NEEDED: | DATE ORDERED: 2-5-81 | DATE PROMISED: 3-5 Days

DWG(S) ATTACHED:

PREPARED BY: R. King | APPROVED BY: | 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 TAGS

REMARKS

REIMBURSABLE

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $ | COLLECT: $

RECEIVED BY:

Pullman Power Products
Division of Pullman Incorporated

74-78-38 REV 6/01/78

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	1-21-81	2 of 2

DISCOUNT TERMS | SHIPPING TERMS

VIA

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

VENDOR: Cardinal Bolts
3873 W. Oquendo
Las Vegas, Nevada 89118

REQ.- P.O.- R.R.- NO. F- 7177-9287

JOB COST CODE: 122 | SUBCONTRACT NO.

MAIL 4 COPIES OF INVOICES TO:
P. O. Box 367
Avila Beach, CA 93424

SPECIAL REQUIREMENTS FOR STRUCTURAL BOLTS OR FASTENERS FOR HANGERS:

HB1. Supplier shall furnish three copies of a Manufacturer's Certificate of Com - pliance signed by manufacturer indicating that materials furnished are in compliance with this Purchase Order, with specifications, or as listed in suppliers or manufacturers catalog.

HB2. Certificate of Compliance shall be traceable to our Purchase Order and Item No.

HB3. 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.

HB4. Any nonconformance to the requirements of the Purchase Order will be considered just cuase for return of materials without cost to buyer.

HB5. Materials shall be domestically manufactured.

ATTACHMENT 5 PAGE 2 OF 32

NEEDED FOR:

DATE NEEDED: | DATE ORDERED: | DATE PROMISED:

DWG(S) ATTACHED:

PREPARED BY: | APPROVED BY: | 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,

REMARKS
SOURCE DOCUMENT REQUIREMENTS
Corp. Appr. Vendor; May Use
Site Appr. Vendor
(All) Hanger CLI, G,E, Sprinkler
Spec M-10
8724 Cardox

REIMBURSABLE

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ | PARTIAL ☐

PREPAID: $ | COLLECT: $

RECEIVED BY:

ATTACHMENT 6
PAGE 1 OF 3

F 8.2 (05-78)

Pullman Power Products
Division of Pullman Incorporated
FIELD WAREHOUSE REQUISITION

STEM 1-14 LINE SPEC. 1-52-314-12 DATE 3-16-83

O NO. N/A DETAIL DWG. NO. 049266 DDR. NO. N/A ACT. NO. 7177 PAGE NO. ____ OF ____

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
10	10	5/8" ϕ x 2¾ Long ~~HEX CAP SCREW PLUG~~ ~~THREADED STUD~~ (BOLTS-SHEAR HEADS) C.S. A-325	6892	B	
10	10	5/8" Hex Nuts and Washers A194 2H	11024	E	
			11716	C	
		CLASS I Hanger #59N/2G			

DELIVER TO AREA Jack S. Williams FOREMEN
INSPECTED BY
MFG. APPROVAL

Fred Bauer 3-17-83
Q. A. APPROVED
FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

= 8.2 (05-78)

Pullman Power Products
Division of Pullman Incorporated
FIELD WAREHOUSE REQUISITION

ATTACHMENT 6
PAGE 2 OF 3

STEM 1-14 LINE SPEC. L-K2-317-12-B DATE 3-22-83

O NO. 049255 DETAIL DWG. NO. 500043 DDR. NO. _____ ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
10	10	5/8" Ø x 0'-2" lg. Bolts A 325 Issued 2 3/4" lg. (weld studs, Heads to be cut in field.)	6892	B	
10	10	Hex Nuts A 194 2H w/ Washers	7543	F	
			11716	C	
		Class I Hgr.			

ss I — R.W. Laney Sr. — Fred Bauer 3-24-83
ELIVER TO AREA — FOREMEN — Q.A. APPROVED

EC'D. BY — John Ed Forbes
G. APPROVAL — FILLED BY

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

73/40SL

Pullman Power Products

8.2 (05-78)

FIELD WAREHOUSE REQUISITION

STEM 2-12 LINE SPEC. 2-53-326-8 B DATE 3-28-83

NO. _____ DETAIL DWG. NO. 500908 DDR. NO. _____ ACT. NO. 7177 PAGE NO. 1 OF 1

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
(8)	0	1/2" ϕ x 1 1/2" L.G. (MIN) THREADED WELDING STUD CS A 307 GRADE B			
6	6	Issued 1/2 x 2 A-307 Cap Screws to be Cut in field.	11117	G	
		CLASS I HGR. MAT.			

T 2 Hold Area — Ron Montgomery — Fred Bauer 3-29-83
ELIVER TO AREA — FOREMEN — Q. A. APPROVED

ED BY C. Conner
APPROVAL — FILLED BY

FIELD WAREHOUSE REQUISITION

YSTEM _____ LINE SPEC. _____ DATE 3-9-83

O NO. _____ DETAIL _____ DWG. NO. _____ DDR. NO. _____ ACT. NO. _____ PAGE NO. _____ OF _____

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
		CLASS 1 HNGR SNUBBER			
		FOR NA			

Feed's area 420 Bottom Feed AR Rad No. 107B

ELIVER TO AREA _____ FOREMEN _____ Q. A. APPROVED _____

ECD. BY _____ FILED BY _____

NG. APPROVAL _____

WHITE COPY — Q.A. CANARY COPY — WAREHOUSE PINK COPY — FIELD ENGINEERING

Pullman Power Products

8.2 (05-78) Division of Pullman Incorporated

FIELD WAREHOUSE REQUISITION

STEM 1-14 LINE SPEC. 1-K2 DATE 3-7-83

O NO. NA DETAIL _____ DWG. NO. 849766 DDR. NO. NA ACT. NO. 7177 PAGE NO. _____ OF _____

QUANTITY	QUANTITY DELIVERED	ITEM DESCRIPTION	P.O. NO.	ITEM NO.	HEAT NO.
6	6	5/8" ø X 2" Long Threaded Welding Stud	6882	B	
		A 325 C.S.			
		Issued 5/8" X 2 3/4" Lg. Bolt A325			
		CLASS 1 HNGR SNUBBER			
		FOR NA			

Feed's area 420 Bottom Feed Water Tied Beam 3-7-83

ELIVER TO AREA _____ FOREMEN _____ Q. A. APPROVED _____

ED. BY _____ FILED BY _____

G. APPROVAL _____

ATTACHMENT 7

INTEROFFICE CORRESPONDENCE

DATE JANUARY 17, 1984

TO ALL FIELD ENGINEERS/QC INSPECTORS

FROM H.W. KARNER/SKIP CORNISH

SUBJECT WELDED STUDS (A325)

There have been several cases identified where A325 bolts have had the heads removed and have been used as a welded stud in hanger applications. This material is not qualified for use in welded applications by our weld procedures. A DR has been submitted to PG&E concerning this matter.

Welded studs must be A36 or other P1 material. If there are any questions, contact your Supervisor.

Harold W. Karner
QA/QC Manager

Skip Cornish
Chief Field Engineer

HWK:SC:sam

Pullman Power Products
Division of Pullman Incorporated

11-10-10 REV 5/15/79

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	12-09-83	1 of 3

DISCOUNT TERMS:

SHIPPING TERMS:

VIA:

1-713-672-7451 Alan

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
c/o Pacific Gas & Electric Co.
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

VENDOR:
Gulfalloy
P.O. Box 52518
Houston, Texas 77052

REQ.- P.O.- NO. F- 7177 -14386 R.R.-

JOB COST CODE: 122

SUBCONTRACT NO.:

MAIL 4 COPIES OF INVOICES TO:
P.O. Box 367
Avila Beach, CA 93424

ITEM (LETTER)	QTY. REQ'D.	DESCRIPTION	UNIT PRICE	TOTAL	DATE REC'D.	QTY. REC'D.
A	100	1" - 3000# S/W Caps A105	4 42	442 00		
		P1a. Chemical and Physical analysis shall be in accordance with requirements of ASME SA105 1980				
		P1b. Special examinations and Test for Nuclear Piping shall comply with ASME Section III Class 2, 1980. W/Winter 82 Addenda				
		SEE SPECIAL REQUIREMENTS ATTACHED				
		TOTAL PRICE		442 00		

NEEDED FOR: WHSE Stock

DATE NEEDED: Part ASAP

DATE ORDERED: 12-21-83

DATE PROMISED: Ship 7-10 Days

DWG(S) ATTACHED:

PREPARED BY: Tom

APPROVED BY:

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 TAGS AND PACKAGES WITH ABOVE ORDER NUMBER.

REMARKS:
Code Class "B"
P. Malloy

REIMBURSABLE

ATTACHMENT 8
PAGE 1 OF 34
CAO

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $

COLLECT: $

RECEIVED BY:

Division of Pullman Incorporated

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

B NO.	DATE	SHEET NO.
177	12-09-83	2 of 3

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
C/O Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

REQ.-
P.O.- NO. F-7177-14386
R.R.-

SCOUNT TERMS	SHIPPING TERMS	JOB COST CODE	SUBCONTRACT NO.
		122	

A

VENDOR:
Gulfalloy

MAIL 4 COPIES OF INVOICES TO:
P.O. Box 367
Avila Beach, CA 93424

		SPECIAL REQUIREMENTS FOR CLASS I PIPE AND FITTINGS: (CONTINUED)	UNIT PRICE	TOTAL	DATE REC'D.	QTY REC
2.		Supplier shall furnish three copies of Mill Test Reports.				
3.		Mill Test Reports shall be traceable to this Purchase Order and Item No. Test results shall be actual not typical.				
4.		Required documentation shall be sent on the day of shipment to PULLMAN POWER PRODUCTS, P.O. Box 367, Avila Beach, CA 93424, ATT: Q.A. DEPT. In addition, a copy shall accompany each shipment.				
5.		Any nonconformance to the requirements of Purchase Order will be considered just cause for return of material without cost to buyer.				
6.		Items set forth in the Purchase Order are for use in Nuclear Safety-Related components subject to reporting requirements pursuant to Section 206 of the Energy Reorganization Act of 1974, as implemented by 10 CFR21. Notice of any defects identified by Vendor puruant to such law shall be immediately made to the Director of PULLMAN POWER PRODUCTS P.O. Box 3308 Williamsport, PA. 17701.				
7.		If stainless steel materials are to be supplied on the Purchase Order they shall have a minimum carbon content of .04.				
8.		Identification marking for fittings shall consist of the manufacturers				
		TOTAL PRICE				

EEDED FOR:

TE NEEDED:

DATE ORDERED: 12-21-83

DATE PROMISED:

VG(S) ATTACHED:

REPARED BY: JDM

APPROVED BY:

PURCHASED BY:

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

UR ORDER NUMBER MUST APPEAR ON ALL INVOICES, BILLS OF LADING,

REMARKS:
CORP. APPR. VENDOR

8711 Pipe Class A
8711 Pipe class B
8711 Pipe Class C

ATTACHMENT 8
PAGE 2 OF 34

RECEIVING DEPARTMEN

CARRIER:

COMPLETE ☐ PARTIAL ☐

PREPAID: $

COLLECT: $

RECEIVED BY:

Division of Pullman Incorporated

FIELD REQUISITION - PURCHASE ORDER - RECEIVING REPORT

JOB NO.	DATE	SHEET NO.
7177	12-9-83	3 of 3

SHIPPING ADDRESS: PULLMAN POWER PRODUCTS
C/O Pacific Gas & Electric Company
Diablo Canyon Power Plant
7 Miles North of Avila Beach, CA 93424

REQ.- P.O.- R.R.- NO. F- 7177-14386

JOB COST CODE: 122

SUBCONTRACT NO.

DISCOUNT TERMS

SHIPPING TERMS

VIA

VENDOR: Gulfalloy

MAIL 4 COPIES OF INVOICES TO
P.O. Box 367
Avila Beach, CA 93424

		SPECIAL REQUIREMENTS FOR CLASS I PIPE AND FITTINGS: (CONTINUED)	UNIT PRICE	TOTAL	DATE REC'D.	QTY REC
		symbol or name, designation of service rating, applicable specification, grade, size and heat no.				
P8b.		For 3/4" and less, a code number traceable to a Mill Test Report shall be adequate marking.				
P9.		Identification marking for pipe shall be in accordance with ASTM specifications. In addition, the heat number and PULLMAN POWER PRODUCTS' Purchase order Number shall be on each length.				
P10.		Material shall be marked by any method that will not result in any harmful contamination or sharp discontinuities. Marking must be in accordance with requirements of USAS B31.7. If marking is steel by stamping, it shall be with round-nose or interrupted dot die stamping. In no case shall the wall or plate thickness be reduced below the minimum.				
P11.		Materials shall be domestically manufactured. Materials shall be free of oil and foreign matter. Pipe ends shall be capped.				
		TOTAL PRICE				

NEEDED FOR:

DATE NEEDED:

DATE ORDERED: 12-21-83

DATE PROMISED:

DWG(S) ATTACHED:

PREPARED BY: JPM

APPROVED BY:

PURCHASED BY:

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

YOUR ORDER NUMBER MUST APPEAR ON ALL INVOICES, BILLS OF LADING,

REMARKS

ATTACHMENT 8
PAGE 3 OF 4

RECEIVING DEPARTMENT

CARRIER:

COMPLETE ☐ PARTIAL

PREPAID: $

COLLECT: $

RECEIVED BY:

ATTACHMENT 8
PAGE 4 OF 4

Form F-22

Pullman Power Products

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. Liquic 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			
Helfaloy P.O.# 7177-14386			

PREPARED BY R. G. King

APPROVED BY T. Tyndall 1221-83

DATE OF ISSUE 12-21-83

PAGE ___ OF ___

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM

SEQUENCE NUMBER QF-2-768

SUBJECT 2B-44R REV 4 CLASS I

LOCATION IS UNIT-2

DESCRIPTION: REQUEST PERMISSION TO.

1. USE A194 NUTS AND WASHERS (INSTED) OF A325.

INTERPRETED "INSTEAD" P Amin 11-29-82

2. TORQUE TO ½" (TURN PAST NUT.)

INTERPRETED INTO ENGLISH AS, ... TURN PAST SNUG P Amin 11-29-82

3. VOID Q.F-2-759

SEE TC# 2-5945 FOR REFERENCE PVS 11-28-83

FOR INFO ONLY!

REFERENCE DRAWING 05373

ATTACHMENTS YES (NO) PAGES (INC. THIS SHEET) 1

AREA ENGINEER:

CONSTRUCTION MAY PROCEED P Amin

DATE 4-27-83

CONSTRUCTION D.P. REQ'D

CONTRACTOR RECEIPT Peter Weiss DATE 4-27-83

ATTACHMENT 9
PAGE 1 OF 4

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM

SEQUENCE NUMBER QF-2-760

SUBJECT 2B-44R REV. 4 CLASS I

LOCATION TS UNIT-2

DESCRIPTION: REQUEST PERMISSION TO.

1. USE A194 NUTS AND WASHERS (INSTED) OF A325. — INTERPRETED "INSTEAD"
2. TORQUE TO ½" (TURUN PAST NUT). — INTERPRETED INTO ENGLISH AS, ... TURN PAST
3. VOID Q.F-2-759

SEE TC# 2-5945 FOR REFERENCE PER 11-28-83

FOR INFO ONLY!

REFERENCE DRAWING 05/373

ATTACHMENTS YES (NO) PAGES (INC. THIS SHEET) 1

AREA ENGINEER:

CONSTRUCTION MAY PROCEED P Amin DATE 4-27-83

CONSTRUCTION D.P. REQ'D

CONTRACTOR RECEIPT Peter Weiss DATE 4-27-83

ATTACHMENT 9, TJO
PAGE 2 OF 4

00080/0050P

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM

SEQUENCE NUMBER BF-2-759

SUBJECT 28-44R REV 4A CLASS 1

LOCATION AREA: IS ELEV: 8'-9" pre-inspect ☐ in-work ☒ past work ☐ DR ☐ #

DESCRIPTION:

REQUEST PERMISSION TO:

1- USE A 194 NUTS AND WASHERS INSTEAD OF A325

2- TORQUE TO ½ TURN PAST SNUG

3- FORCE ITEMS ⑥ & ⑤ INTO POSITION SO THAT BOLTS CAN BE INSTALLED

VOID SEE BF-2-760

FOR INFO ONLY

P.P.P. F.E. PW 4/27/83

G.C. F.E.

REFERENCE DRAWING 051373 SH 52

ATTACHMENTS: ___ YES ___ NO PAGES (INC. THIS SHEET) 1

AREA ENGINEER:

CONSTRUCTION MAY PROCEED P Amin DATE 4-27-83

CONSTRUCTION D.P. REQ'D.

CONTRACTOR RECEIPT Peter Weiss DATE

ATTACHMENT 9 TO PAGE 3 OF 4

INSTRUCTION NO. II
ATTACHMENT 1

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM

SEQUENCE NUMBER TC-1-13536

SUBJECT 555 32R REV 2 CLASS 1-C

LOCATION AREA: 1-GW ELEV: 85 pre-inspect ☐
fn-work ☐
past work ☑

DCN DR ☑ 302-080 BH 10-14-83

DESCRIPTION: HGR 555-32R HAS SOME ADDITIONAL WELD & OVER WELD. DUE TO THE COMPLEXITY OF ASIMLATING CHANGES OVER THE PAST 5 MONTHS & TWO REVISIONS HANGER SHOULD BE ACCEPTED & Q.C. FINAL ACCEPT BE DONE TO THE REDLINE ATTACHED.
WILL THIS BE ACCEPTABLE?

Yes.

P.P.P. F.E. BH 10-13-83

G.C. F.E. _____

REFERENCE DRAWING SK 555-32R SK 53A-5

ATTACHMENTS (YES) NO PAGES (INC. THIS SHEET) 9

AREA ENGINEER:

CONSTRUCTION MAY PROCEED R M Patel

DATE 10/13/83

INSTRUCTION RECEIVED

CONTRACTOR RECEIPT BF Hartley DATE 10/13/83

ATTACHMENT 9
PAGE 4 OF 4

EXHIBIT 4

25

AFFIDAVIT

My name is Timothy J. O'Neill. I am submitting this affidavit to Thomas Devine, who has identified himself to me as the legal director of the Government Accountability Project. I am submitting this statement to rebut erroneous, misleading and material false statements in PG&E and NRC staff responses to allegations I have made of quality assurance (QA) violations at the Diablo Canyon nuclear power plant. Even more important, the QA breakdown has intensified over the last month to its worst level yet, with corresponding intimidation, coverups and falsified records.

I. RESPONSE TO ANSWERS FROM MY EARLIER ALLEGATIONS

In a March 19 , 1983 affidavit by Mr. Tressler and others (March 19 aff.), PG&E responded to charges of excessive carbon on stainless steel piping purchased with .04% minimum carbon instead of .04% maximum as required by current industry standard. This was allegation #192 in a March 1984 GAP petition.

1. Initially, PG&E responded by saying there is a .08% maximum. (March 19 aff., p.2). That's not reassuring. NRC NUREG 0691, at 2-2, found that .05% carbon was the threshhold for all intergranular stress corrosion cracking (IGSCC) identified in that report. This is particularly significant for

all lines less that 10 inches in diameter. IGSCC could occur on secondary system lines designed to mitigate situations anticipated by the Final Safety Analysis Report (FSAR) with this carbon content level. All such potentially defective material should be identified.

2. The March 19 affidavit (and NRC staff in private) went on to say that the minimum carbon requirement was to comply with PG&E Specification 8711 and the Westinghouse specification for the main steam system. That answer may be accurate for the Nuclear Steam Supply System (NSSS) due to the high temperatures and pressures in the system. But this steel has been installed in other safety-related systems as well, such as the caustic injection for the containment spray system. This system is essential in the event of a Loss of Coolant Accident (LOCA). There is high residual stress to start with, due to welding and grinding of stainless steel lines. This problem is further exacerbated by the ferrite levels allowed by our specifications. In those instances, the carbon level in the steel is not necessary. Sensitization of the steel due to the carbon level can lead to IGSCC.

3. In item #3 PG&E says that it is not necessary to go beyond industry standards. That is a highly misleading statement. PG&E does not comply with

the current industry standard which is to use 304L stainless steel, which has a .03 maximum carbon level. That level controls carbide precipitation. That was my point. PG&E is working to an old standard which now has been rejected by the industry, using 304 stainless. In fact, even the NRC's 1973 Regulatory Guide 1.44 supports my position explicitly on lines with greater than .03% carbon, unless we can do without the line during an accident and still shut down the plant safely. In fact, as early as 1973 Reg. Guide 1.44 called for intergranular corrosion testing of all stainless steel with carbon greater than .03% carbon. To my knowledge, that has not occurred.

4. In response #2, PG&E is wrong to defend the piping through reference to the reactor coolant system (RCS) and NSSS work. That wasn't Pullman's work. I was talking about secondary systems to mitigate the consequences of an accident. The responses are irrelevent.

5. In response #2, PG&E also asserts that the problem of carbide precipitation is only significant for Boiling Water Reactors (BWR's) and is not a concern at a Pressurized Water Reactor (PWR) like Diablo Canyon. That excuse stops short. It is well-documented that these concerns occur in secondary systems as evidenced by Electric Power

Research Institute (EPRI) reports (Research Project 1570-2, August 4, 1983) and NUREG 0691.

6. PG&E in answer #3 offers another defense -- that the welding has been appropriately controlled for heat input and interpass temperatures. That statement is false. The welding procedures were sufficiently vague and broad that heat input could exceed the limits necessary to control carbide precipitation. See conclusions of T.G. Gooch of The Welding Institute in Metal Progress (March 1984), at page 75. It is enclosed as Exhibit 1. In some cases the procedures are up to three times more than permissable under this analysis. As Dr. Donald Hetzel concluded in the same article "excessive heat inputs during welding are the primary cause of IGSCC,yet under the mistaken belief that productivity will suffer or sometimes because of the less noble incentive of circumventing the quality control department, some companies ignore proper heat input control or make their allowable limits so broad as to be ineffective for protection of the material." (emphasis added). That is exactly what happened at Diablo Canyon, with IGSCC cracking as a possible result.

7. PG&E also was wrong to say that heat input was controlled, because welding inspectors were not trained to monitor heat input. When I tried to check, I was harassed by production supervision

and did ~~not~~ receive MINIMAL support from the QA/QC management. Our written engineering specifications require me to monitor this condition, BY CHECKING INTERFACE TEMP.

8. In #3 PG&E also said that there were only "a few cases" of stainless steel pipe leakage at San Onofre, which also used lines with .04% or greater carbon. That is a false statement. NUREG 0691 reported cracks (which also have leaks) in the containment spray system, the refueling water pump, and the seal water return line and discharge line of the charging pumps -- with replacement of ~~all~~ piping and twice in the refueling water suction piping, as well as other cases documented in the NUREG at other plants.

9. In response #4, PG&E said that an inspection program would have caught any cracking. That again maybe a false statement with respect to my allegation, because it is apparently irrelevent to my allegation. If PG&E is referring to in-process inspections, it covers the RCS system. I was talking about the secondary lines.

10. In response to GAP allegation #194, that management did not respond when I tried to work within the system, PG&E claimed ignorance of the issue and that, anyway, I misunderstood it. Again, that is false. As far as my "lack of understanding" is concerned, my position is consistent with NUREGS,

Regulatory Guides and recognized industry experts. PG&E's position isn't. The most significant point, however, is that I raised the issue with Pullman QA/QC manager Harold Karner while there on another matter. At the meeting he showed me a February 10, 1984 memorandum from Myron Leppke that attempted to answer my point through references to the in-service inspection program. Obviously PG&E was not ignorant.

11. The February 10, 1984 letter from Myron Leppke inferred that higher carbon grade "H" materials were used at Daiblo Canyon. - If so, PG&E's assertion in answer #2 that"(g)rades such as 304 H have not been used for piping" is false.

12. In PG&E's April 30 response to allegations, specifically GAP #175 (PG&E paragraph #108) the utility asserted that ASME is the requirement for welded studs on the containment liner. In my experience, that is a false statement. ESD 272 references AWS requirements for that work.

13. In the next paragraph of the response, PG&E asserted that the welding of liner studs had been qualified in accordance with ASME requirements. Even assuming that is acceptable, ASME QW 403.1 requires that when you use a different "P" number for the metal the procedure must be requalified. But A307 bolts with the heads cut off do not

qualify as acceptable "P" numbers for this work. In fact, A307 is not even listed in QW 422.1 as an acceptable QW material. That is what we used at Diablo Canyon, and there hasn't been any such requalification test to my knowledge.

14. In response to allegations 180-182, in the April 30 submission, at p. 5, PG&E said a December 28, 1983 procedure change -- telling QC inspectors not to write up QC reports on existing welds -- did not remove QA coverage from the welding in question. In answer #10, PG&E said the quality assurance program remains in effect "for all welds." That is a false statement. The authority to oversee these problems was removed from QA/QC and given to field engineers not trained for these assignments -- as demonstrated by their performance in the field.

15. PG&E went on to state that problems with existing welds were covered after inspection of the modification. That also is a false statement. In practice inspectors are not instructed to look at existing work. We have been told repeatedly that it is not our job to verify old work; it already has been done.

16. PG&E said that the procedure revision resulted from a "series of minor variations in welds...." That too is a false statement. The "minor revisions" represented generic Discrepancy Reports (DR) 4678

for Unit I and 4730 for Unit II, respectively. These generic DR's covered existing work on pipe supports and have been closed since the advent of the new preinspect program.

17. In answer #13 (April 30 letter, p. 7) PG&E said that residual stresses are "self-relieving." That statement is false, and demonstrates a high degree of ignorance if offered in good faith. In fact, that's the reason for post-weld heat treatment (PWHT) -- to eliminate residual stress.

18. PG&E in answer #13 also said that supports "generally" are not "highly restrained," which relieves the significance of residual stresses. That statement is misleading. There are numerous cases of highly-restrained welds. Each instance must be analyzed for significance.

19. In response to GAP allegation #200, PG&E said that the allegation arose from a "lack of understanding" about the QA manager's responsibilities for DR's. In my opinion, it is not the QA management's option to partially void a D.R. by rewriting it. It should be answered on the record, not censored.

20. In answer #30, PG&E responded that"A-307, Grade B, as used at Diablo Canyon" is acceptable as a P-1 material. That is false, as confirmed when a May 31, 1984 Pullman memorandum concluded,

"A-307 bolts with the heads removed are NOT acceptable" (emphasis in original). (It is enclosed as Exhibit 2.) Those bolts were the point of my allegation.

21. The May 31, 1984 memorandum confirmed the accuracy of my allegation. But it has not been applied to any existing work in Unit 1 or Unit II. The explicit point of the memorandum was to stop future violations. It was issued "to prevent recurrence of this discrepancy." Nothing was said about correcting existing work. It is not enough to install these bolts properly for the last few months of a 14 year job. Those converted bolts are on the containment liner of both units and in other safety-related systems. The use is widespread in safety-related systems. All must be replaced.

22. In fact, management tried to prevent distribution of the memorandum.- There was a limited distribution list, and all who received it were supposed to sign and date the event. One of those on the list distributed it "to all QC Insp." (Id.)

23. The May 21, 1984 memorandum also discredits NRC staff conclusions that A-307 at Diablo Canyon "is" acceptable. NRC inspector Gonzalo Hernandez told me on February 6, 1984 that the use of A-307 was all right.

24. On May 17, 1984 PG&E responded further to my allegations. On page 14 PG&E said that Pullman had responded to my concern. That statement is misleading. As of the date of my January 23, 1984 memorandum Pullman had not responded to the issue I raised. The response was not until February 29, 1984.

25. On May 17, 1984 PG&E responded further to my allegations on the carbon level in stainless steel piping. (May 17, 1984 letter, at 4.) In the response PG&E claimed that Mr. Karner informed PG&E of the problem on January 11. That proves that the claim in the March 19 affidavit of Mr. Tressler and all -- that PG&E was ignorant -- was false. (Supra, at _____.)

26. In the same answer, PG&E asserted that "Mr. O'Neil's only response was to inquire whether he was to receive a copy." (Id.) That too is a false statement. In our discussion, I pointed out to Mr. Karner that the carbon levels could lead to ~~minimum~~ wall thickness degradation as well, ALTHOUGH THIS IS GENERALLY OF MINOR CONCERN IN NUCLEAR PLANTS.

II. CRACKED WELDS ON COMPONENT COOLING WATER LINES.

In order to avoid a serious mistake with potential safety significance, it is necessary to challenge the NRC staff analysis on cracked welds in the Component Cooling Water (CCW) system. At the March 26, 1984 Commission meeting on Diablo Canyon, NRC official Thomas Bishop said that the cracks were not caused by welding with water in these lines, because they met the required preheat temperature of 50° F. He added that the cause of the cracking was unknown. On balance, I have read the June 4, 1984 affidavit of John Christians on this issue and generally agree strongly with his analysis that the NRC is wrong to reject water in the lines as cause for the cracking. Several specific points should be raised to reinforce John 's analysis.

27.Initially I question Mr. Bishop 's inference that water in the lines is not significant when a 50° preheat temperature is maintained. That is contrary to well recognized metallurgical principles, in my opinion. There is a visible effect on the lines when there is water inside. At 51°, I have observed condensation and dripping. It is also too simplistic a solution to be true.

Pullman knew better, as well. February 10, 1984 memorandum (Exhibit 3) recognized, "The CCW system # 14 is in full operation. This requires a value judgement...if and when an acceptable weld can be made on a line full of water. The rate of flow in a particular line and how the heat dissipation [sic] will affect your weld." The NRC 's ignorance raises questions whether Pullman and PG&E kept the staff informed of the risks and potential quality consequences from welding on water filled lines.

28. In my opinion, it is a quality assurance violation to base decisions on "value judgements" for safety-related work. That means that the work was not controlled by procedures, in violation of 10 CFR 50 App. B requirements

29. Contrary to Mr. Bishop 's confidence before the Commissioners that the water was not flowing during welding, Pullman 's Unit II Clearance Coordinator would make no such comment: "I will try to find a way to valve it out--but not drain--a section of this system for your work."(Id.) I have seen welding performed with water flowing in the line and protested the line "clearance." I was told it was not my job to verify line clearance, per QC management.

30. The NRC staff would be less ignorant of the cause for cracking if they had attempted to speak with knowledgable employee witnesses, before effectively dismissing the concern. I have analysed limited data on the carbon equivalency for the relevant materials and it is suseptible to Hydrogen Assisted Cracking (HAC), which can be caused by embrittlement due to the combined effects of carbon, manganese and silicon. What ever the cause, the NRC should get the answers before letting Diablo Canyon go to commercial power. 31. This problem has not been systematically addressed. The cracks still are only sporadically caught and repaired, in an uncontrolled manner without necessary documentation. To illustrate, recently an inspector found through MT that three out of four welds had cracks on CCW pipe attachments. This resulted in undocumented repairs ie. removal of cracked welds, but did not lead to review of welding procedures used. Until this occurs, the full extent of cracked

welds on the CCW line will remain unknown. The plant cannot operate with such serious questions unresolved on vital safety related lines.

III. BOLTING, DESIGN, AND DOCUMENT CONTROL BREAKDOWNS tjt

A number of my colleagues have submitted affidavits on safety deficiencies related to bolting, DESIGN AND DOCUMENT CONTROL tjt certain evidence must be presented in support of their allegations.

32. Support package 921-49, included as Exhibt 4, is a good example of significant document and design control breakdowns at Diablo Canyon. This is classified as a non-safety related (class E, B31.1 code) line, however, it is a radwaste system (gas decay) shared between Units I and II. This line, by definition, falls under B31.7 code requirements for nuclear piping. This support package was presented for work and inspection on 6/7/84. As the inspector, I was to verify location for deletion per memo 0389, page 2 of 48. This memo from PG&E directs Pullman to remove all items except 4, 5, 6, and 7 of a support built per the design shown on QF-2-9876 as referenced on page 15. Pages 17-20 are the quick-fixed drawings of the new design. This was approved on 2/2/84, and revised on 2/3/84 as even the quick-fixed design could not be installed. This is typical of quick-fixed designs, as engineers approving these rarely look at the ~~field~~ FIELD tjt conditions. It is also evident by looking at the voided quick-fixes included as pages 23-27 of 48. Page 7 of 48 is an illegal quick-fix as it 's a copy in the actual package, with copied signatures and the word "replacement" as well. This illegal copy is "approved for construction" to the memo from PG&E

(page 2 of 48).

The significant item is that revision 6 was QC accepted on 3/23/84, as evidenced by the "accept" stamp and signatures on page 10 of 48, and the signature on line 13 of field process sheet, page 42 of 48. The support was "accepted by QA pending resolution of reject comments" on 3/28/84, as evidenced by note on back of process sheet (rev. 6), page 43 of 48. There is no mention as to what these "reject comments" are, or of corrective action, in the package. These "comment sheets" are on file with Pullman QA, but never became permanent plant-life documentation with the support packages. The support packages are stamped "QA accept pending resolution of comments," which is tantamount to falsification of documentation. QA reviewers have been fired for refusing to stamp "accept" on deficient packages, and in the words of a QA reviewer, "the reason we are doing this is because PG&E wants to see "accept" stamped on these packages." Pullman has no approved procedure for QA acceptance "pending resolution of reject comments."

On this date this support is on engineering hold (o-hold) pending revision. This is evidenced by page 46 of 48 specifying, "layout drilling per DC Rev. 0." It seems strange that a revision 6 drawing is again revised and now called DC Rev. 0 (DC for Diablo Canyon). This revision change, and layout procedure as well, are Bechtel programs. The significant items here are that work was performed to a field initiated (quick-fixed) design, QA/QC accepted to revision 6, and now PG&E is directing per memoranda the removal of most of this recent work to permit a

new design to DC Rev.0. The new design is shown on pages 47 and 48 of 48, and the only significant revision is the size of the concrete anchors. I have seen many supports redesigned in this manner, and I feel it represents a considerable added expense to the cost of the final support.

33. Another problem I have reported internally is layout drilling without following the C-51 form, prior to installation of Hilti-Quick Bolts. Although I agree that holes in concrete are not necessarily harmful, if procedures for filling unused holes are followed,layout operations apparently do not follow PG&E 's procedures stated on the C-51 form for drilling in concrete. There was no consistent inspection program to learn whether rebar had been damaged prior to dry packing the holes. This drilling is accomplished by a PG&E memo. As a result, the quality of these installations is indeterminate due to lack of approved procedures.

IV. QUICK FIX

Several weeks ago I met with NRC inspector Isa Yin and other agency representatives. They asked me to organize and prepare additional examples of questionable Quick Fix dispositions. I am ready to discuss this further evidence. But a generic flaw in the program should be added to the record.

34. Quick Fixes supposedly were for "tolerance clarification" of in-process work that deviated from ESD 223 (pipe support installation) tolerances and requirements. Quick Fixes were used to accept blatent workmanship deficiencies on "old" and "in process" work. As inspector Yin confirmed with me, deficien-

cies on in process and previously accepted work should be reported through nonconformance reports. In fact, Pullman specifications conflict on this point. One specification, ESD 268 (Deficient Condition Reporting), states these are "deficient conditions." ESD 264 (Process Control and Planning), says these conditions can be "corrected through the normal course of construction." Finally, ESD 240 (Nonconformance Reporting) materially defines a "nonconformance" and "deficient condition" as one in the same. This inconsistency was identified to and investigated by NRC inspector Dennis Kirsch. To date, no reply has been received.

V. BREAKDOWN OF THE REPORTING SYSTEM

Over the last few months it has become increasingly difficult to write formal reports of QA/QC violations. Several aspects of the policy are summarized below.

35. Over the last few months Pullman verbally has instructed inspectors not to write Discrepancy Reports (DR 's). These instructions have been confirmed by a memorandum. This allows PG&E to remain officially ignorant of quality problems during the last few months before commercial operation. That is when it is most significant for PG&E to keep informed so that it can keep the NRC informed. ESD 240 states "All discrepancy reports will be generated by field QA/QC inspectors or engineers." Field inspectors are instructed to write DCN 's only, and Pullman QA will determine if a DR is necessary. This instruction is per memoranda and not incorporated into any approved procedure, in violation of another approved procedure for incorporating memo-

randa into approved procedures.

36. Pullman management repeatedly has requested inspectors to write up suspected deficient conditions not explicitly defined by procedure on memoranda, rather than through Deficient Condition Notices (DCN 's). This prevents QA/QC violations from being entered at all into the formal reporting system.

37. I also question management 's approach to dispositioning DCN 's. With respect to one DCN questioning serious concrete anchor bolting problems on safety-related work, QA/QC manager Karner refused to process the DCN as a DR in part because the concerns were raised as questions. The question format was used as a courtesy; the point was that serious problems were raised with potential safety significance--10 1/2 inch embedment in twelve inch concrete, which led to increased stress and concrete that fell out from under the bolts. The NRC found this issue serious enough to begin a formal review. By contrast, Mr. Karner seized on a grammatical point to avoid the same problem.

38. Pullman management dispositioned the DCN initially through a letter. A DCN cover sheet later was added but distribution of the DCN was severely limited, contrary to normal distribution procedures to see that all consequences can be identified and trended

39.I also am concerned how problems are being dispositioned when reports are issued. To illustrate why, I have noticed a consistent practice when packages are rejected for reoccurring violation of specifications: change the specification rather than correct the violation. This practice has occurred so

often that I do not have confidance in the individual decisions. The potential problems have been exacerbated further, since Engineering puts related pending packages with discrepancies on hold until the rules are changed and the work is then accepted.

IV. INTIMIDATION AND HARASSMENT

40. On April 27, 1984 PG&E letter (Exhibit 5) to Mr. Karner reported that the Quality Hotline had received numerous calls of Pullman management threats to discipline QA personnel who performed their jobs. On May 11, 1984 Mr. Karner issued a memorandum to "all QA supervisors and leads" (Exhibit 6) not to engage in reprisals. Unfortunatly, the memorandum has not solved the deficiencies in organizational freedom which lead to its issuance, deficiencies still may not be formally reported.

VII. FALSIFIED RECORDS

41. I am concerned that management may be directing inspectors to perform work in a manner that could result in falsified material traceability records. In my personal experiance, the practice occurred for stanchions on safety-related lines. Contrary to requirements, we did not have warehouse traceability records. QA management instructed me to go into the field and just copy onto the records the heat and Purchase Order (PO) numbers from the hardware to reconstruct the warehouse requisition. That is improper; the traceability records are supposed to be based on records from the manufacturer. It is false to fill them out from the field with the notation "reconstructed," and there is no procedure detailing reconstruction requirements. The documentation is supposed to be reflect the accuracy of field trace-

ability markings and without warehouse records the material is indetermimate.

42. I have also seen piping process sheets where identified deficiencies have been changed by "rewriting" the paperwork. After the fact, the identities of welders referenced on piping process sheets were changed so that data on the rod requisition sheets would be consistent. Changing it in this manner doesn 't make it accurate but the paperwork looks accurate.

I have identified other specific issues to the NRC staff and Office of Investigations. I will continue to cooperate with specific details to support the allegations raised above, after the NRC makes suitable arrangements to protect my anonymity. My identity has been compromised once after receiving promise of confidentiality from NRC inspector D. Kirsch, until anything "went to court." As my career potential is at stake, I must request meaningful confidentiality.

I have read the above 19 page affidavit, and it is true, accurate and complete, to the best of my knowldge and belief.

Timothy J. O 'Neill

Timothy J. O 'Neill

State of California (ss.
County of San Luis Obispo (

Timothy J. O'Neill, being duly sworn, deposes and says:
I have read the above 19 page affidavit and it is true, accurate and complete to the best of my knowledge and belief.

Timothy J. O'Neill

Subscribed and sworn to before me on June 7, 1984.

OFFICIAL SEAL
EFFIE MC DERMOTT
NOTARY PUBLIC - CALIFORNIA
SAN LUIS OBISPO COUNTY
My comm. expires OCT 21, 1987

Effie McDermott,
Notary Public in and for
the State of California

Intergranular Stress Corrosion Cracking in Welded, Unstabilized Austenitic Stainless

By Donald E. Hetzel

A particularly troublesome area of weld-related failure, especially in the nuclear industry, involves intergranular stress corrosion cracking (IGSCC) of standard grades (other than low carbon types) of unstabilized austenitic stainless steels such as UNS S30200 or S30400. In the handling and welding of these materials, a knowledge of their reactions to heating and cooling cycles is required and must be taken into account if the integrity of the finished product is to be assured.

While there are several unstabilized stainless alloys available, the one most commonly used in this country is UNS S30400. The composition, which will be used for illustration purposes, is: 0.08 C max, 2.00 Mn max, 0.045 P max, 0.030 S max, 1.00 Si max, 18.00-20.00 Cr, 8.00-10.50 Ni, 0.10 N max.

Titanium and columbium are among the more common stabilizers used with austenitic stainless steels and when present, act to inhibit the formation of adverse intermetallic precipitates. The unstabilized alloys do not contain such elements and must be carefully handled during hot work to control the amount of precipitation that will occur.

Conditions That Promote Intergranular Corrosion

If S30400 is heated to between approximately 800 and 1600 F (425 and 870 C) for a sufficient time, excess precipitation occurs which results in the alloy losing its corrosion resistant properties and becoming susceptible to intergranular attack in the presence of suitable electrolytes. This creation of a susceptibility is termed sensitization. In other words, if the alloy is heated to within the critical temperature range for a sufficient time, it becomes sensitized or susceptible to the type of attack which can ultimately lead to IGSCC.

Depletion — There have been numerous theories for the mechanisms and sequences involved in IGSCC; the most commonly accepted one being chromium depletion. Each grain within the body of a section of austenitic stainless steel has, for practical consideration, a homogeneous composition due to modern mill production practices. To remain stainless when exposed to normal environments in which the material is intended to be used, each grain must maintain approximately 12% minimum chromium content.

Within the sensitizing temperature range, chromium has a high affinity for carbon. The two elements precipitate from the grains to form the intermetallic compound, chromium carbide, at grain boundaries. This leaves the grain surface composition roughly equivalent to that of a nickel steel which while slightly more corrosion resistant than carbon steel, does not have the corrosion resistance properties of iron-chromium-nickel alloys. Thus, in the presence of suitable electrolytes such as oxygenated water or water containing chlorides, the chromium depleted zones of the individual grains will be subject to attack.

The corrosive attack generally initiates at or near the grain boundaries on the sensitized material's surface in the form of pitting which progresses inward following precipitation paths. This condition is the intergranular attack that leads to IGSCC.

To experience stress corrosion cracking, the material must be subject to some form of tensile loading. In the case of welds, as the molten metal solidifies and drops in temperature, thermal contraction occurs and the weld surface will possess a tensile stress equal to the yield strength of the filler metal.

Electrodes — The filler metal generally used to weld S30400 is E308 or ER308 — electrodes or welding rods having a composition essentially similar to that of the base metal but containing slightly higher chromium and nickel to offset any sublimation across the arc and to reduce the potential of sensitizing the actual weld metal by having more chromium present to tie up available carbon.

These customary filler materials have a minimum yield strength of 37 000 psi (240 MPa) as opposed to 30 000 psi (205 MPa) for S30400. As the weld metal surface is stressed equal to the yield strength of the filler

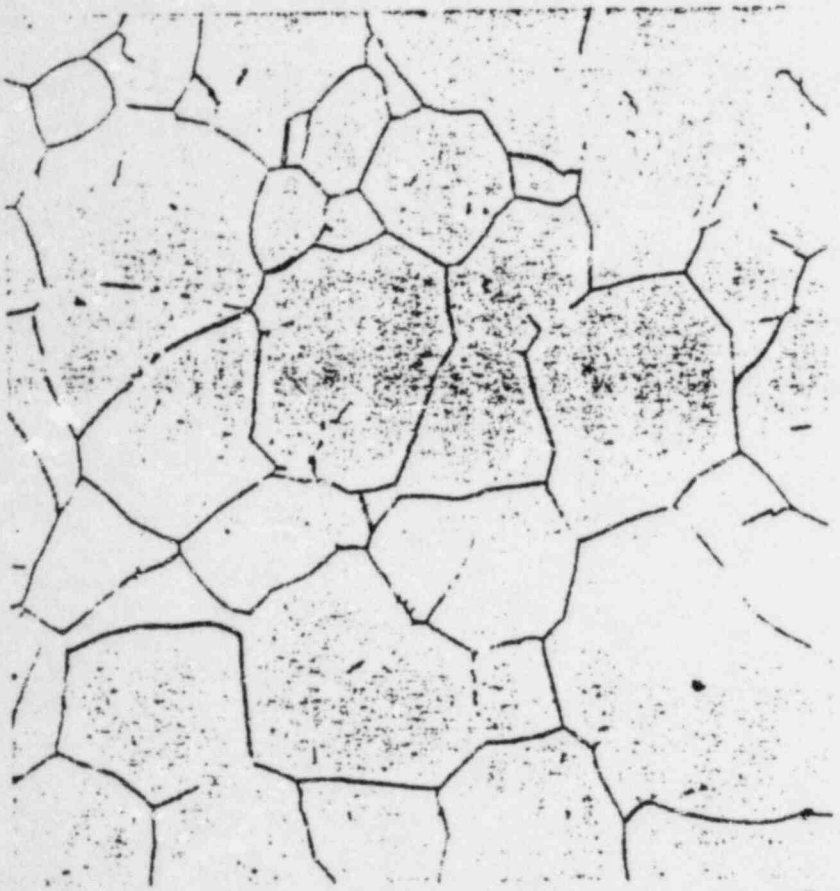


Fig. 1 — Intergranular precipitation typical of what can be present in the HAZ of unstabilized austenitic stainless steels that have been welded using high heat inputs. Breaks in the precipitation paths indicate that the material is marginal, but acceptable for most applications. The author, however, would not recommend using it for certain nuclear power applications such as piping for heated, untreated water. Glyceregia. 200X. **(Carpenter Technology Corp.)**

metal, the tensile load of the weld metal surface must be applied to the base metal surface adjacent to the weld, or in the heat affected zone (HAZ). Weld-related intergranular attack generally occurs in this same zone and acts to reduce the section thickness on which the tensile load will be applied. This tensile load, in addition to any service loads that may be applied to the weld area, tends to promote minute separation of grains in the attacked area acting in conjunction with an internal load being placed on the grains from corrosion by-products (generally resulting from an electrochemical reaction). The combined action causes fresh surfaces of the grains to be exposed to corrosive attack until ultimate failure from IGSCC occurs.

A general but far from absolute rule is that to experience IGSCC, three minimum conditions must be present and act concurrently: a tensile load of 14 000 psi (95 MPa), a temperature of 150 F (65 C), and 100 ppm chloride or equivalent solution. I have, however, repeatedly seen IGSCC under conditions substantially below these values.

Sensitization Dependent On Time-Temperature

Chromium carbide precipitation occurs whenever unstabilized austenitic stainless steel is welded. However, the material should not be considered as sensitized until the point is reached where precipitates surround the individual grains. Breaks in precipitation paths will generally permit only a highly localized attack within the grain zone adjacent to the precipitate.

Sensitization is a time-temperature dependent function. That is, the longer the material remains in the critical temperature range, the more chromium carbide will be formed up to the practical limits imposed by the percentages of chromium and carbon available.

It is obviously important to perform necessary hot work such as welding and then cool the material through the critical temperature range as rapidly as possible to control the amount of precipitate that can form. Inasmuch as any preheat and interpass temperatures tend to retard cooling rates, qualified welding engineers tend to keep these parameters low — generally any preheat used not exceeding 100 F (40 C) and an interpass temperature maximum of 350 F (175 C).

Welding arc temperatures are about 8000 F (4400 C), except in plasma arc welding which takes place at around 14 000 F (7800 C). While these temperatures (far above the melting point of steel) have no direct way of creating material sensitivity, they do heat the unmelted portion of the material in the weld zone — that part of the HAZ being naturally heated to within the critical range but never exceeding it. The HAZ is subject to the longest exposure and as may be expected, most weld-related IGSCC occurs in it.

Procedures — Weld-related sensitization has also been caused by adding carbon to the weld and HAZ through improper cutting or gouging practices, improper preweld cleaning, and use of improper shielding gases or additives. This involves providing additional carbon with which the chromium can react, and in severe cases where much carbon is present, the individual grains of the base metal can be nearly void of

chromium on completion of the reaction.

A common example of improper cutting or gouging is the use of a carbon arc on stainless steel without following up with a grinding operation to remove carbon byproducts. Improper cleaning usually results in attempting to weld through residual paints, oils, or similar compounds (hydrocarbons). Improper shielding gas or gas additives generally involves use of CO_2. Carbon dioxide dissociates under influence of the arc and a portion of the carbon enters into the weld metal and HAZ.

Each of these examples presents case histories of major failures and serves to illustrate that by not using proper practices both prior to and during welding, the potential for sensitization can be greatly increased independent of the actual welding operation.

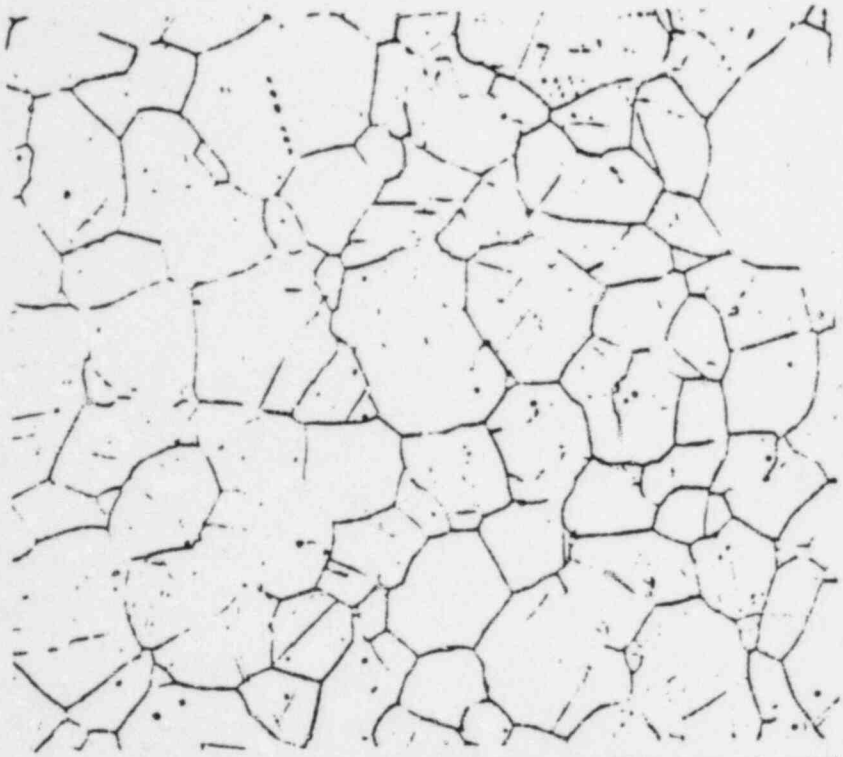


Fig. 2 — Fully annealed UNS S31600 in the unwelded condition. Microstructure is typical of as-received unstabilized austenitic stainless steel. Material in this condition is suitable for most nuclear applications except in environments where rapid attack of the steel would be expected. When welded, a certain amount of carbide precipitation will occur; the amount largely depending on the magnitude of the heat input. Specimen was deeply etched to enhance photoreproduction. Glyceregia. 750X. (Westinghouse Hanford Co.)

Prevention-Correction Measures Are Available

Fortunately, there are methods of preventing sensitization during welding, and methods of correcting sensitization although this can prove nearly impossible, depending on weldment type and configuration. Prevention is always more economical.

T.G. Gooch of The Welding Institute, Cambridge, England, has performed extensive tests in welding unstabilized alloys. His studies reveal that the amount of heat input per unit length of weld that can be used without damaging the stainless steel is a function of carbon content.

For a carbon content of 0.06%, for example, a heat input threshold of approximately 68 kJ/in. (2.7 MJ/m) was established, but when carbon reached the maximum of 0.08%, the threshold dropped dramatically to approximately 40 kJ/in. (1.6 MJ/m).

To provide a suitable safety factor, qualified welding engineers specify parameters in their procedure specifications that will achieve a maximum heat input of 30 to 35 kJ/in. (1.2 to 1.4 MJ/m) for the unstabilized alloys. This heat input is determined by:

$$H_I = \frac{60(IE)}{V},$$

Where H_I = heat input in joules per inch, I = welding amperage, E = welding voltage, and V = welding travel speed in inches per minute.

Assuming typical welding parameters for a 1/8 in. (3.2 mm) in diameter E308 electrode — 120 A, 24 V, and 8 in./min (3.4 mm/s) travel speed — use of the formula would give a heat input (H_I) of 21.6 kJ/in. (850 kJ/m), a value comfortably below the threshold limit for sensitization.

(Heat input in kJ/m can be obtained directly by using the equation IE/V, where V is in mm/s.)

The travel speed in the above example is the forward travel of the electrode used in making the welding deposit. Speeds of this magnitude indicate welding is being performed via the stringer bead technique — the practice generally recommended by research agencies of national and international reputation for welding unstabilized austenitic stainless steels.

This is a sound recommendation and does not adversely affect productivity because for a given set of operating parameters, welding electrode burnoff rates and consequently joint fill will be essentially the same regardless of whether stringer beads or weave beads are used.

Heat Treat — Depending on the type of weldment, under certain conditions it is possible to unintentionally exceed the sensitization threshold limits when joining unstabilized alloys. When sensitization has occurred during welding or other heat processing, the condition

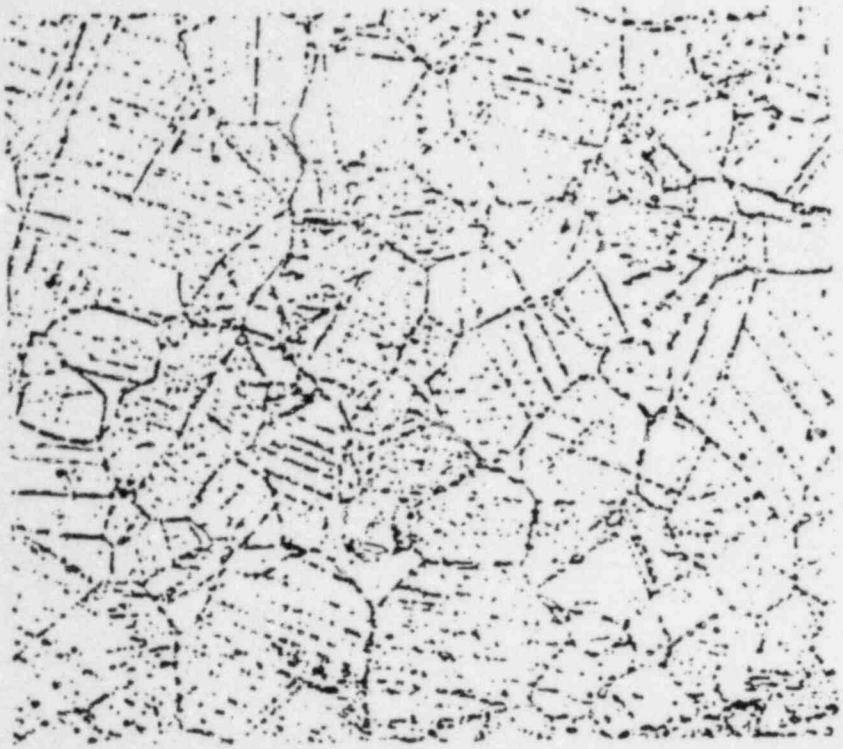


Fig. 3 — Highly sensitized UNS S31600. Carbide precipitation is present not only at grain boundaries but also within grains along twins. There is also evidence of small amounts of what may be the brittle sigma phase. Microstructure is typical of what occurs in the HAZ of unstabilized austenitic alloys when welded using excessive heat inputs. The author would not consider material in this condition suitable for use in commercial nuclear power applications. Specimen was deeply etched to enhance photoreproduction. Oxalic acid. 750X. (Westinghouse Hanford Co.)

can be reversed by heating the material to the point where the chromium carbides dissociate and redissolve in the grains of the material.

This is done by solution heat treating: heating to approximately 1900 to 2000 F (1040 to 1095 C) and soaking for a time sufficient to permit the carbon and chromium to return to solution. After the soak, the material is water quenched to prevent reprecipitation. The length of the elevated temperature soak is a function of material thickness and size. Appropriate time intervals for specific applications have been published in various metallurgical texts.

It's Possible to Use Sensitized Stainless

Precipitated or sensitized stainless steel has mechanical properties reasonably similar to those of material in the undamaged state; only the corrosion resistance is adversely affected. If the material is to be used for certain types of service, sensitization or its potential becomes unimportant and can be ignored. A typical example is sodium cooled reactor applications where the material will be continuously maintained in an inert gas (generally argon) atmosphere. This is a superclean environment, and inert gas by itself cannot create the conditions necessary to promote the initial attack on the material.

Liquid sodium at normal reactor operating temperatures of 400 to 1200 F (205 to 650 C) has no apparent effect, adverse or otherwise, on the argon-protected sensitized stainless steel. Thus, unstabilized austenitic stainless steel weldments which have been produced for such service and have been sensitized need protection from adverse conditions only during the period from completion through installation in the protective environment.

Surprisingly enough, there is another condition under which sensitized stainless steel has been used without adverse results: for continuous service within the critical temperature range, generally in essentially mildly aggressive environments that do not permit rapid attack at grain boundaries.

For IGSCC to initiate and continue, it is necessary that a precipitate path be present along the grain boundaries. If this path becomes interrupted, intergranular attack will generally not progress beyond the interruption. (There are, of course, exceptions to this, but these generally involve more aggressive environments where supplemental corrosion mechanisms are present.)

In long term exposure to the medium and upper temperatures in the critical temperature range, carbide precipitates that normally surround the grains in a continuous path will often tend to spheroidize locally, creating the path interruptions needed to permit the sensitized material to perform nearly as well as undamaged material.

Practices, Misconceptions Cause Many Problems

Because the phenomenon just described is fairly common, the uninitiated are frequently led to believe that heat input control is unnecessary with unstabilized alloys regardless of the type of service involved. This mistaken belief contributes heavily to the frequency of IGSCC in this country. It can be an unsafe assumption to rely on spheroidization to make up for poor handling of the alloys because this phenomenon simply does not occur 100% of the time. Service conditions need to be very carefully evaluated before heat input control is discontinued.

We have the necessary

scientific and technical knowledge on hand to properly handle unstabilized austenitic stainless steels in welded fabrication and reduce IGSCC failures to near zero regardless of the industry. The marine industry, for example, experiences relatively little IGSCC.

Excessive heat inputs during welding are the primary cause of IGSCC, yet under the mistaken belief that productivity will suffer or sometimes because of the less noble incentive of circumventing the quality control department, some companies ignore proper heat input control or make their allowable limits so broad as to be ineffective for protection of the material.

Testing — Generally, when a potentially adverse condition exists, some practical nondestructive means of detection is developed. This was not the case for sensitization until quite recently when a seminondestructive, metallographic technique evolved.

Prior to this only comparative type testing was available, such as the British potentiostatic test, chemical testing per ASTM A262 Practices A through E (oxalic acid, ferric sulfate-sulfuric acid, nitric acid, nitric-hydrofluoric acid, and copper-copper sulfate sulfuric acid testing), or traditional metallographic testing.

In all cases (except metallographic), representative coupons equivalent to the material in question are used for test samples. The relative size of the coupons required generally precludes removing test samples from weldments.

Metallographic testing will reveal the presence of sensitization via the examination of small specimens that can be removed from the weldment. However, with the advent of portable metallographic microscopes and electroetching equipment, it is now possible to polish, etch, and examine a small spot right on the weldment without having to remove a test specimen.

This method is the most reliable available today, but must be considered seminondestructive.

Much research is needed to develop truly nondestructive means for detecting sensitization in critical applications to avoid putting damaged material into service.

Experience — In work that I have directed, there have been no cases of weld-related IGSCC reported even though some applications were in highly aggressive environments including nuclear waste handling systems. (It should be noted that this is limited to applications where the unstabilized alloys should be compatible with the service environments. Should weld-related IGSCC be experienced under such circumstances, it is generally localized and in the HAZ. One would not expect stainless steel, welded or otherwise, to provide suitable service where it is exposed to an electrolyte known to rapidly attack the material and when such an attack occurs, it is not generally localized.)

Some of this welded unstabilized steel has been in service for more than 15 years, and while these welds and weld zones have shown no evidence of weld-related IGSCC failure, adjacent weldments of the same material — including some from the same heats but installed by others — have experienced gross failures, mostly in the HAZ. This indicates the value of proper methods and techniques in handling and welding unstabilized alloys.

Interestingly, the original installations were made at a productivity level equaling or exceeding that of the other contractors, demonstrating that no sacrifice in productivity should occur due to use of proper practices.

Coatings — I have observed IGSCC in weldments produced by the SMAW process that is believed to be the result of moisture absorption in the electrode coating.

This flux coating decomposes during welding to form a protective gas shield around the molten metal. Common coatings for stainless steel electrodes are the basic lime or titania types which can be hygroscopic at temperatures below the vapor point of water. The coatings contain fluorspar which acts as a cleaning agent ahead of the arc during welding.

It is my opinion that IGSCC of welds made using proper welding practices is likely the result of some type of hydrofluoride reaction with the weld and base metal. In this case, the hydrogen element would derive from moisture absorbed by the electrode coating and fluorine would be generated via some reaction involving the fluorspar.

I have not performed any tests to prove or disprove this theory. However, it has been discovered in practice that welds produced using electrodes that were stored in ovens maintained at 250 F (120 C) min to keep the coatings dry, do not experience the same IGSCC problems when good welding practices are followed. This appears to be a good topic for a research project.

There is also room for much additional meaningful research on the handling and welding of unstabilized austenitic stainless alloys. With improvements in nondestructive testing technology and in over-all quality assurance coupled with the knowledge being gained through ongoing basic research, it is anticipated that any present mishandling of the alloys leading to IGSCC will become even more unprofitable.

For More Information: You are invited to contact the author directly by letter or telephone. Dr. Hetzel is a consultant specializing in welding, joining, materials, and fabrication. He may be reached at 15 Meadowlakes, Clinton, Ill. 61727, tel. 217/935-8793.

INTEROFFICE CORRESPONDENCE

Dist. To All QC Insp

DATE MAY 31, 1984

TO DISTRIBUTION

FROM H. KARNER

SUBJECT ACCEPTABLE STUD MATERIALS FOR CARBON STEEL WELDING (REF: DR 5891)

DR 5891 identified cases where A-490 and A-193-B7 stud materials, which are not listed in ASME Section IX or AWS D1.1, were welded with a carbon steel welding procedure qualified for welding ASME P-1 materials and D1.1 prequalified materials only.

To prevent recurrence of this discrepancy, only the following stud materials shall be considered acceptable for welding with carbon steel welding procedures:

1) A-36 bar stock

2) Nelson studs

3) A-307 Gr B studs (A-307 bolts with the heads removed are NOT acceptable).

All other stud materials will require written QA/QC approval prior to welding with a carbon steel WPS.

Harold W. Karner
QA/QC Manager

HWK:CN:sam

Distribution:

QC	QA	Engineering-Piping/ Hangers/Rupture Restraints
Engler	Cochrane	
Charboneau	Prewitt	Kapsalis
Neary	Kimmel	Cornish
Clark	McJilton	
J. Watson	Hosman	Superintendents-General Formen
Nolle	McGregor	
		Mokry

All individuals on distribution shall sign, date and return a copy of this memorandum upon receipt.

Signature Date

SUBJECT CCW SYSTEM #14 CLEARANCE RESTRICTION

CLEARANCE # 14-5265-84

MADE BY C. COUNTER DATE 2-10-84 CHECKED BY _____ APPROVED BY _____

THE CCW SYSTEM #14 IS IN FULL OPERATION.

THIS REQUIRES A VALVE JUDGEMENT BY PIPEFITTER FIELD SUPERVISION, IF AND WHEN AN ACCEPTABLE WELD CAN BE MADE ON A LINE FULL OF WATER. THE RATE OF FLOW IN A PARTICULAR LINE AND HOW THE HEAT DISSIPATION WILL AFFECT YOUR WELD. SPRINKLER WELDERS MUST WORK ALL THEIR LUGS ON CARBON STEEL LINES FULL OF WATER -- BUT WITH ONLY A MINOR FLOW RATE.

REVIEW ALL YOUR SYSTEM 14 HANGER PACKAGES AND PULL OUT THE REVOKED CLEARANCE #14-5265-84. SEND THEM BACK TO ME AND I WILL TRY TO FIND A WAY TO VALVE OUT -- BUT NOT DRAIN -- A SECTION OF THIS SYSTEM FOR YOUR WORK.

AS YOU KNOW MANY HANGERS WILL REQUIRE ATTACHMENTS ON MAIN SUPPLY AND RETURN HEADERS SO ANTICIPATE A LONG WAIT FOR THIS WORK SINCE THE CCW SYSTEM JUST COMPLETED A LENGTHY OUTAGE AND ANOTHER SHUTDOWN WILL NOT BE FOR MANY WEEKS.

I WILL NOTIFY YOU OF HANGERS THAT CANNOT GET APPROVAL AND THAT THEY WILL BE HELD IN A FILE TO WORK WHEN THE NEXT CCW OUTAGE IS MADE. PLEASE MAKE A NOTE OF THEM SO NO FALSE EXPECTATIONS ARE GENERATED FOR EARLY COMPLETIONS OF THESE SUPPORTS.

THANKS

Chuck Counter #3070
UNIT II CLEARANCE COORDINATOR (A&SE)

PIPE SUPPORT INSTALLATION WORKLIST

HANGER NO 921-49 SYST PRIORITY _____

ELEV: 55 AREA: H DWG. NO. _____ SHT. _____

DCN NO. _____ REV. 6

FIELD ENGINEER: Brad Newcomb DATE: 5/30/02

REVIEWED BY: _____ DATE: _____

INSTRUCTIONS TO CRAFT

THE FOLLOWING WORK IS REQUIRED TO COMPLETE THIS PIPE SUPPORT:

1) QC To Verify Location
2) Remove Entire Support And Scrap Except Items ④ ⑤ ⑥ & ⑦ (Type ⑫ Anchor Pipe Attachment) Cut All Anchor Bolts For Baseplate Item ⑫ Flush To Concrete. Anchor Bolts For Item ① Should Be Pulled From Concrete Floor.
3) Contact Foley For Grout Removal

NOTE: Do Not Damage Items ④ ⑤ ⑥ & ⑦

SHT. ____ OF ____

PAGE 1 OF 48

PULLMAN MEMORANDUM # 0389

TO: P. Stieger/H. Karner/S. Cornish

DATE: May 21, 1984

FROM: R. Meredith/G. Thomas

OF: General Construction

SUBJECT: Hanger Removal #921-49

AT: Jobsite EXT: 3504

ATTENTION: B. Oldenkamp
D. McGrew

Preinspection layout of Hanger #921-49 DC-2-S22498 Rev. 0, requires the removal of all Items except Items 5, 6, 7 and 8 (the type 12 anchor) of the previous revision. Reissue Hanger #921-49 Rev. 6 to remove the above items.

Make contact with PTGC Coordinator, John Rhodes, after completion of removal.

Gene Thomas

Originator: J. Vogt

cc: C. Dougherty
J. Schryver
J. Rhodes

jmu

FOR INFORMATION ONLY

FILE CA	KAPSALIS
MCGREW	SACCOCCIA
FLEDDERMAN	MOKRY
WEINSTEIN	PACIFICO
EVERLY	ROBERTS

RECEIVED
MAY 22 1984
PULLMAN POWER PRODUCTS
AVILA BEACH, CALIF
JOB #7177

Pu110038

PAGE 2 OF 48

PIPE SUPPORT INSTALLATION DETAILS

HANGER NO 921-49 PRIORITY

ELEV: 55 AREA: H DWG. NO. 500921 SHT.

DCN REV. 6

FIELD ENGINEER: RAO DATE: 4/4/89

REVIEWED BY: DATE:

INSTRUCTIONS TO CRAFT

THE FOLLOWING WORK IS REQUIRED TO COMPLETE THIS PIPE SUPPORT:

CUT AS SHOWN FOR PIPE WORK. RETURN TO DAO / J.T. WHEN COMPLETE. ~~FOR NEW BASE PLATE (REG.~~

HOT

ASAP!!

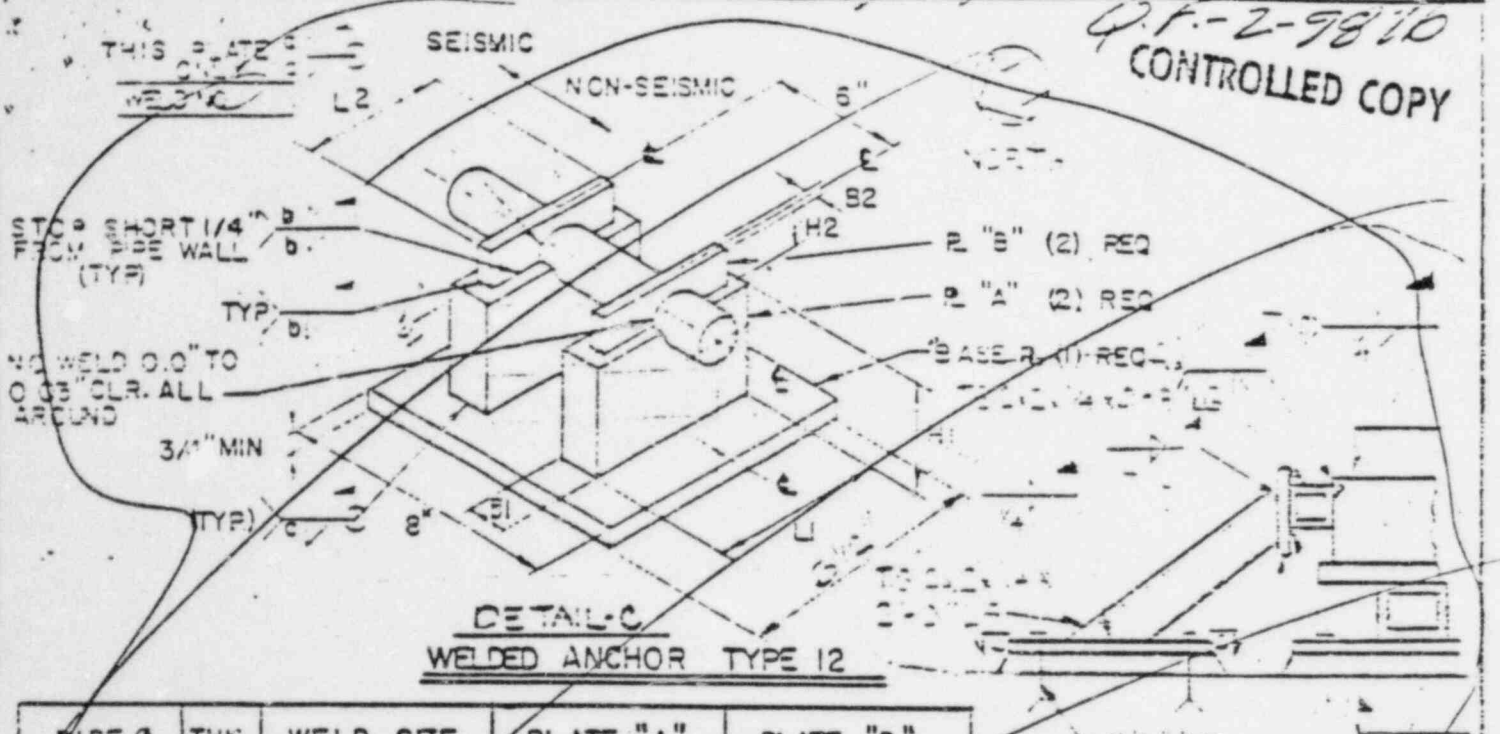
1 WORK ON PIPE COMPLETE

REINSTALL 3X3X3/8 X 1'-0" LG. PER Q.F.-2-9876.

NOTE: BACK OFF BOLTS PRIOR TO WELDING (4) BASEPLATE & RETORQUE 1 1/2" Ø KWIK BOLTS TO HILTI KWIK BOLTS TO 60 FT/LBS

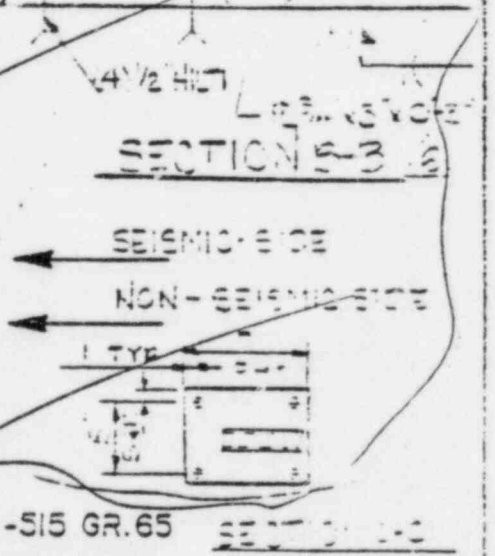
4/4/89

FOR INFORMATION ONLY



DETAIL-C
WELDED ANCHOR TYPE 12

PIPE Ø INCHES (SCH 80)	THK IN	WELD SIZE a IN	WELD SIZE b IN	WELD SIZE c IN	PLATE "A" L1 IN	PLATE "A" H1 IN	PLATE "A" B1 IN	PLATE "B" L2 IN	PLATE "B" H2 IN	PLATE "B" B2 IN
2" Ø (2.375)	.218"	5/16"	5/16"	5/16"	6"	3 1/2"	1 1/4"	5"	3"	1/2"
1 1/2" Ø (1.9)	.2"	5/16"	5/16"	5/16"	6"	3 1/2"	1 1/4"	5"	3"	1/2"
1" Ø (1.315)	.179	1/4"	3/16"	5/16"	6"	3 1/2"	1 1/4"	4"	3"	1/4"
3/4 Ø (1.050)	.154	1/4"	3/16"	5/16"	5"	3 1/2"	3/4"	4"	3"	1/4"



NOTE:

1. ANCHOR TO BE USED FOR SCH 80 OR LESS.
2. PLATE MATERIAL FOR CARBON STL. PIPE IS: STEEL A-515 GR. 65
3. PLATE MATERIAL FOR STAINLESS STL. PIPE IS: STEEL A-240 TYPE 304
4. ANCHOR TO BE USED ONLY AT CODE BREAKS BETWEEN PG AND E DESIGN CLASS I AND II PIPING ONLY
5. ANCHOR DESIGN, TYPE 12 IS BASED ON THE MAX. POSSIBLE LOADS THEREFORE, ALLOWABLE LOADS ARE NOT NECESSARY
6. SUPPORTING STL AND WELD TO THE ANCHOR TO BE QUALIFIED BY THE ENGINEER

4) 7. CUT PL "A" TO FIT

PACIFIC GAS & ELECTRIC CO.
APPROVED FOR CONSTRUCTION
ENGINEERING DEPARTMENT
DATE SEP 2 1988

APPROVED FOR CONSTRUCTION
DATE 4/12/84

UNLESS OTHERWISE SPECIFIED

ANCHOR PER SEE DWG NO. C-49243 SH. 27 REV 14

REF. DWG. 5X0921 SYS 24
CLASS E E UNIT 2 AREA H
ELEV 87'-0" DESIGN
ISO DATE

DWG. No. 921-19 REV. No.
SHT OF

APPROVED FOR CONSTRUCTION
4/4/84 DATE ENGR

NO PIPING PROCESS SHEET REQUIRED

FCV 409

CONTROLLED COPY

CUT HERE

PACIFIC GAS & ELECTRIC CO
APPROVED FOR CONSTRUCTION
ENGINEERING DEPARTMENT
DATE SEP 20 1983
BY

6" MIN

LOOKING

HILTI HDI ½" (6 REQ'D)

NOTE: FIELD FIT ANGLE ON ℄ TO ALLOW FOR HOLE DRILLING.

SET 'U' BOLTS ON PIPE COUPLING.

9" 7" 1" TYP

1'-6"

PLATE

TS. 4x4x⅜ x 1'-3 LG.

1'-4"

LOCATION PLAN

1 COMPLETE REDRAW 2 CHANGED ℄ SIZE 3 CHNGD L'S & ADDED L TO PROVIDE AXIAL RES. 3-27-79

UNLESS OTHERWISE SPECIFIED Welds: ¼" fillet all around U-bolts: field-fit, nut each side, 1/16" clearance, spacers per PG&E Dwg. 049243 sht. 22 T-shoes: per PG&E Dwg. 049243 sht. 20	REF. DWG. 500921 SYS. 24 UNIT 4 AREA H CLASS E ELEV 55 DESIGN 50 ISO 24-405 DATE 4-4-84	PIPE SUPPORT DWG. No. 921-49 REV No. 6 SHT 1 OF 2

PAGE 5 OF 48

921/49
REV 6

OF -2- 9376 SHT 2 OF 2

1 RFS 2-3-84

ITEM	REQ.	BILL OF MATERIALS
1	1	R ½" x 11" x 1'-6" LG. W/(6) 9/16" Ø HOLES C.S. A36
2	10	½" Ø HILTI KWIK BOLT W/ 2¼" MIN. EMB.
3	1	T.S. 4" x 4" x 3/8" x 1'-1 3/8" LG. C.S. A500 GR. B
4	1	R 3/4" x 8" x 8" C.S. A515 GR. 70
5	2	R 1¼" x 3½" x 6" C.S. A515 GR. 70
6	1	R ¼" x 3" x 4" C.S. A515 GR. 70
7	1	R ½" x 3" x 5" C.S. A515 GR. 70
8	1	L 3" x 3" x 3/8" x ~~1'-0" LG.~~ C.S. A36 11" LG. AND BOLT TO BSI
9	1	T.S. 2" x 2" x ¼" x 7½" LG. C.S. A500 GR. B
10	1	R 3/4" x 3" x 3" C.S. A36 1'-10"
11	1	T.S. 2" x 2" x ¼" x 2'-0" LG. CUT TO SUIT C.S. A500 GR. B
12	1	R 3/4" x 8" x 8" W/(4) 9/16" Ø HOLES C.S. A36
13	1	RIPS-PUS-025

6.6.2 .2(5)

RA 4/10/84
APPROVED FOR CONSTRUCTION
4-10-84
DATE

FOR INFORMATION ONLY

PAGE 6 OF 48

REPLACEMENT

SECTION NO. 11
ATTACHMENT A

△1 RFS 2-3-84

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM SHT 1 OF 4

SEQRENCE NUMBER QF-2-9876

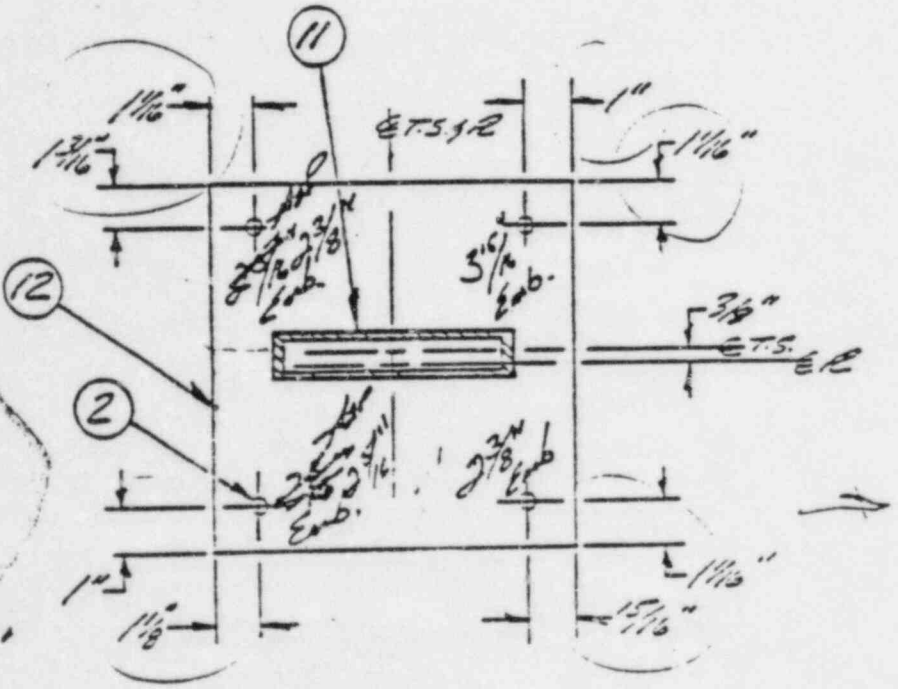
SUBJECT 921/49 REV 6 CLASS E/E

LOCATION AREA: 2H ELEV: 55'

☐ pre-inspect
☐ past pre-inspect
☐ during installation
☐ after installation
☒ other

PROBLEM: SUPPORT CANNOT BE INSTALL PER DESIGN DUE TO: ADJACENT HANGER INTERFERENCE; COUPLING LENGTH (13⅜") WILL NOT ALLOW FOR DESIGN PIPE ATTACHMENT WELD.

SOLUTION: INSTALL AS SHOWN.



SECTION C-C

RA 4/10/84 1/209
APPROVED FOR CONSTRUCTION
4/10/84
ENGR
LEAD

FOR INFORMATION ONLY

P.P.P. F.E. 4/10/84
G.C. F.E. _____

REFERENCE DRAWING 921/49 SH 1 OF 2 & 2 OF 2

ATTACHMENTS (YES) ☒ PAGES (INC. THIS SHEET) 4

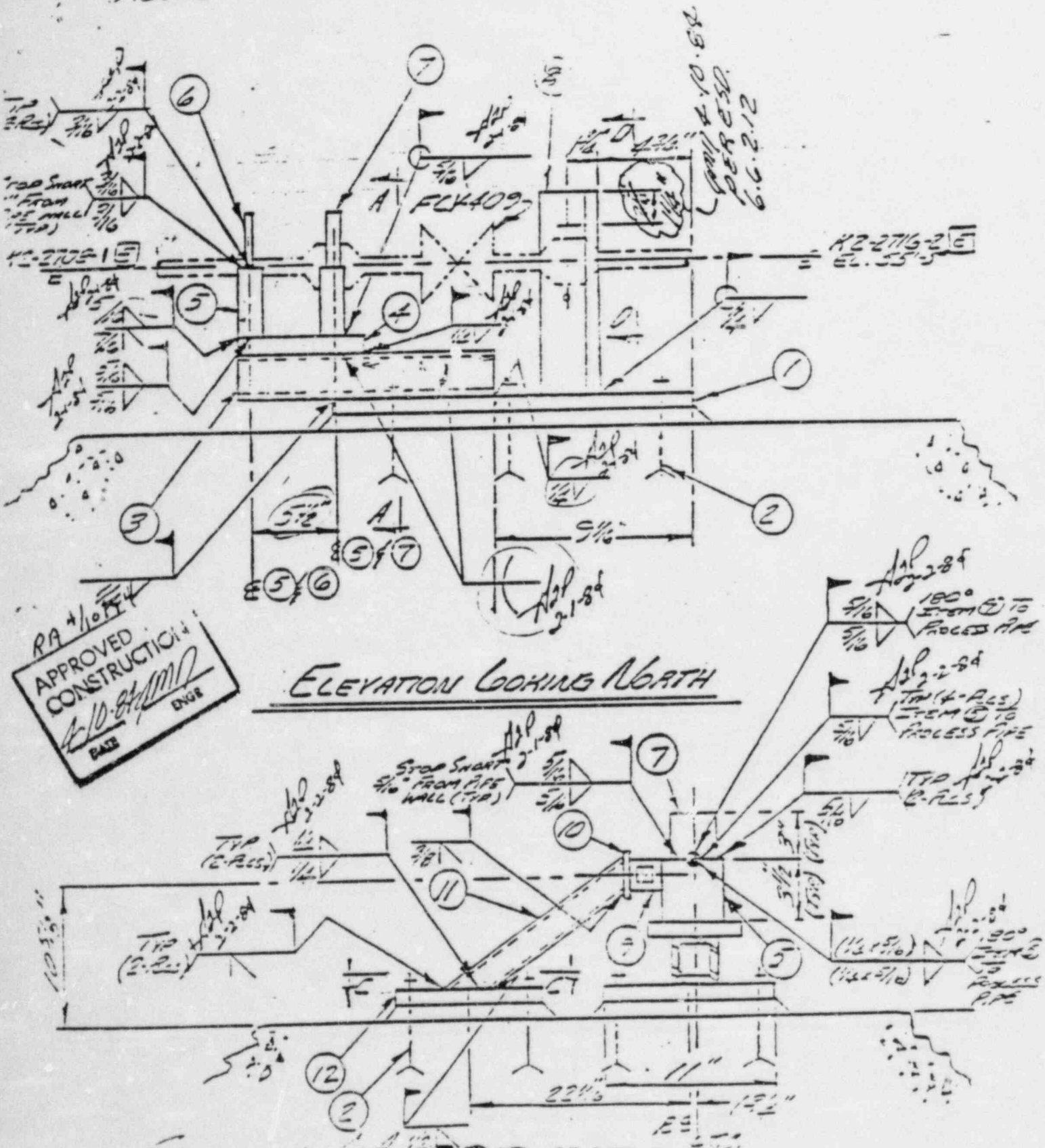
AREA ENGINEER:

CONSTRUCTION MAY PROCEED [signature] + [signature]

DATE 4-2-84

CONSTRUCTION C.F. REC'D _____

QUALITY ITEM RECEIPT [signature] DATE 4-4-84

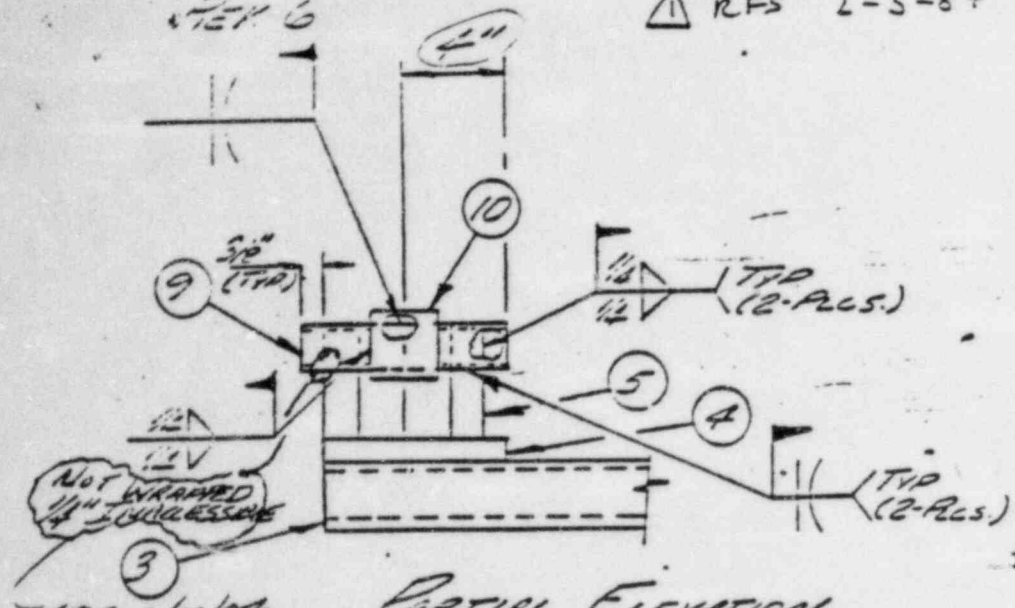

APPROVED CONSTRUCTION
DATE
ENGR
ELEVATION LOOKING NORTH
FOR INFORMATION ONLY

SEE ITEM 6

9F-2-9876

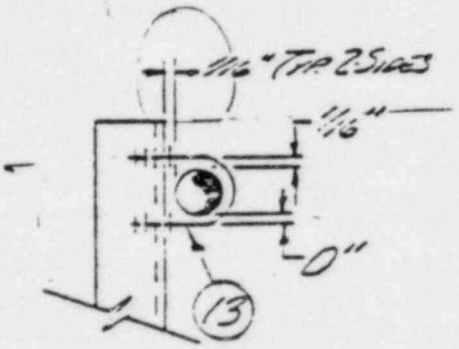
SHT. 4 OF 4

△1 RFS 2-3-84



PARTIAL ELEVATION

LKG. NORTH



SECTION D-D

JIMO 4/10/84 PER ESO 6.E.2.5G

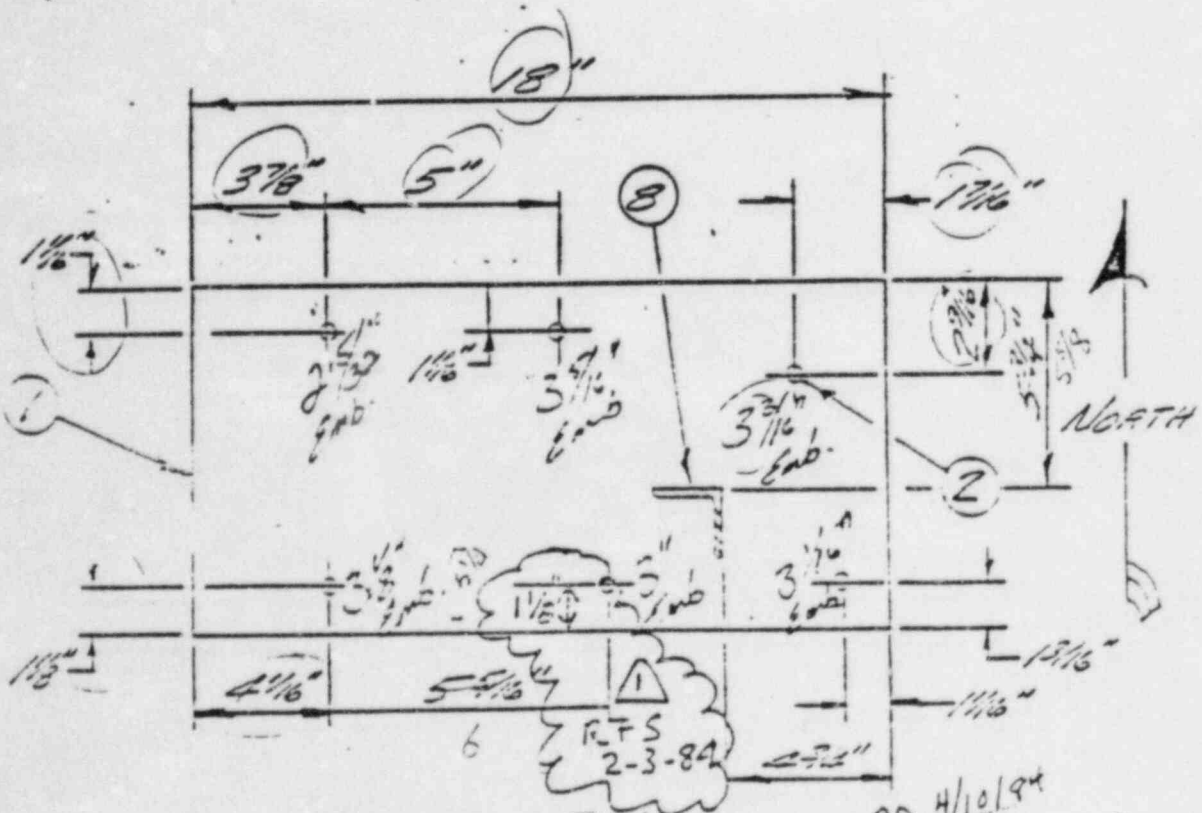


PLATE DETAIL

ITEM 0

RA 4/10/84

APPROVED FOR CONSTRUCTION

4-10-84

DATE

ENGR

FOR INFORMATION ONLY

PAGE 9 OF 48

P.P.P. AS BUILT DRAWING

DATE	PPP VERIFIED
2/29/84	M.C.

ACCEPT

A2 Pollock 1/17/83

3-23-84

FCV 409

3" x 3" x 3/8" L 10" LONG

1" GROUT (TYP)

FOR INFORMATION

CONTROLLED COPY

PACIFIC GAS & ELECTRIC CO.
APPROVED FOR CONSTRUCTION
ENGINEERING DEPARTMENT
DATE SEP 20 1983
BY V. C. Braun
K Hundras 9/14/83

HILTI HDI 1/2" (6.250'D)

6" MIN

LOOKING

NOTE: FIELD FIT ANGLE ON R T ALLOW FOR HOLE DRILLING.

SET 'U' BOLTS ON PIPE COUPLING.

7" 1" TYP

1'-6"

PLATE

FOR ENGINEERING ONLY

TS. 4x4x3/8 x 1'-3 LG.

2'-0" (REF)

1'-4" (REF)

10 1/2"

TO 'T' CONNECTION IN PIPE

LOCATION PLAN

1 COMPLETE REDRAW 2 CHANGED TO SIZE 3 ADDED L'S & TO PROVIDE AXIAL REG. 3-2-84

UNLESS OTHERWISE SPECIFIED

Welds: 1/4 fillet all around

Details: field-fit, nut each side, 1 1/16" clearance, spacers per PG&E Dwg. 049243 sht. 22

Trades: per PG&E Dwg. 049243 sht. 20 & PAGE 10 OF 48

REF. DWG. 500921

SYS 24 UNIT — AREA H

CLASS E ELEV 55 DESIGN 40

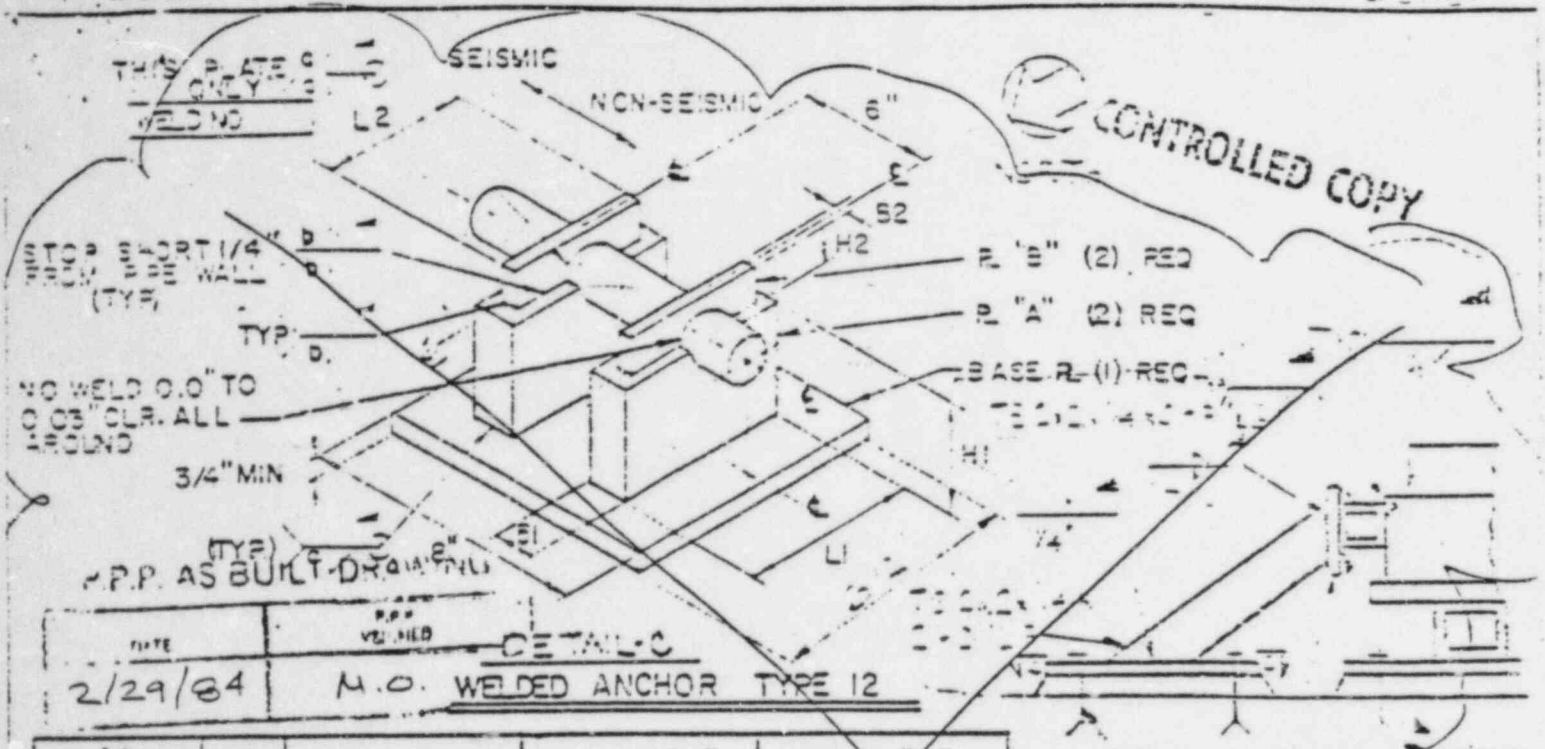
ISO 24-H5 DATE 10-2-82

PIPE SUPPORT

DWG. NO. 921-49

REV NO. 6 SHT 1 OF 2

ANCHOR-EI-LAT CAN. 1982



DATE	P.P.P. WELDER
2/29/84	M.O.

WELDED ANCHOR TYPE 12

PIPE Ø INCHES (SCH 80)	THK IN	WELD SIZE C IN.	WELD SIZE D IN.	WELD SIZE C IN.	PLATE "A" L1 IN.	PLATE "A" H1 IN.	PLATE "A" B1 IN.	PLATE "B" L2 IN.	PLATE "B" H2 IN.	PLATE "B" S2 IN.
2" Ø (2.375)	.218"	5/16"	5/16"	5/16"	6"	3 1/2"	1 1/4"	5"	3"	1/2"
1 1/2" Ø (1.9)	.2"	5/16"	5/16"	5/16"	6"	3 1/2"	1 1/4"	5"	3"	1/2"
1" Ø (1.315)	.179	1/4"	3/16"	5/16"	6"	1/2"	1 1/4"	4"	3"	1/4"
3/4" Ø (1.050)	.154	1/4"	3/16"	5/16"	5"	3 1/2"	3/4"	4"	3"	1/4"

NOTE:

1. ANCHOR TO BE USED FOR SCH 80 OR LESS.
2. PLATE MATERIAL FOR CARBON STL. PIPE IS: STEEL A-515 GR. 65
3. PLATE MATERIAL FOR STAINLESS STL PIPE IS: STEEL A-240 TYPE 304
4. ANCHOR TO BE USED ONLY AT CODE BREAKS BETWEEN PG AND E DESIGN CLASS I AND II PIPING
5. ANCHOR DESIGN, TYPE 12 IS BASED ON THE MAX. POSSIBLE LOADS THEREFORE, ALLOWABLE LOADS ARE NOT NECESSARY
6. SUPPORTING STL AND WELD TO THE ANCHOR TO BE QUALIFIED BY THE ENGINEER

FOR INFORMATION ONLY

PACIFIC GAS & ELECTRIC CO.
APPROVED FOR CONSTRUCTION
ENGINEERING DEPARTMENT
DATE SEP 20 1983

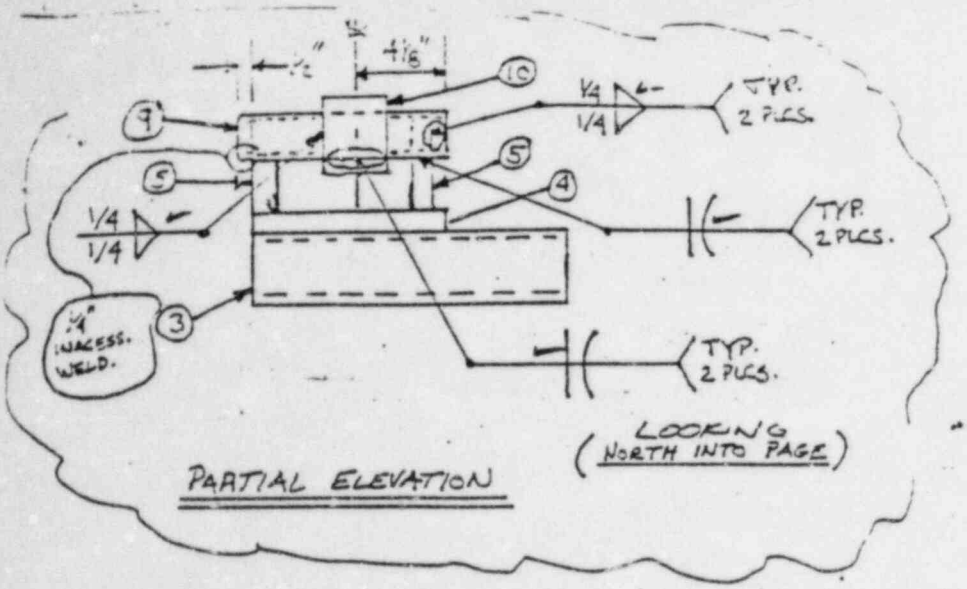
CUT PL "A" TO SUIT

AS BUILT DRAWING

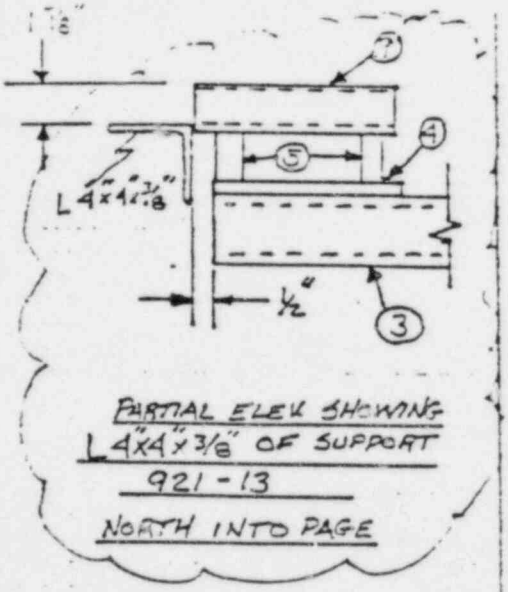
UNLESS OTHERWISE SPECIFIED

REF DWG. SYS
CLASS UNIT AREA
ELEV DESIGN
ISO DATE

DWG. No. REV. No.
SHT CF



PARTIAL ELEVATION



PARTIAL ELEV SHOWING L 4"X4"X3/8" OF SUPPORT 921-13 NORTH INTO PAGE

ITEM	REQ'D	BILL OF MATERIALS
-1	1	PL ½" x 11" x 1'-6" W/6-9/16" HOLES A36
-2	10	½" ϕ HILTI KWIK-BOLTS W/2¼" MIN EMB.
-3	1	T.S. 4"x4"x 3/8" x 1'-1 3/8" LG. C.S. A500 GR. B.
-4	1	PL 3/4" x 8" x 8" C.S. A515 GR. 70
-5	2	PL 1¼" x 3½" x 6" C.S. A515 GR. 70 CUT AS SHOWN
-6	1	PL ¼" x 3" x 4" C.S. A515 GR 70 CUT AS SHOWN
-7	1	PL ½" x 3" x 5" C.S. A515 GR 70 CUT AS SHOWN
-8	1	L 3" x 3" x 3/8" x 1'-0" LG. C.S. A36
-9	1	T.S. 2"x 2"x ¼" x 7½" LG. C.S. A500 GR. B
-10	1	PL 3/4" x 3" x 3" C.S. A36
-11	1	T.S. 2" x 2" x ¼" x 2'-0" LG. (CUT TO AS SHOWN) C.S. A500 GR B. M.O. 2/29/84
-12	1	PL 3/4" x 8" x 8" W/4 9/16" HOLES C.S. A36
-13	1	NPS - PUS - 025 DOUBLE NUTTED

FOR INFORMATION ONLY

FOR INFORMATION ONLY

P.P.P. AS BUILT DRAWING

DATE	P.P.P. NO. AND INITIALS
2/29/84	M.O.

UNLESS OTHERWISE SPECIFIED

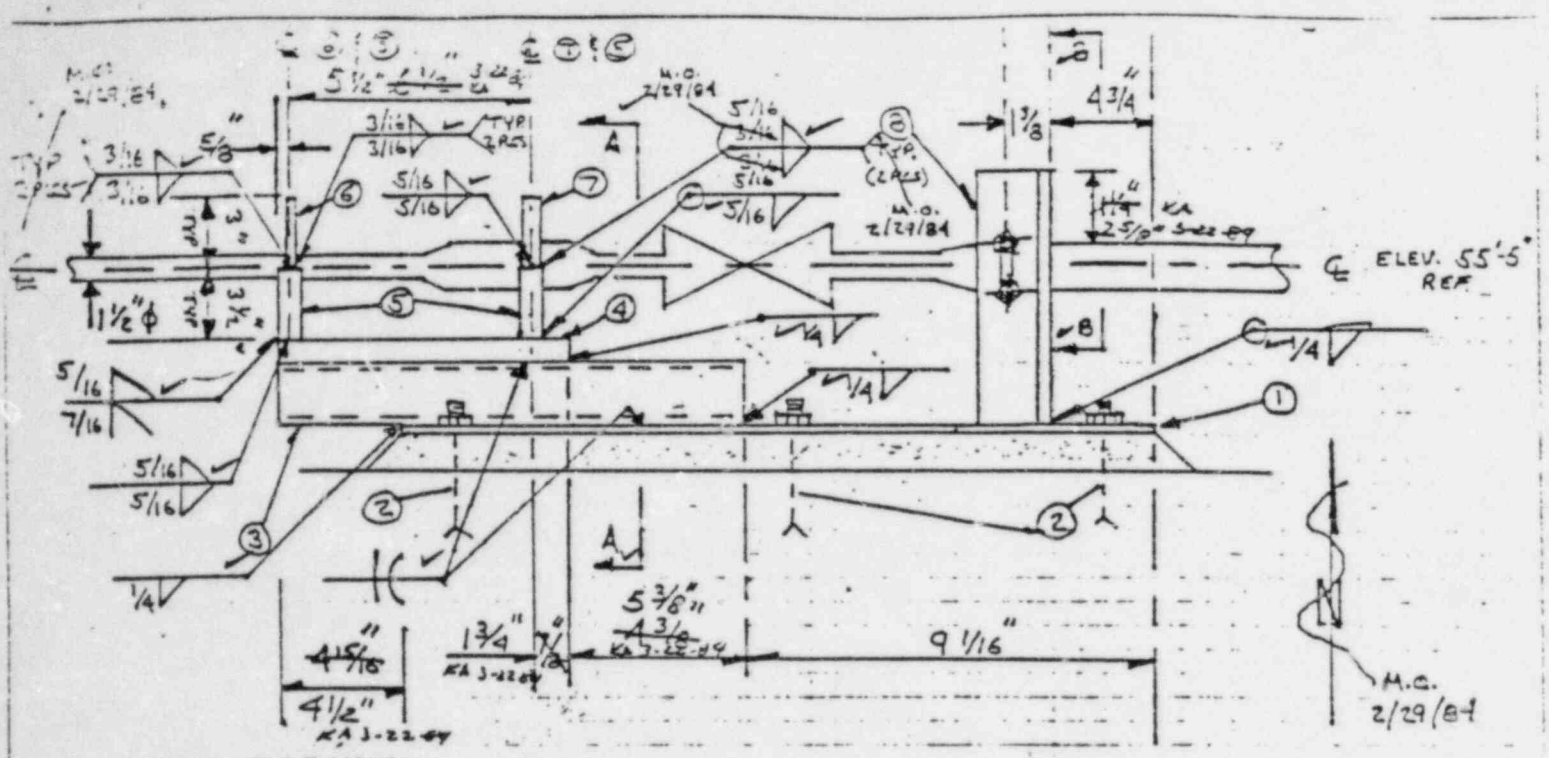
C-Dr 13 (3/8-11 nut each side Hole
Pipe clearances are 0° bottom
and 1.10° two sides and top

PAGE 12 OF 48

REF DWG 500921 SYS 24
CLASS E/E' UNIT II AREA U
ELEV 55' DESIGN KD
ISO 24-405 DATE 2/29/84

PIPE SUPPORT

DWG NO 92-49 REV NO 1
SHT 1 OF 3



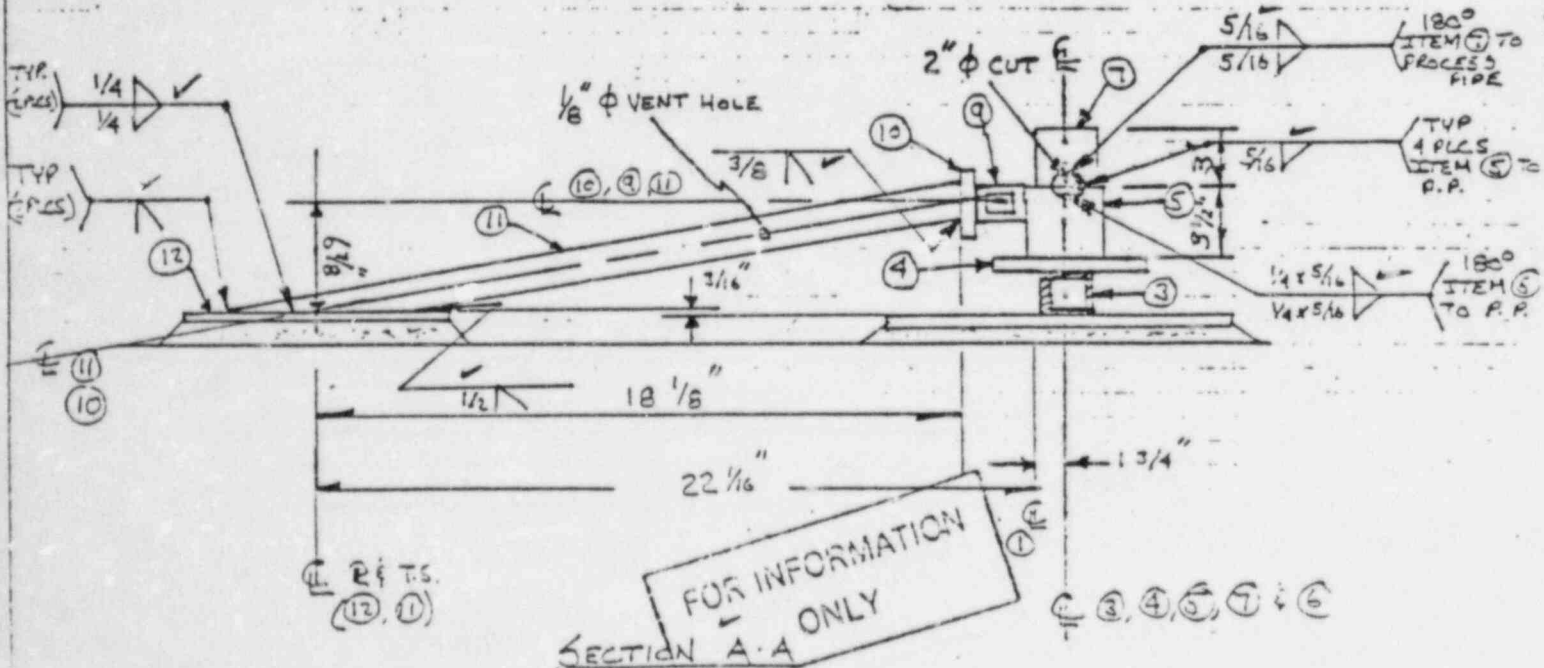
P.P.P. AS BUILT DRAWING

DATE	P.P.P. VERIFIED
2/29/84	M.O.

ELEVATION: ITEMS (9), (10), (11) & (12) DELETED CLARITY

LOOKING NORTH

FOR INFORMATION ONLY



UNLESS OTHERWISE SPECIFIED

REF DWG. 500921 SYS 24

CLASS E/E' UNIT II AREA H

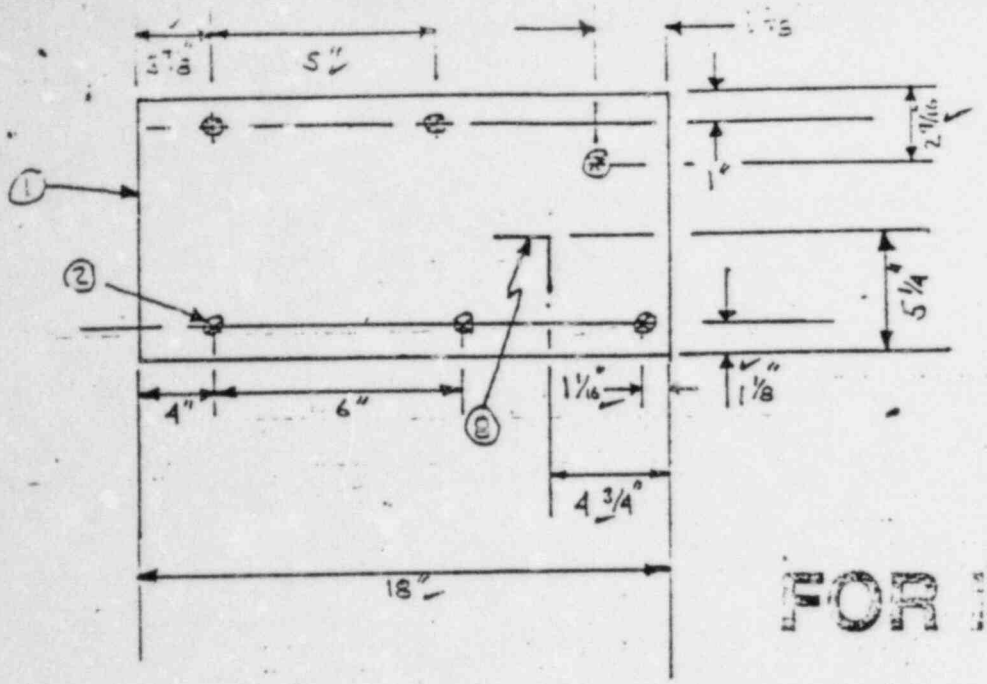
ELEV 55'-0 DESIGN KD

ISO 24-405 DATE 2/29/84

PIPE SUPPORT

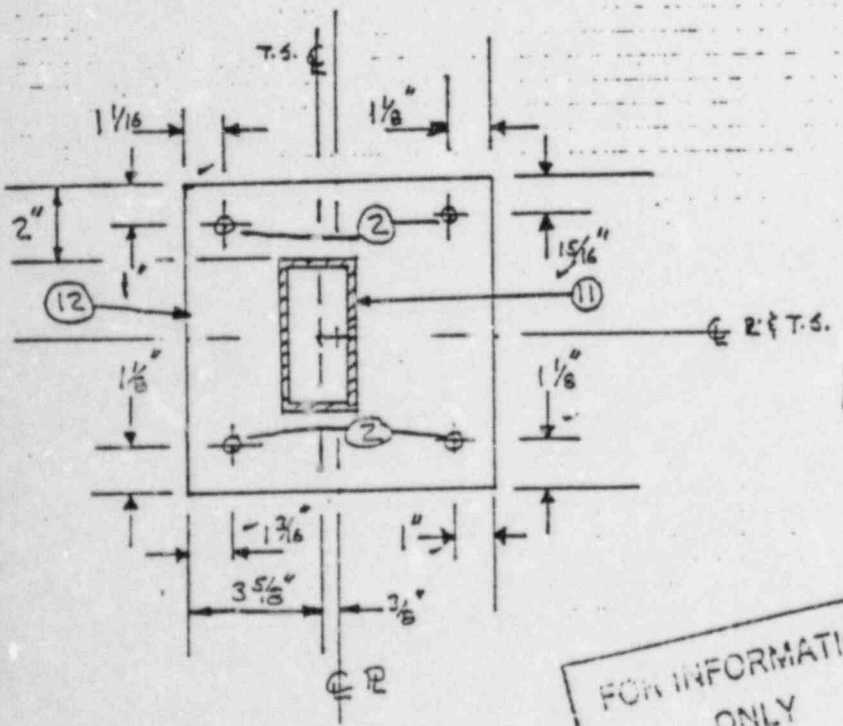
DWG NO 921-42 REV NO 5

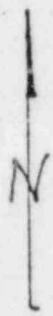
SHT 2 OF 3

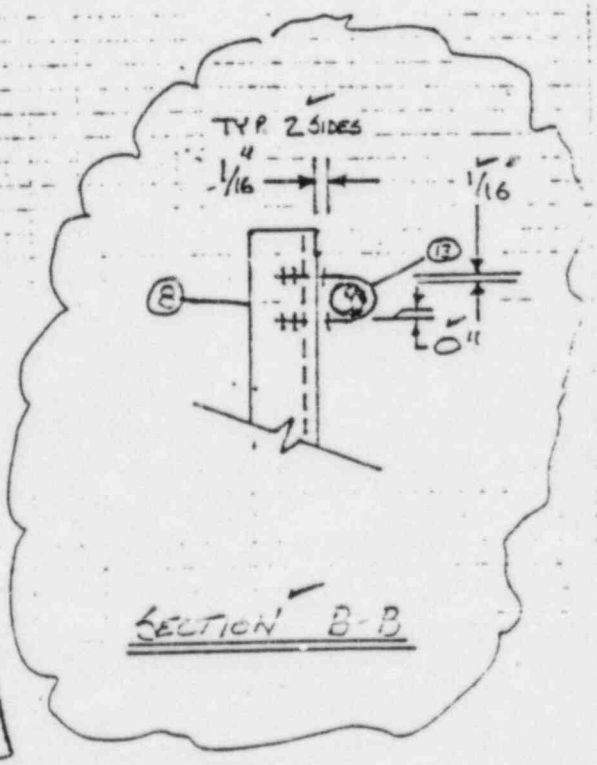


FOR INFORMATION ONLY

PLAN - PLATE (1)







SECTION B-B

PLAN - PLATE (12)

FOR INFORMATION ONLY

P.P.P. AS BUILT DRAWING

DATE	P.P.P. VERIFIED
2/29/64	M.O.

UNLESS OTHERWISE SPECIFIED

Unless to drill run each side Hole. Pipe clearances are .0" bottom and 1.10" two sides enlarged

PAGE 14 OF 48

REF DWG 50092/ SYS 24

CLASS E/E' UNIT III AREA II

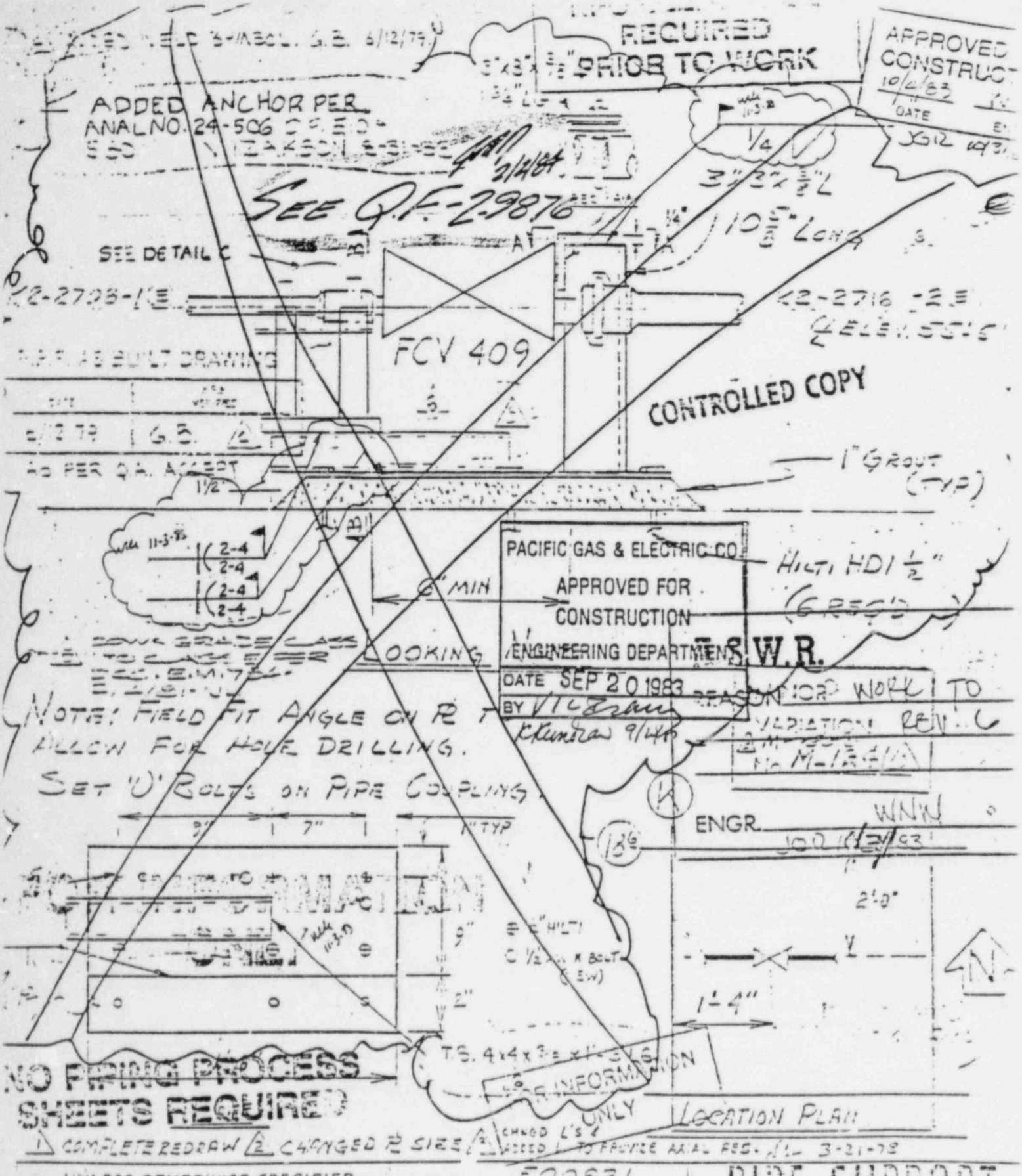
ELEV 55'-0 DESIGN KD

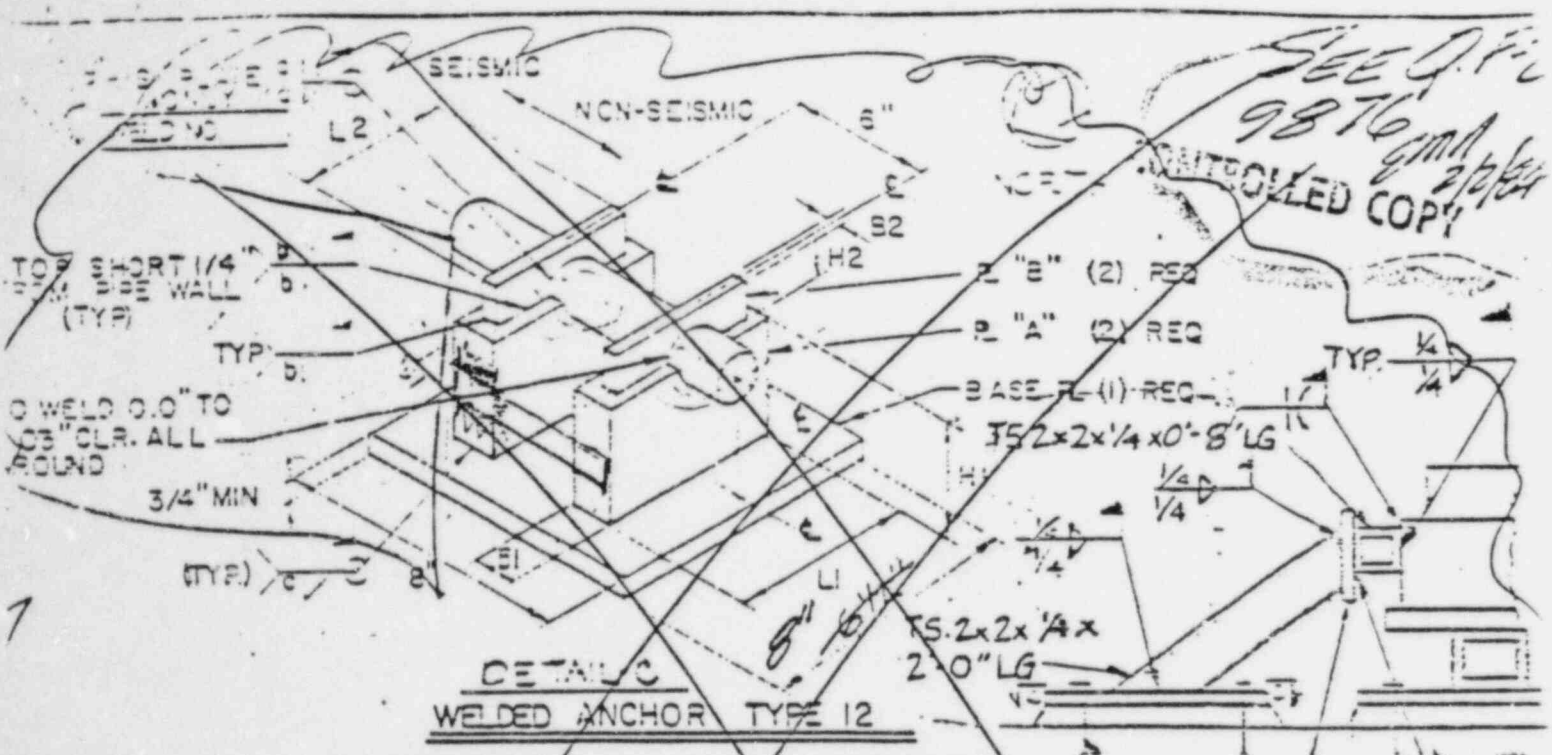
ISO 24-405 DATE 2/29/64

PIPE SUPPORT

DWG No 221-49 REV No 6

SHT 3 OF 3


ADDED ANCHOR PER
ANAL NO. 24-506
SEE
SEE DETAIL C
SEE Q.F. 2.9876
FCV 409
CONTROLLED COPY
1" GROUT (TYP)
PACIFIC GAS & ELECTRIC CO
APPROVED FOR CONSTRUCTION
ENGINEERING DEPARTMENT
DATE SEP 20 1983
BY
HILTI HDI 1/2"
(6 REQ'D)
T.S.W.R.
REASON FOR WORK
NOTE: FIELD FIT ANGLE ON R
ALLOW FOR HOLE DRILLING.
SET 'U' BOLTS ON PIPE COUPLINGS
ENGR
LOCATION PLAN
NO PRINT PROCESS
SHEETS REQUIRED
UNLESS OTHERWISE SPECIFIED
REF. DWG. 500921
PIPE SUPPORT
DWG. No. 921-49
REV No. 6
SHT 1 OF 2
PAGE 15 OF 48



See Q.F. 9876 gmh 2/26/84

UNCONTROLLED COPY

DETAIL C
WELDED ANCHOR TYPE 12

PIPE Ø INCHES (SCH 80)	THK IN	WELD SIZE a IN	b IN	c IN	PLATE "A" L1 IN	H1 IN	B1 IN	PLATE "B" L2 IN	H2 IN	B2 IN
2" Ø (2.375)	.218"	5/16"	5/16"	5/16"	6"	3 1/2"	1 1/4"	5"	3"	1/2"
1 1/2" Ø (1.90)	.200"	5/16"	5/16"	5/16"	6"	3 1/2"	1 1/4"	5"	3"	1/2"
1" Ø (1.315)	.179	1/4"	3/16"	5/16"	6"	3 1/2"	1 1/2"	4"	3"	1/4"
3/4" Ø (1.050)	.154	1/4"	3/16"	5/16"	5"	3 1/2"	3/4"	4"	3"	1/4"

NOTE:

1. ANCHOR TO BE USED FOR SCH 80 OR LESS.
2. PLATE MATERIAL FOR CARBON STL. PIPE IS: STEEL A-515 GR.65
3. PLATE MATERIAL FOR STAINLESS STL PIPE IS: STEEL A-240 TYPE 304
4. ANCHOR TO BE USED ONLY AT CODE BREAKS BETWEEN PG AND E DESIGN CLASS I AND II PIPING
5. ANCHOR DESIGN, TYPE 12 IS BASED ON THE MAX. POSSIBLE LOADS THEREFORE, ALLOWABLE LOADS ARE NOT NECESSARY
6. SUPPORTING STL AND WELD TO THE ANCHOR TO BE QUALIFIED BY THE ENGINEER

SECTION C-C

APPROVED FOR CONSTRUCTION
11-3-83
DATE
ENGR

FOR INFORMATION ONLY

PACIFIC GAS & ELECTRIC CO.
APPROVED FOR CONSTRUCTION
ENGINEERING DEPARTMENT
DATE

UNLESS OTHERWISE SPECIFIED

ANCHOR - DEE SHE DWG. [illegible] SH. 07 REV 14

REF. DWG. [illegible] SYS 24
CLASS E E' UNIT 2 AREA 1
ELEV [illegible] DESIGN [illegible]
ISO [illegible] DATE [illegible]

DWG. No. 921-A9 REV. No. 6
ANCHOR SHT 2 OF 2

PAGE 16 OF 48

INSTRUCTION NO. 12
ATTACHMENT A

△1 RFS 2-3-84

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM SHT 1 OF 4

SEQRENCE NUMBER QF-2-9876

SUBJECT 921/49 REV 6 CLASS E/E

LOCATION AREA: 2H ELEV: 55'

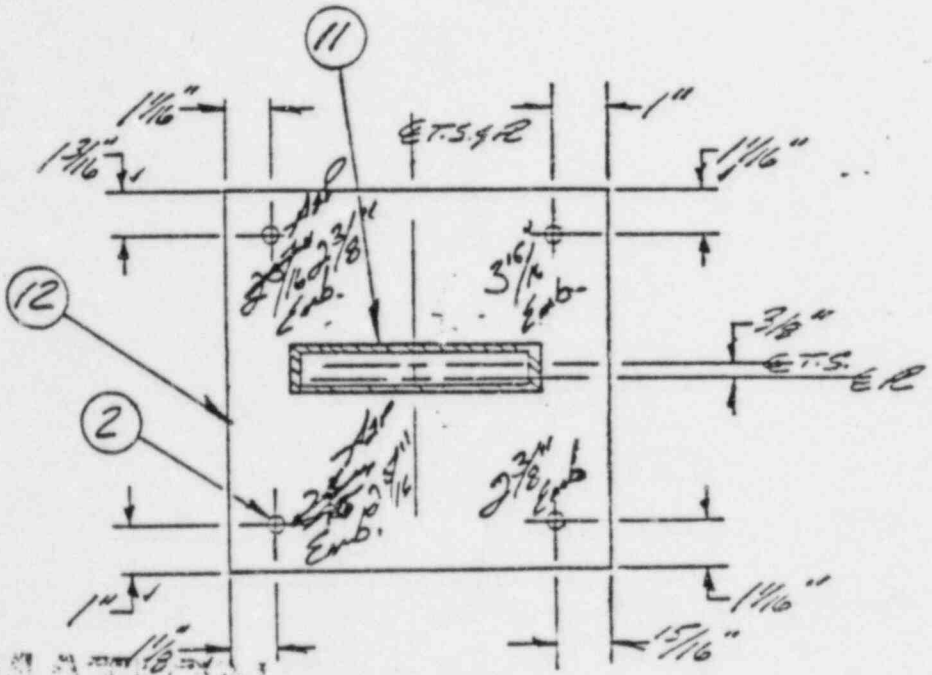
- ☐ pre-inspect
- ☐ past pre-inspect
- ☐ during installation
- ☐ after installation
- ☒ other

PROBLEM: SUPPORT CANNOT BE INSTALL PER DESIGN DUE TO

DESCRIPTION: ADJACENT HANGER INTERFERENCE; COUPLING LENGTH (1 3/4") WILL NOT ALLOW FOR DESIGN PIPE ATTACHMENT WELD.

SOLUTION:

INSTALL AS SHOWN.



FOR INFORMATION ONLY

SECTION C-C

P.P.P. F.E. 2/1/84
FOR INFORMATION
G.C. F.E.
ONLY

REFERENCE DRAWING 921/49 SH 1 OF 2 & 2 OF 2

ATTACHMENTS (YES) ☒ PAGES (INC. THIS SHEET) 2

AREA ENGINEER:

CONSTRUCTION MAY PROCEED

DATE 2-2-84

CONSTRUCTION D.P. REV'D

CONTRACTOR RECEIPT DATE 2/2/84

921/F9
REV 6

GF -2- 9876 SHT - OF 4
1 RFS 2-3-84

ITEM	REQ.	BILL OF MATERIALS
1	1	R 1/2" x 11" x 1'-6" LG. W/(6) 9/16" Ø HOLES C.S. A36
2	10	1/2" Ø HILTI KWIK BOLT W/2 1/4" MIN. EMB.
3	1	T.S. 4" x 4" x 3/16" x 1'-1 3/8" LG C.S. A500 GR. B
4	1	R 3/4" x 8" x 8" C.S. A515 GR. 70
5	2	R 1/4" x 3 1/2" x 6" C.S. A515 GR. 70
6	1	R 1/4" x 3" x 4" C.S. A515 GR. 70
7	1	R 1/2" x 3" x 5" C.S. A515 GR. 70
8	1	∠ 3" x 3" x 3/8" x 1'-0" LG. C.S. A36
9	1	T.S. 2" x 2" x 1/4" x 7 1/2" LG. C.S. A500 GR. B
10	1	R 3/4" x 3" x 3" C.S. A36
11	1	T.S. 2" x 2" x 1/4" x 2'-0" LG. CUT TO SUIT C.S. A500 GR. B
12	1	R 3/4" x 8" x 8" W/(4) 9/16" Ø HOLES C.S. A36
13	1	NPS-PUS-025

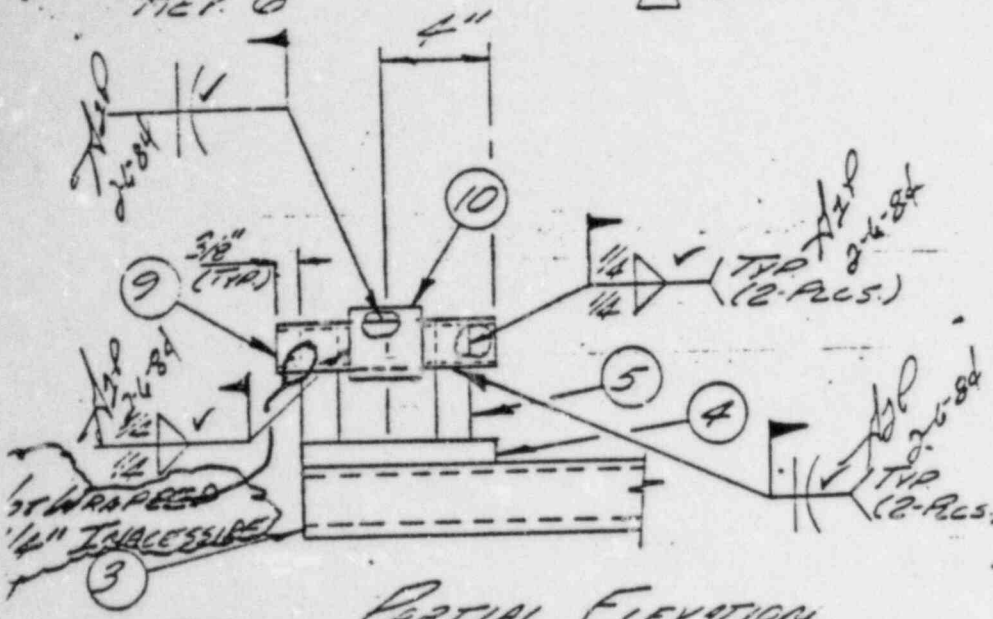
FOR INFORMATION ONLY

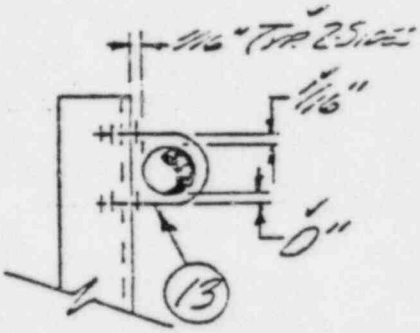
FOR INFORMATION ONLY

921/49
REV 6

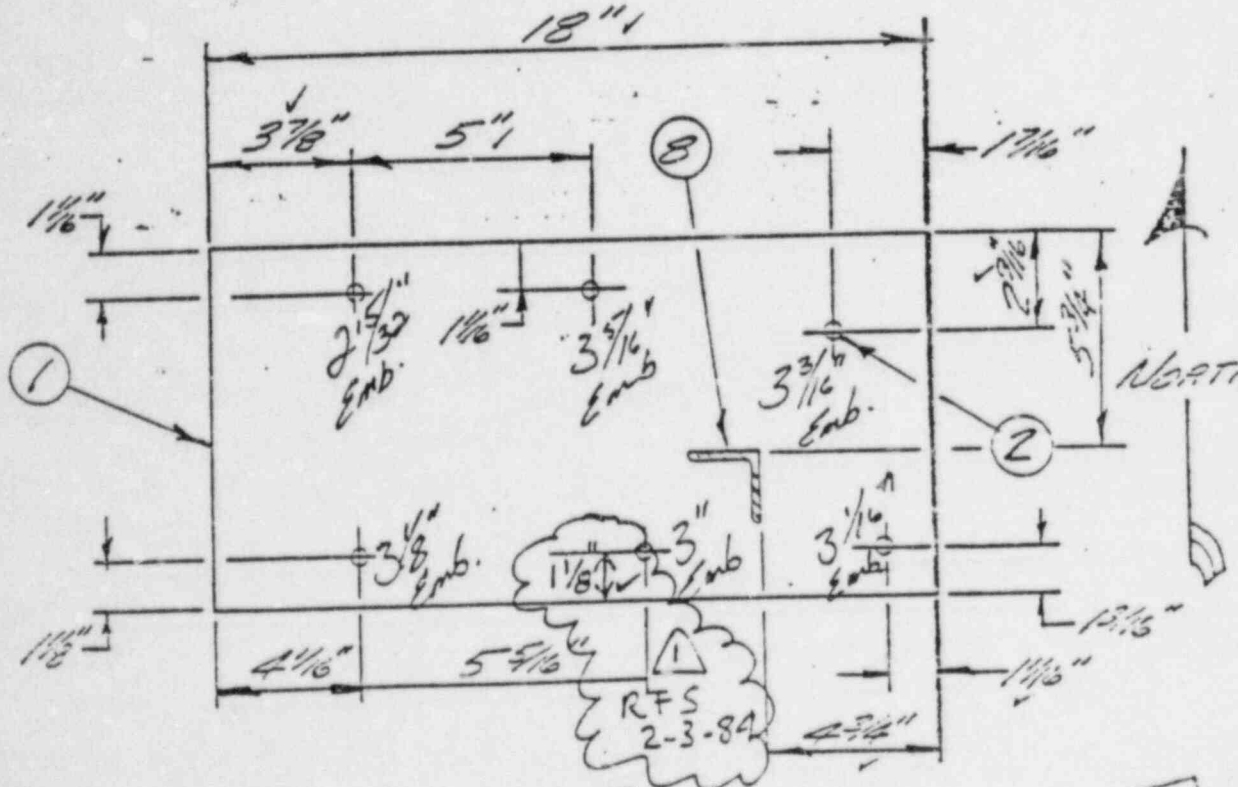
QF-2-9876
△1 RFS 2-3-84

SHT 1 OF 4





PER ESD
6.8.2.5 G
JAN 2/3/84



FOR INFORMATION ONLY

FOR INFORMATION ONLY

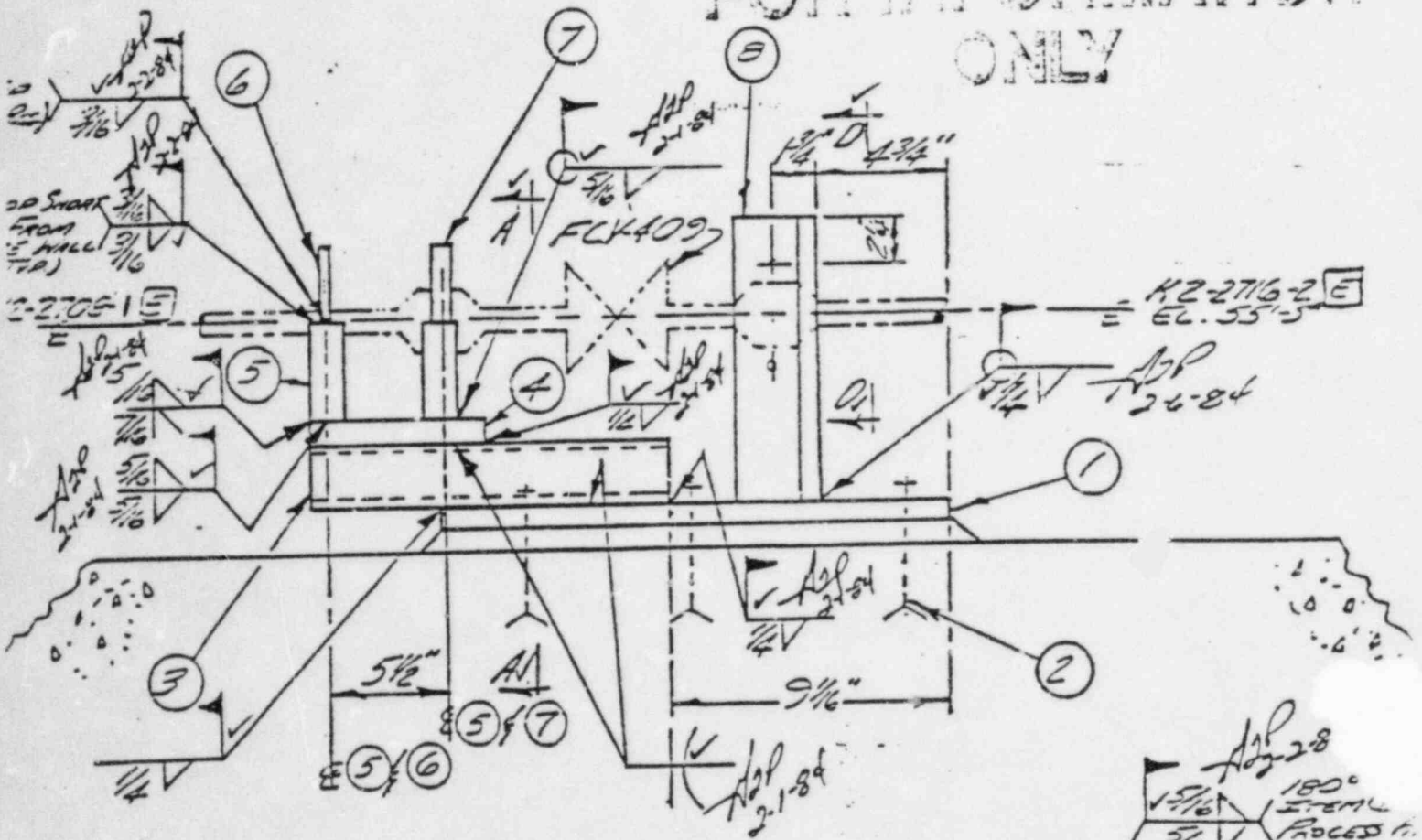
PAGE 19 OF 48

REV 6

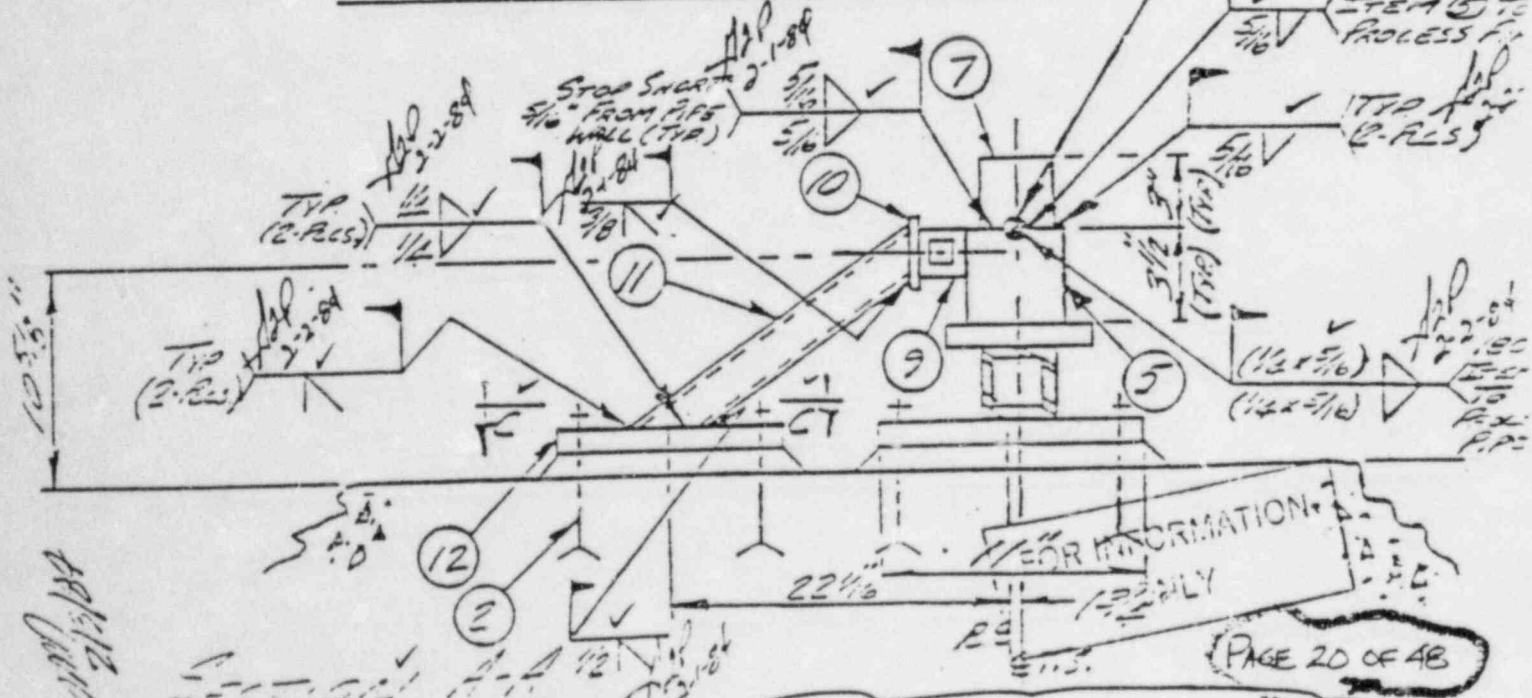
1876 SHT 3 OF 4

1 RFS 2-3-84

FOR INFORMATION ONLY



ELEVATION LOOKING NORTH



SECTION A-A

PAGE 20 OF 48

ITEM 1 PO# 12819 HT# 034 3

ITEM 5 PO# 12819 HT# 491 H263

PULLMAN POWER PRODUCTS
ULTRASONIC THICKNESS REPORT

FORM 244A
ESD 244 REV. DATE 11-4-83

ISOMETRIC/DRAWING# 24-405 DATE 1-30-84

FW/LOCATION Coupling DCN/DR#

LINE# (If Available) KZ-2708-1E MATERIAL CS

MEASUREMENT METHOD

☒ METHOD "A" NORTEC NDT-120 SN 1105

☐ METHOD "B" UT Level I, II, III only) ☐ KRAUTKRAMER ☐ SONIC

☐ THIN-THICK CALIBRATION ☐ MAGNAFLUX ☐ OTHER

☐ MULTIPLE ECHO BACK REFLECTION CALIBRATION SERIAL NUMBER

TRANSDUCER MFG

FREQ. & SIZE

REFERENCE BLOCK SERIAL NUMBER 1105-C1 MATERIAL TYPE CS

THICKNESS STEP #1 .100 STEP #2 .200 STEP#3 .300

NOMINAL WALL THICKNESS N/A

MINIMUM WALL THICKNESS N/A

ACTUAL THINNEST WALL THICKNESS MEASURED .225

INITIALS

☐ ACCEPT

☐ REJECT

COMMENTS-THE SKETCH OF REJECTED AREAS NEED TO INCLUDE LENGTH, WIDTH AND DEPTH DIMENSIONS. IF POSSIBLE, INCLUDE REFERENCE TO THE NEAREST WELD OR HANGER MEMBER.

Info. U.T. Perfoemed per request of Engineer Joe Newcombe. Area around Gouges in coupling have been U.T.ed Lowest reading recorded above Actual depth of gouges is not possible to obtain with U.T.

FOR INFORMATION ONLY

Q.C. INSPECTOR SIGNATURE

FOR INFORMATION ONLY

DATE 1-[illegible]-[illegible]

REQUEST FOR GROUT OR DRY PACK

UNIT II

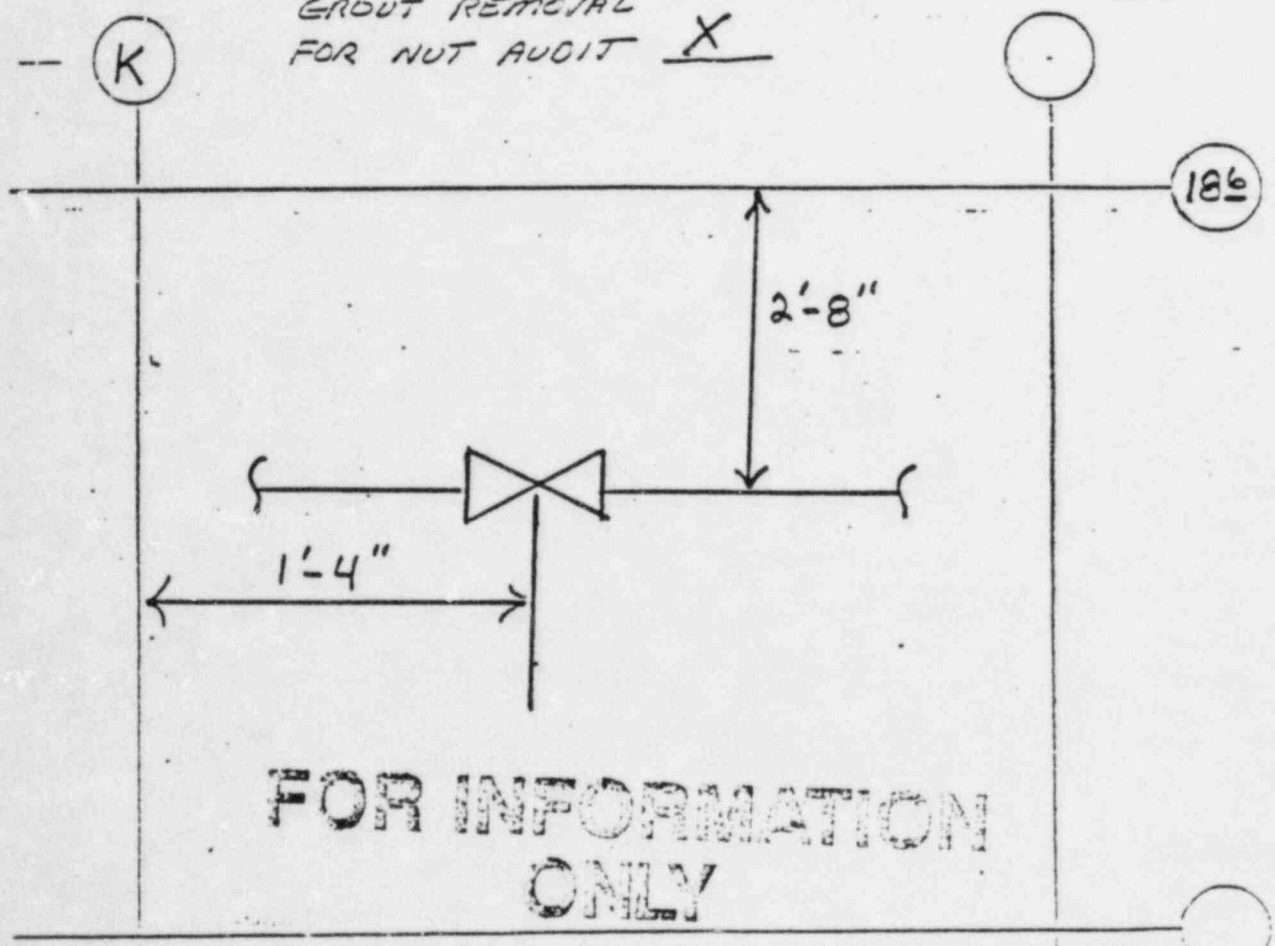
DRAWING# 500921 FLOOR X HANGER# 921-49

ELEVATION 55 CEILING ___ PLATE# ___

AREA H GROUT TYPE ___

LINE# K2-2708-1(E) WALL ___ BUSHED ☐ YES ☐ NO

GROUT REMOVAL FOR NUT AUDIT X



FOR INFORMATION ONLY

FOR INFORMATION ONLY

PULLMAN CO All 1 Connick = 1/1668

PULLMAN FOREMAN N. LENGLE = 1/1160 EXT 2415

PAGE 22 OF 48

INSTRUCTION FORM NO. 12
ATTACHMENT A

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM

SEQUENCE NUMBER QF-2-9736

SUBJECT 921/49 REV 6 CLASS E

LOCATION AREA 2H ELEV: 55'

- ☐ pre-inspect
- ☐ past pre-inspect
- ☐ during installation
- ☐ after installation
- ☒ other

THIS Q.F. VOIDS Q.F-2-9361 VOID

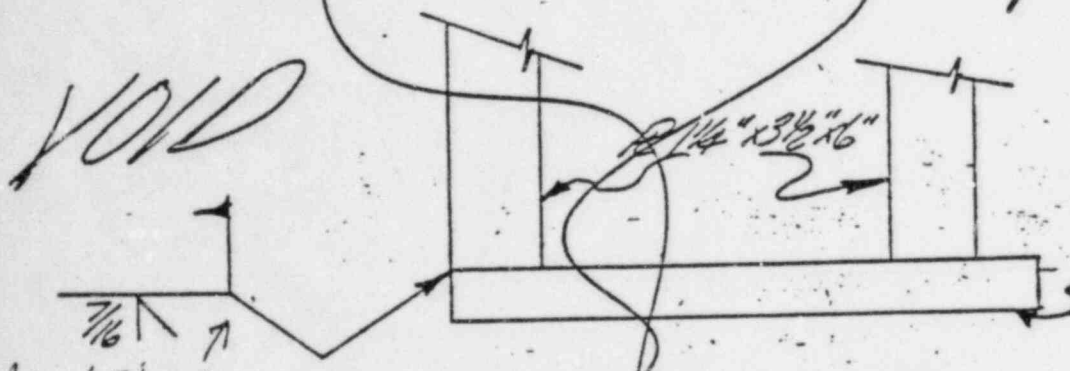
PROBLEM: WELDING CLARIFICATION REQUIRED

SOLUTION: INSTALL AS SHOWN.

VOID

VOID

RFS 2-2-84



PARTIAL ELEV. TYPE (12) ANCHOR

LOOKING NORTH

P.P.P.F.E. VOID 1/30/84

DCN NO. _____ REV. _____ G.C.F.E. _____

REFERENCE DRAWING 921/49 SH 2 OF 2

ATTACHMENTS YES NO PAGES (INC. THIS SHEET) 1

AREA ENGINEER _____

CONSTRUCTION MAY PROCEED _____ DATE 1-30-84

FOR INFORMATION ONLY

FOR INFORMATION ONLY

CONSTRUCTION D.P.A. REC'D _____

CONTRACTOR RECEIPT _____ DATE _____

PSG ENGINEER _____ DATE 2/2/84

INSTRUCTION NO. 11
ATTACHMENT A

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM

SEQUENCE NUMBER QF2-9261

SUBJECT 921/49 REV 6 CLASS 1E

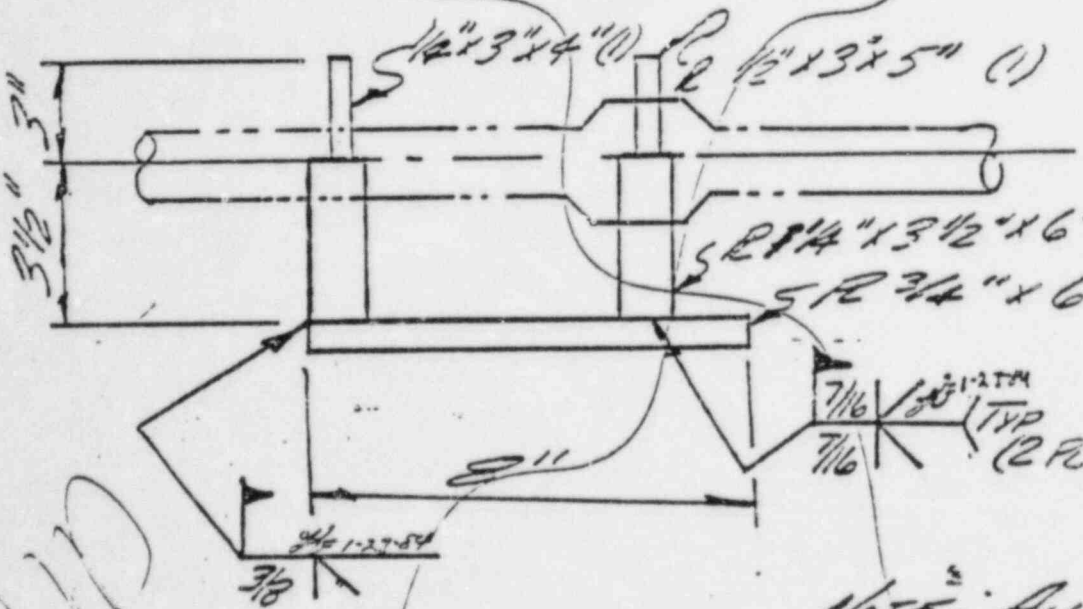
LOCATION AREA: 24 ELEV: 55'

- ☐ pre-inspect
- ☐ past pre-inspect
- ☐ during installation
- ☐ after installation
- ☒ other

PROBLEM: WELDING CLARIFICATION REQUIRED

VOID

DESCRIPTION: SOLUTION: WELD AS SHOWN



VOID

VOID

RFS 1-30-84

ANCHOR 12
LOOKING NORTH

NOTE: ALL OTHER WELDING ON ANCHOR (12) TO BE AS SHOWN IN DETAIL C"

P.P.P. F.E. [illegible] 1/23/84

G.C. F.E. MF 123-84

REFERENCE DRAWING 921-49 SH 2 OF 2

ATTACHMENTS YES (NO) PAGES (INC. THIS SHEET) 1

AREA ENGINEER:

CONSTRUCTION MAY PROCEED FOR INFORMATION ONLY

FOR INFORMATION ONLY

DATE 1-23-84

CONSTRUCTION P.E. REV'D

CONTRACTOR RECEIPT [illegible] DATE 1/23/84

INSTRUCTION NO. 12
ATTACHMENT A

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM

SEQUENCE NUMBER QF-2-5433

SUBJECT Hgr 921-49 REV 6 CLASS E7

LOCATION AREA: H ELEV: 55'

- [x] pre-inspect
- [ ] post pre-inspect
- [ ] during installation
- [ ] after installation
- [ ] other

DESCRIPTION: Dwg does not indicate what type of ½" Hilti to be used.

Solution: Use ½" Hilti studs (2¼" min. embed.)

VOID RFS 2-2-84

THIS IS ACCEPTABLE

APPROVED FOR CONSTRUCTION
11.2.83 DATE
ENGR

FOR INFORMATION ONLY

S.P.F. F.E. [illegible]
S.C. F.E.

REFERENCE DRAWING 921-49 SH 3

ATTACHMENTS YES (NO) PAGES (INC. THIS SHEET) 1

AREA ENGINEER: Rusty Weaver DATE 11-3-83

FOR INFORMATION ONLY

CONSTRUCTION S.P. REVIEW

CONTRACTOR RECEIPT DATE 11-3-83

PAGE 25 OF 48

INSTRUCTION FORM NO. 11
ATTACHMENT A

PIPE SUPPORT DESIGN TOLERANCE CLARIFICATION FORM

SEQUENCE NUMBER QF-2-9761

SUBJECT 921/49 REV 6 CLASS E/E'

LOCATION AREA 24 ELEV: 55

- ☐ pre-inspect
- ☐ past pre-inspect
- ☒ during installation
- ☐ after installation
- ☐ other

VOID

PROBLEM: WELDING CLARIFICATION REQUIRED

SOLUTION: INSTALL AS SHOWN.

VOID

VOID

QF-2-9761 2-2-84

T.S. 2"x2"x1/4"x2'-0" Lg.

TYP. (2 REQ'D)

1/4

1/4

PL 3/4"x 3"x

* NOTE: Q.C. FITUP REQUIRED

3/8

1/2

PL 3/4"x8"x8"

THIS IS ACCEPTABLE

SECTION B-B

DCN NO. _____ REV VOID P.P.P.F.E. 1/31/84

REFERENCE DRAWING 921/49 SH _____ Q.C.F.E. _____

ATTACHMENTS YES NO FOR INFORMATION ONLY (INC. THIS SHEET) 1

AREA ENGINEER

CONSTRUCTION MAY PROCEED Rusty Ullrich DATE 1-31-84

CONSTRUCTION D. RECEIVED DATE _____

CONTRACTOR RECEIPT _____ DATE _____

FIELD ENGINEER [illegible] 1/31/84

FOR INFORMATION ONLY

PITTMAN POWER PRODUCTS

ACCOUNTING REQUIREMENTS A.F

ATTN: Craft Foreman

Write the following code on the time sheet in the "Hanger No. or ISO No." of Hanger Time Sheets or in the "Piece No./Weld No." section of Piping Time Sheets when working on the attached work authorization:

921-49-4001
1-62/27-24
PIC 5920-2770

Supplemental or additional work authorizations pertaining to this work authorization that were received in the field require recoding. No other detail, information or accounting is required in this section of the time sheets.

. . . . . .

The following pertains to the Pittman Accounting Office only:

ISO NO. _____

WORK REQUEST NO. _____

DRAWING NO. P/S

DATE ISSUED 10-3-83

FOR INFORMATION ONLY

FOR INFORMATION ONLY

PULLMAN POWER PRODUCTS

ACCOUNTING REQUIREMENTS A-7

ATTN: Craft Foreman

Write the following code on the time sheet in the 'Hanger No. or ISO No.' of Hanger Time Sheets or in the 'Piece No.,Weld No.' section of Piping Time Sheets when working on the attached work authorization:

921-49-4001

1-62/27-24

PIC 5920-2770

Supplemental or additional work authorizations pertaining to this work authorization that were received in the field require recoding. No other detail, information or accounting is required in this section of the time sheets.

. . . . . .

The following pertains to the Pullman Accounting Office only:

DCN NO. _____

WORK REQUEST NO. _____

DRAWING NO. P/S

DATE ISSUED 10-3-83

FOR INFORMATION ONLY

FOR INFORMATION ONLY

BULLMAN POWER PRODUCTS

REQUEST FOR AUTHORIZATION
TO ADD HANGERS TO EXEMPTION LIST

UNIT # II AREA H DATE 4-4-84 REQUEST # 2732

ACCOUNTING CODE: 4001, 4002, 4004, IDI, OTHER (SPECIFY) _____

SYS #	EGR STM.	DWG #	REV.	LINE #	S/B ISO #	CLASS	COMMENTS
24	921-49	500721	6	2708	24-405	1	

CONTROLLED COPY

REASON FOR REQUEST: FOR VALVE INSTALLATION AND FLANGE ALIGNMENT

HOT !

ASAP

(D/H)

REQUESTED BY: TOAD PHONE # 2216 PEP DATE: 4/4/84

P.G.E. DISPOSITION: APPROVED AS REQUESTED

FOR INFORMATION ONLY

DISPOSITIONED BY _____ PGE DATE: 8 APR 84

Pullman Power Products

HANGER NO. 921/49 REV 6 AREA/ELE. 24/55

HANGER PRE-INSPECTION CHECK LIST

ITEMS TO BE CHECKED	REFERENCES ESD 223 AND OTHERS	PREINSPECT CHECKLIST
1. Can hanger be installed at the proper location	6.2	
2. Is the adjacent anchor spacing acceptable	6.4.1	
3. Can all items be installed and all welds made		
4. Are all welding symbols accurate and complete	6.8	
5. Is old work as-built, acceptable, or to be reworked	Pipe MEMO [illegible]	
6. Initiate DR No. 4678/4730 & dispositioned (as applic)		
7. Is pre-heat or structur l steel req & noted on process sht	6.8.2.2	
8. Are all O.C. Hold Points noted on the process sheet	ESD-224	
9. Have all the necessary forms been originated (pipe attach, Instl. D-F		
10. Have all the interferences been resolved		
11. Pre-Inspect package complete (read. checklists attached		

PRE INSPECTED BY: _____ DATE _____

FOR INFORMATION ONLY

HANGER FINAL INSPECTION CHECKLIST

ITEMS TO BE CHECKED	REFERENCES ESD 223 AND OTHERS	PREINSPECT CHECKLIST
1. Hanger location within ESD-223 tolerances	6.2	
2. Adjacent anchor spacing acceptable	6.4.1	
3. Threaded connections secure/engagement adequate		
4. All items in B.O.M. installed and are correct type	6.6	
5. Configuration as per design drawing		
6. All welds complete and acceptable (size, configuration)	6.8	
7. Configuration free from ARC strikes, weld splatter, etc.	6.8.2.4	
8. Pipe and/or guide clearances acceptable	6.7	
9. Base plates, fish plates & stifferers installed per ESD-223	6.8.7 & 6.2	
10. Hanger properly identified. Number written on support		
11. Attachments to other supports identified		
12. Specials, rod supports, T-shoes, U-bolts properly installed	6.6, 6.4.3	
13. Spring can installed and cold load set per drawing	6.4.3	
14. Sway struts correct size installed ref attach. check list		
15. Pin-to-pin within tolerance	6.8.2.4	
16. Shock supports: mechanical snubs lug, plate complete		
[illegible] not & cold setting within tolerance	[illegible]	
[illegible] pin-to-pin within tolerance	[illegible]	
[illegible] attachment acceptable (clamp & rear brace)	[illegible]	
[illegible] all hardware compatible		
[illegible] Package reviewed for completeness (design change appr, etc.		

COMMENTS: See QF-2-9876

WELDER FITTER & WELDER S-CODE NO. E-47 E-2

INSPECTED BY: [illegible] DATE

HANGER #: 921-49

LATEST QC ACCEPT DATE 3/15/84

DWG/DC# _____ REV# _____

AT QA (PG&E REJECT) ☐ YES / ☐ NO

A/B SUBMITTED TO PG&E DATE Approved 4-10-79

INFO SUPPLIED BY: Sal 4/4/84

W. Jacobson

CONTROLLED COPY

FOR INFORMATION ONLY

PULLMAN POWER PRODUCTS

ACCOUNTING REQUIREMENTS A-3

ATTN: Craft Foreman

Write the following code on the time sheet in the "Hanger No. or IEC No." of Hanger Time Sheets or in the "Piece No./Weld No." section of Piping Time Sheets when working on the attached work authorization:

921-49-4001
1-62/27-24
PIC 5920-2770

CONTROLLED COPY

Supplemental or additional work authorizations pertaining to this work authorization that were received in the field require recoding. No other detail, information or accounting is required in this section of the time sheets.

. . . . . .

The following pertains to the Pullman Accounting Office only:

ICI NO. _____

WORK REQUEST NO. _____

DRAWING NO. P/S

DATE ISSUED 10-3-83

FOR INFORMATION ONLY

UNIT 1 & 2 HANGER 221-42 SYSTEM EC

AS/BUILT REVIEW CHECKLIST REV 6 LINE

ITEM	#	SUBJECT	ESD 223 REF. SECT.	ENG	COMMENT
	1	Do components & dimensions comply with material list.	N/A	←	
	2	Are all changes outside of ESD tolerances properly noted on coversheet justified by D.R., T.C. and old work.	N/A	←	
	3	Are all pages of As/Built dwg. stamped, signed & dated.	N/A	←	
	4	Is support material/material substitution within ESD tolerances.	6.2	←	
SUPPORT LOCATION	5	Is support location within tolerances.	6.2	←	
	●	Is support location to a known feature of pipe As/Built to within ± 1".	6.2	←	
BASE PLATE/ BASE PLATE STIFFENER	6	Is plate thickness within tolerance (+1/4" or minus 0") and is nominal plate thickness noted on As/Built drawing.	6.3.1	✓	
	●	Is plate length & width within tolerance (± 1/4). As/Built to within (± 1/8").	6.3.2	✓	
	●	Are base plate holes located within tolerance (± 1/4"). As/Built to within (1/8).	6.3.4	✓	
	○	Is the actual edge distance within AISC min. requirements.	6.3.4	✓	
	●	Are offset dimensions & attachment to center line base plate within tolerance (± one plate thickness max) and offsets larger than 1/4" shown on As/Built drawing.	6.6.1	N/A	
FISH PLATES	7	Are the new fish plates shown on As/Built drawing.	6.3.6		
	○	Are the existing fish plates shown and all discrepant conditions noted on As/Built drawing.	N/A		

FOR INFORMATION ONLY

UNIT 1 & 2

AS/BUILT REVIEW CHECKLIST

HANGER _____ SYSTEM _____

REV _____ LINE _____

ITEM	#	SUBJECT	ESD 223 REF. SECT.	E N G	COMMENTS
ANCHOR BOLTS	8	Is anchor bolt size, manufacture & type shown on the As/Built drawing.	6.4		
	●	Does the minimum embedment for anchor bolts meet design minimum requirements.	6.4		
	●	Is the axis of the anchor bolt & the perpendicular to the concrete surface within 5° maximum tolerance and the misalignment larger than 5° shown on As/Built drawing.	6.4		
	●	Are the washers for the new expansion anchors shown on the As/Built drawing.	6.4.1.2		
	●	Does the As/Built drawing show all adjacent anchors to within 5 to 10 hole diameters drilled in concrete.	6.4.1.4		
	●	Are all dimensions edge of concrete openings to center of concrete anchor within tolerance (5 times the diameter of the hole drilled but never less than 3").	6.4.1.3		
MEMBER LENGTHS	9	Are all members used in construction frames (i.e. structural steel shapes, plates & bars used to box such members) within +3" or -12" tolerance and As/Built to ± 1".	6.6.2.2		
	●	Are all other members not included in 9 within ±1/4" tolerance and As/Built to nearest 1/4".	6.6.2.2		
SHIM PLATES	10	Are all shim plates which are thicker than 1/2" welded at min. 2 opposite sides & As-Built with fillet weld size per AISC min. and min. length of 4 times the size of fillet.	6.6.2.6	N/A	
COVER PLATES/ WEEP HOLES	11	Are all the oversized cover plates within tolerance (1" max. larger size than the width of capped section).	6.6.2.13	N/A	
	●	Are all the additional cap plates (not required by design) welded at 2 opposite sides & As-Built with a 3/4" lg. (min.) fillet weld and size per AISC min.	6.6.2.14	N/A	
	●	Are all existing & new cap plates detailed on the As/Built drawing.	6.6.2.14		
	●	Are all vent holes (not required by design) shown on As/Built drawing.			
GAPS	12	Are all the As/Built gaps within ESD tolerances.	6.7		

UNIT 1 & 2 HANGER _____ SYSTEM _____

AS/BUILT REVIEW CHECKLIST REV _____ LINE _____

ITEM	#	SUBJECT	ESD 223 REF. SECT.	Y N S	COMMENT
WELDS	13	Does the As/Built size of new welds meet design.	6.8.2.5		
	●	Do all existing undersized fillet welds meet minimum AISC weld requirements.	6.8.2.5		
	●	Are all existing additional welds not required by design or exist. incomplete welds shown on the As/Built drawing.	6.8.2.5		
	●	Are all new welds which are inaccessible for more than 10% of the design weld length justified by a tolerance clarification.	6.8.2.5		
	●	Are all new inaccessible welds (including those that are inaccessible for less than 10% of the design weld length located and dimensioned on the As/Built drawing.	6.8.2.5		
	●	Are all fillet fit-up gaps shown on the As/Built drawing.	N/A		
	●	Are all existing fillet welds with dihedral angle equal or smaller than 30° or equal or larger than 150° noted as (seal weld) on the As/Built drawing.	6.8.2.5		
	●	Is the weld symbol for all new welds with dihedral angle equal or smaller than 30° or equal or larger than 150° As/Built to show full or partial penetration weld as per ESD 223 recommendations.	6.8.2.5		
	●	Does the As/Built drawing show actual weld lengths attach (13) for all existing welds at tube steel posts with ends not returned.	6.8.2.5		

FOR INFORMATION ONLY

UNIT 1 & 2

HANGER _____ SYSTEM _____

AS/BUILT REVIEW CHECKLIST

REV _____ LINE _____

ITEM	#	SUBJECT	ESD 223 REF. SECT.	S N G	COMMENTS
SNUBBERS	14	Is snubber dimension within 10° max. from that shown on design & As/Built to within 2°.	6.9.8	N/A	
	●	Are lateral offsets, rear bracket or clamp (5° maximum tolerance) As-Built for angular offsets larger than 2°.	6.9.8.3		
	●	Is snubber rotated 180° around axis of pipe with reversed H.S. & C.S. noted on As/Built drawing.	6.9.8.4		
	●	Are all Grinnell snubbers As/Built to show snubber rotation and for end.	6.8.7.5		
	●	Is the serial number for PSA & AD snubbers or mark number for Grinnell snubbers noted on As/Built drawing.	6.9.12		
	●	Is the As/Built cold setting within ±1/2" from that called on the design drawing.	6.10.2.3		
	●	Is the P-P dimension within tolerance +12" -1" for design P-P dim. of 25" or less and +12" -3" all others.	6.6.2.2		
	●	Is the P-P dimension As-Built to within ±1".	6.6.2.2		
	●	Does As/Built show mixed snubber rear bracket.	6.10.1.7		
	●	Is pipe extension length As-Built as "length by field."	6.10.4.3		
	●	Does As/Built drawing indicate fillet weld size for weld or extension pipe to transition tube and forward adapter.	6.10.4.4		
	○	Does the As/Built drawing identify size of vent hole on the pipe extensions on all snubbers other than PSA 1/4 & PSA 1/2 (1/4" dim. for A/D 5500 or larger PSA 35 or larger or 1/8" dim. vent hole all others).	6.10		
	○	Does As/Built drawing indicate shortened clamp.	6.10.6.2		
	○	Are all clamps manufactured by NPS noted on As/Built drawing.	6.10.6.3		

FOR INFORMATION ONLY

UNIT 1 & 2

HANGER _____ SYSTEM _____

AS/BUILT REVIEW CHECKLIST

REV _____ LINE _____

ITEM	#	SUBJECT	ESD 223 REF. SECT.	ENG	COMMENT
SWAY STRUTS	15	Does the As/Built drawing indicate vent hole size (tolerance 1/8" dim. to 1/4" dim. max) for all SRF struts.	6.15.1.3		
		Is the pin to pin dimension for sway struts within tolerance. (+12 -1 for design P-P 25" or +12 -3 all other design P-P).	6.6.2.2		N/A
		Is the pin to pin dimension As-Built to within ±1".	6.6.2.2		
		Is the field drilled sight hole shown pictorally on As/Built drawing for all SRS struts.	6.15.1.5		
		Does the As/Built drawing show the size and field weld symbol for all strut couplings and end assemblies.			
		Are all angular tolerances on the strut As-Built to within ±2°.	6.15.2.3		
		Is the minimum and maximum pin to pin for SRS & SRF struts as per tables of ESD 223 Sect. 6.15.1.2.			
ROD HANGERS	16	Is rod swing angle within tolerance (4° max.) and As/Built to within ±2°.	6.17.1		
SPRING HANGERS	17	Is the As/Built cold setting within 5% of design setting	6.13		
		Is the spring swing angle within 4° max. tolerance and As/Built to within ±2°.	6.14		

FOR INFORMATION ONLY

		FLORIDA POWER CORPORATION				
		GENERAL FIELD SUPPORT PROCESS SHEET				
1.	LOCATION OF SUPPORT COMPLIES WITH DRAWING				1712	RA 4/11/94
2.	DRAWING CHANGES NOTED AND COMPONENTS COMPLY WITH MATERIAL LIST					
3.	ANCHORS INSTALLED AND WITNESSED BY Q.C.	A. Holes drilled to tolerance and Check adjacent anchors				
	B. Shield/Plug Driven to Tolerance			TYPE: Hilti/Phillips		
	C. Tyne Stud Installed	SIZE	MFR. EMB.	TYPE: Hilti/Phillips		
	D. Anchors Torqued	SIZE	VALUE	WRENCH SERIAL NUMBER	1712	RA 4/11/94
	Hilti Rotax B42 6	40 ft lbs		PPP 138 Due DATE 5/6/94		
	E. Unused holes dry packed					
4.	BACK OFF BOLTS PRIOR TO WELDING ON BASE PLATES					RA 4/11/94
5.	FIT-UPS: A. Pipe attachments installation:			(1) Heat No:		
				(2) P.O. No:		
	B. Support Members:		ITEMS	SPECIAL INSTRUCTIONS		
	(1) Groove & Full Pen Welds					
	C. Purge Established where required					
6.	WELD PREP ZONES CLEAN OF PAINT, OIL					
7.	WELDING OF PIPE ATTACHMENTS (PER SEPARATE PROCESS SHEET) F.N.A.					
8.	WELDING OF HANGER SUPPORT MEMBERS ONLY:		IDENTIFICATION	WELD CODE		
	SPECIAL WELDING INSTRUCTIONS:			CS/CS GTAW	594(2F)	RA 7/11/94
				↓ SS/SS		
				SS/SS 12G		
				↓ 15/16		
				CS/SS		
9.	OTHER INSTRUCTIONS:					
10.	FINAL WELD CONDITION-SUPPORT MEMBERS:	A. Weld Surface Clean				
		B. Arc Strikes Removed/Minimized				
		C. Weld Size Complies with Drawing				

		FOREMAN	Q.C. DATE & INITIAL
11.	REVIEW FOR GENERAL WORKMANSHIP AND CONFIGURATION:		
	A. Components and Dimensions Comply W/Dwg. & Matl. List		
	B. Pipe Clearance in Accordance with Drawing		
	C. Riser Clamp Bears upon Lug		
	D. Hanger is Level and Plumb		
	E. All Bolts/Nuts Installed and Tight		
	F. Wall & Ceiling Plates Shimmed where Necessary		
	I. Grout Request Submitted		
	H. Lug Clearance within Tolerance		
12.	SKETCHES: A. Installed per Separate Process Sheet		
	B. Grinnell Fig.# & Size C. PSA Size D. TYPE: W WSH-W		

13. SUPPORT ACCEPTED BY Q.C. (Complete Installation Review) Q.C. SIGNATURE _____ DATE _____

1/19/94 KEL 96-2-10 Q-List Item (5) Welded Attachments Shall Be Installed per Approved Procedures

PREINSPECTION REVIEW	WELDER	
	O.K.	DISCREPANCY
1. ALL WELDERS INSTALLED		
2. WELDS: Inaccessible and/or Undersized		
3. CAPS: C-Bolts, Tee Shoes and Lugs		
4. GROUTED PLATES: Grout damaged or Holes in Plate		/
5. SHIMS: Tack Welds		/
6. NUTS NOT FULLY ENGAGED	/	
7. ARC STRIKES	/	
8. MATERIAL SIZE		
9. OVERSIZED HOLES IN PLATE: Washers		
10. WARPED BASE PLATES/WELDERS	/	

PREINSPECTION REMARKS:

CORRECTED ALL BOLTS BACKING OFF BASE PL 12" x 11" x 1" K/J 4/10/94 [illegible]

[illegible] CONTROL VALVE TO THE WEST OF H&R 5" C-C JKL 4/11/94

FINAL INSPECTION COMMENTS:	INSPECTOR	DATE

[illegible]

PAGE 39 OF 48

4. Location of Erector Splice Plate Installed.					N/A
5. Erector Shims Used for Alignment Shown on Erection Plan					N/A
6. Holes Drilled and Reamed at S.O.	A. Holes Drilled to Tolerance and Check Adjacent Members				
B. Shield/Plug Drilled to Tolerance			TYPE: Hilti/Phillips		N/A
C. Type Stud Installed	SIZE	QTY. REQ.	TYPE: Hilti/Phillips	3557	
	1/2"	2¼"			
D. Anchors Torqued	SIZE	VALUE	WRENCH SERIAL NUMBER	3557	
	1/2"	45 ft lbs	Red & Green tip		
E. Unused holes dry packed					N/A
7. BACK OUT BOLTS PRIOR TO WELDING OF BASE PLATE					N/A
8. PRE-CPE: A. Pipe Attachments Installation:	(1) East Col:				N/A
	(2) W.S. Col:				N/A
B. Support Members:	SIZE	SPECIAL INSPECTION			
(1) Groove & Full Pen Welds	PBL"x8½"x½" to TS 2x2"x¼"x2'-0"			933	
	PL½"x3½"x3" to TS 2x2"x¼"x2'-0"			933	
C. Purge Established Weld Required					N/A
9. Weld Test Coupon Weld of Plate, etc.					
10. Welding of Pipe Attachments (For Separate Erection Sheet) P.T.I					N/A
11. Welding of Earlier Support Members Out:	DESIGNATION	WPS USED			
SPECIAL WELDING INSPECTION:		33/20	7/8		
		33/89	929		
		33/33	129		
		33/			
		33/25			
12. Final Inspection: 9/16"Ø Holes in (4) Hole Base Pl.				2288	
QC TOBEY					
13. Final Weld Completion-Support Members:	A. Weld Surface Clean				N/A
	B. Arc Strikes Removed/Minimized				N/A
	C. Weld Size Gauges Were Shown				N/A
14. Notify for General Walkthrough and Completion:				Initials	S.O. Date
A. Components and Dimensions Comply w/Dwg. & Spec.					N/A
B. Pipe Clearance in Accordance with Drawing					
C. Riser Clamp Bears Upon Lug					
D. Sleeper is Level and Plumb					
E. Shim Washers/Nuts Installed and Tight					
F. Finish & Ceiling Plates Shimmed, where Necessary					
G. Grout Retract Sleeves					
H. Pipe Clearance Within Tolerance					
15. Signoff: A. Installer per Detailed Process Sheet					
B. Inspector Pipe & Size	C. PSA Size		D. Date		
16. Erector Acceptance of Conditions Installation Review: S.O. Signature					

PAGE 40 OF 48

DATE _____

1.	ALL WELDING DEFECTS	
2.	CRACKS; Inaccessible and/or Undetermined	
3.	TABS; T-Bolts, Tee Shoes and Lugs	
4.	CRACKED PLATES; Grout damaged or Holes in Plate	
5.	SEALS; Tack Welds	
6.	NUTS NOT FULLY ENGAGED	
7.	ARC STRIKES	
8.	MATERIAL SIZE	
9.	OVERSIZED HOLES IN PLATE; Washers	
10.	WARPED BASE PLATES/MEMBERS	

PRESCRIPTION REQUIRED:

FINAL DISPOSITION REQUIRED: INSPECTOR DATE

1. Drive East (1) 5/8" HRD 9'-0" Long South East corner of Pier 10 R-[illegible]

SC VERIFIED TORQUING ON (6) 1" X 5 1/2" Wilti Kwik AT 45 WLR AND EMBPPP

DUE ETC.

PAGE A1 OF AB

1.	LOCATION OF ERECTOR COMPLETED VIEW DRAWING.			3556	
2.	DRAWING SHOWING HOLES AND CONFIGURATION ISSUED FOR MATERIAL USE				
3.	ANCHORS INSTALLED AND TENSIONED BY E.C.	A. Holes drilled to tolerance and check adjacent anchors		928	
	B. Shield/Plug Driven to Tolerance	TYPE: Hilti, Phillips		NA	
	C. Type Stud Installed	SIZE: 1/2"	CONC. EMB.: 2 1/4"	TYPE: Hilti/Phillips	928
	D. Anchors Torqued	SIZE: 1/2"	VALUE: [illegible]	WRENCH SERIAL NUMBER	3557
	E. Unused holes dry packed				NA
4.	BACK OFF BOLTS PRIOR TO WELDING ON BASE PLATES			3536	
5.	PIPE-OPS: A. Pipe attachments installation:	(1) Heat No:			
		(2) P.O. No:			
	B. Support Members:	SIZES: [illegible]	SPECIAL DESCRIPTIONS		
	(1) Groove & Full Pen Welds	[illegible]		353	
	C. Purge Established where required				
6.	WELD PREP WITHIN SCOPE OF PAINT, ETC.				
7.	WELDING OF PIPE ATTACHMENTS (PER SEPARATE PROCESS SHEET) F.W.I.				
8.	WELDING OF HANGER SUPPORT MEMBERS ONLY:	IDENTIFICATION	WELD CODE		
	SPECIAL WELDING DESCRIPTIONS:		GS/GS	3557	
			GS/SS	3557	
			SS/SS		
9.	[illegible] REMOVAL OR RESETTING OF SOUTH-WEST ANCHOR			928	
	S.W. anchor cut back + abandoned and anchor installed & cut back			928	
	E.C. To VERIFY 3/16" Q Welds In 6 Ave Base Plate			928	
10.	FINAL WELD CONDITION-SUPPORT MEMBERS:	A. Weld Surface Clean			
		B. Arc Strikes Removed/Minimized			
		C. Weld Size Satisfies Weld Symbol			
11.	REVIEW FOR GENERAL WORKMANSHIP AND CONFIGURATION:			FOREMAN	Q.C. DATE
	A. Components and Dimensions Comply With Drawings				
	B. Pipe Clearance in Accordance With Drawings				
	C. Riser Clamp Bears Upon Lug				
	D. Hanger is Level and Plumb				
	E. All Bolts/Nuts Installed and Tight				
	F. Wall & Ceiling Plates Installed where Necessary				
	G. Input Request Submitted				
	H. Lug Clearance within Tolerance				
12.	DRAWING: A. Installed per Separate Process Sheet				
	B. Threaded Pipe & Size	C. PEA Size	D. [illegible]		
13.	[illegible] Completed Installation Review				

(PAGE 42 OF 48)

PULLMAN POWER PRODUCTS

GENERAL PIPE SUPPORT PROCESS SHEET

SUPPORT NO. 431-49 | E0092 -63

PREPARED BY | FOREMAN | Q.C.

1. LOCATION OF SUPPORT COMPLIES WITH DRAWING. ✓

2. DRAWING CHANGES NOTED AND COMPONENTS VERIFY WITH MATERIAL LIST ✓

3. ANCHORS INSTALLED AND WITNESSED BY Q.C. A. Holes Drilled to Tolerance and Check Adjacent Anchors N/A

B. Shield/Plug Driven to Tolerance TYPE: Hilti/Phillips N/A

C. Type Stud Installed | SIZE | MIN. EMB. | TYPE: Hilti/Phillips N/A

D. Anchors Torqued | SIZE | VALUE | WRENCH SERIAL NUMBER N/A

E. Unused holes dry packed N/A

4. BACK OFF BOLTS PRIOR TO WELDING ON BASE PLATES N/A

5. FIT-UPS: A. Pipe attachments installation: (1) Heat No: ✓ (2) P.O. No: ✓

B. Support Members: | SIZES | SPECIAL INSTRUCTIONS

(1) Groove & Full Pen Welds N/A

C. Purge Installed where required N/A

6. WELD PREP AREAS CLEAN OF PAINT, OIL N/A

7. WELDING OF PIPE ATTACHMENTS (PER SEPARATE PROCESS SHEET) P.S.# N/A

8. WELDING OF HANGER SUPPORT MEMBERS ONLY: IDENTIFICATION | WELD CODE

SPECIAL WELDING INSTRUCTIONS:

GS/GB 7/8
" 6S/6W
S1/SB 1/W
" 1/1H

9. OTHER INSTRUCTIONS:
QC TO VERIFY DELETION OF SUPPORT
EXCEPT ITEMS (2) (5) (6) & (7)
FOREMAN TO VERIFY DELETION OF SUPPORT EXCEPT ITEMS (2) (5) (6) & (7)

10. FINAL WELD CONDITION-SUPPORT MEMBERS: A. Weld Surface Clean ✓
B. Arc Strikes Removed/Minimized ✓
C. Weld Size Complies with Drawing ✓

11. REVIEW FOR GENERAL WORKMANSHIP AND CONFIGURATION: | FOREMAN | Q.C. DATE

A. Components and Dimensions Comply W/Dwg. & Mat'l List ✓

B. Pipe Clearance in Accordance with Drawing ✓

C. Riser Clamp Bears upon Lug ✓

D. Hanger is Level and Plumb ✓

E. All Bolts/Nuts Installed and Tight ✓

F. Wall & Ceiling Plates Shimmed where Necessary ✓

G. Grout Removed [illegible] ✓

H. Lug Clearance within Tolerance ✓

12. SNUBBERS: A. Installed per Separate Process Sheet N/A

B. Trunnion Fig.# & Size C. PSA Size D. TYPE: BY

13. SUPPORT ACCEPTED BY Q.C. (Complete Installation Review) Q.C. SIGNATURE

DATE

FOR DELETION PER MEMO #0839

PAGE 44 OF 48

1.	[illegible]
2.	[illegible] Unacceptable use of Tungsten
3.	[illegible] Tolerance [illegible]
4.	[illegible] Excess Gaps or Holes in Plate
5.	[illegible]: Tack Welds
6.	[illegible]
7.	ARC [illegible]
8.	[illegible]
9.	[illegible] Holes in Plate: Vessels
10.	Warped Base Plates/[illegible]

[illegible]:

Penetration complete Remove and Grind Smooth
Select Items [illegible] Weld Repair
Grind Mend (RG)

[illegible]:	[illegible]	Date

PAGE 45 OF 48

SCOTT - THIS WILL BE COMING YOUR WAY SOON. INFO COPY IS ATTACHED JKV.

PULLMAN POWER PRODUCTS

REQUEST FOR AUTHORIZATION
TO ADD HANGERS TO EXCEPTION LIST

IT # 2 AREA H DATE 5-17-84 REQUEST #

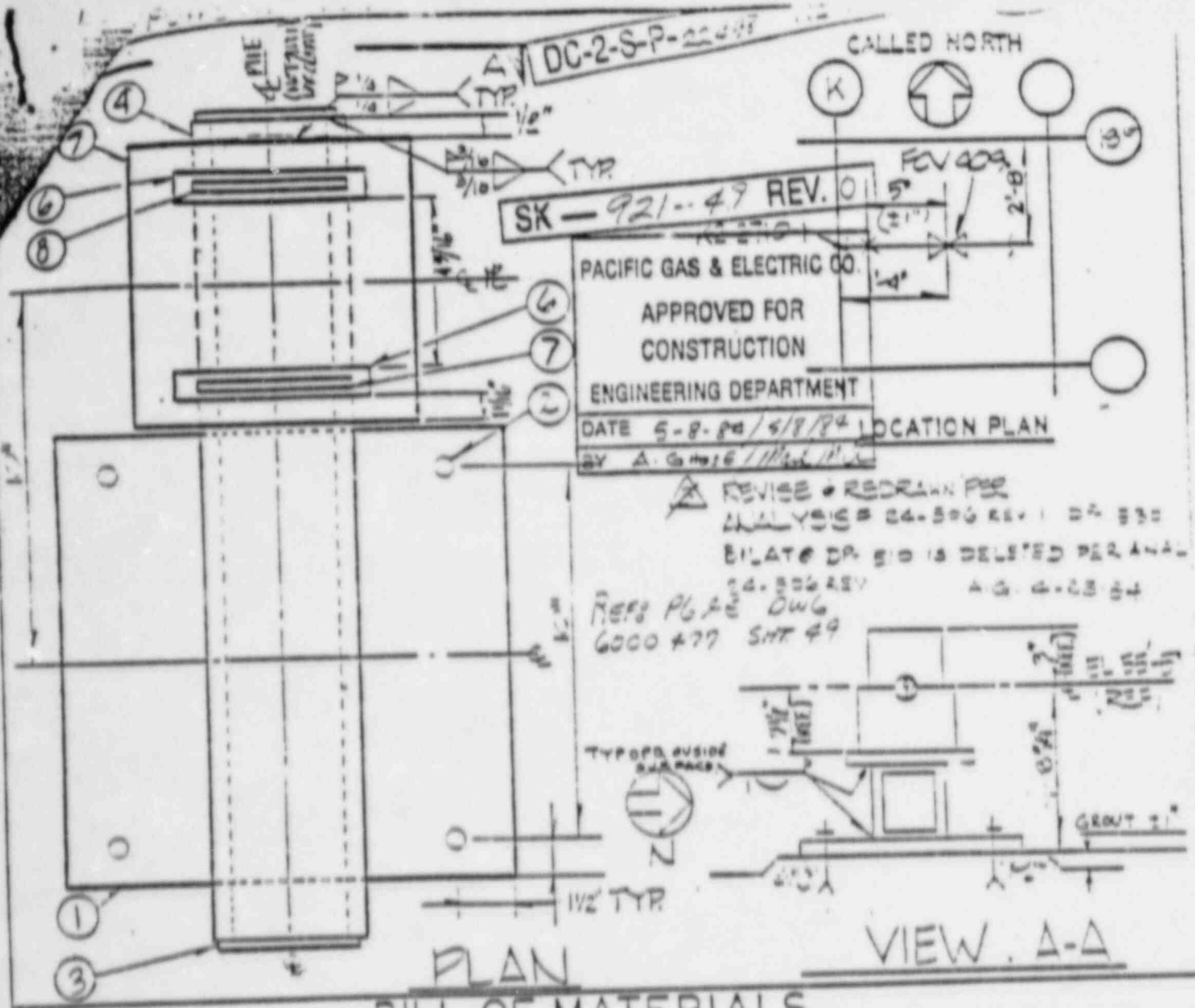
/S#	HGR SYM.	DWG #	REV.	LINE #	S/B ISO #	CLASS	COMMENTS
4	921-49	921-49	7	K-2-2710-1	24-405	E/E'	

ISON FOR REQUEST: LAYOUT DRILLING OF 921-49 DC-2-S-R-2249B REV. 0 REQUIRES REMOVAL OF ALL ITEMS OF THE PREVIOUS EXCEPT ITEMS (5) (6) (7) AND (8) (THE TYPE 12 ANCHOR)

REQUESTED BY: John K Vogt P.P.P. DATE: 5-17-84

I. DISPOSITION:

(Page 16 of 48)



BILL OF MATERIALS

ITEM NO.	QTY.	SIZE	DESCRIPTION	MTL.
1	1	PP 3/8" x 12" x 12" W/(4) 3/16" ϕ HOLES	NEW	A-36
2	4	3/8" ϕ HILTI KWIK BOLT W/MIN. 6" EMBED	NEW	
3	2	PL 1/4" x 3 3/8" x 3 3/8" LG.	NEW	A-36
4	1	TS. 4" x 4" x 1/2", 1'-10" LG.	NEW	A500 GR B
5	1	PL 3/4" x 6" x 6" LG.	EXIST	A-516 GR 70
6	2	PL 1 1/4" x 3 1/2" x 6" LG.	EXIST	
7		PL 1/2" x 3" x 3" LG.	EXIST	

UNLESS OTHERWISE SPECIFIED

DIMENSIONS IN INCHES

FOR INFORMATION ONLY

REF. DWG. [illegible] SYS 24

CLASS E/E' UNIT 2 AREA H

ELEV [illegible] DESIGN [illegible]

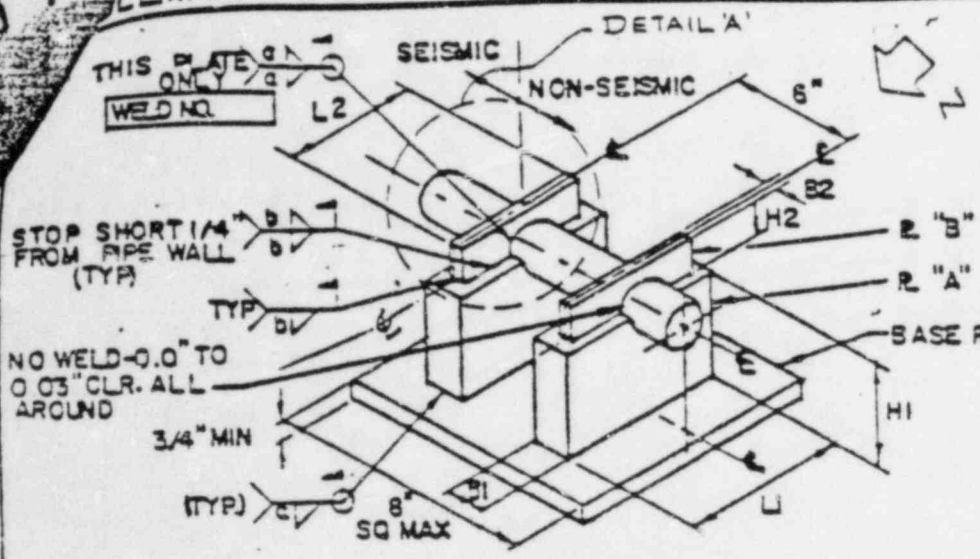
ISO [illegible] DATE 4/26/84

PIPE SUPPORT

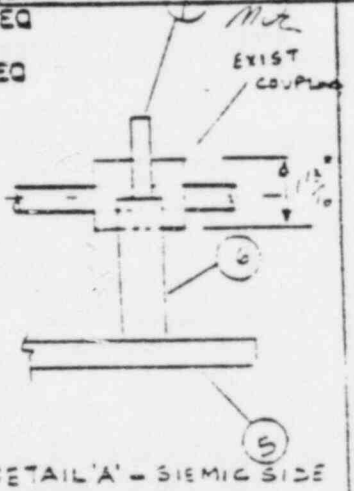
DWG NO [illegible] REV NO [illegible]

ANCHOR SHT 1 OF [illegible]

LMAN POWER PRODUCTS



PACIFIC GAS & ELECTRIC CO.
APPROVED FOR CONSTRUCTION
ENGINEERING DEPARTMENT
DATE 5-8-84 / 5/8/84
BY A.G Hoic / Mck



DETAIL 'A' - SIEMIC SIDE SHOWING COUPLING

WELDED ANCHOR TYPE 12

PIPE Ø INCHES (SCH 80)	THK IN	WELD SIZE a IN.	b IN.	c IN.	PLATE "A" L1 IN.	H1 IN.	B1 IN.	PLATE "B" L2 IN.	H2 IN.	B2 IN.
2" Ø (2.375)	.218"	5/16"	5/16"	5/16"	6"	3 1/2"	1 1/4"	5"	3"	1/2"
1 1/2" Ø (1.9)	.2"	5/16"	5/16"	5/16"	6"	3 1/2"	1 1/4"	5"	3"	1/2"
1" Ø (1.315)	.179	1/4"	3/16"	5/16"	5"	3 1/2"	3/4"	4"	3"	1/4"
3/4" Ø (1.050)	.154	1/4"	3/16"	5/16"	5"	3 1/2"	3/4"	4"	3"	1/4"

SEISMIC SIDE

NON-SIESMIC.

NOTE:- FOR PLATE SIZES REFERS BILL OF MATERIAL

NOTE:

1. ANCHOR TO BE USED FOR SCH 80. OR LESS.
2. PLATE MATERIAL FOR CARBON STL PIPE IS: STEEL A-515 GR.65
3. PLATE MATERIAL FOR STAINLESS STL PIPE IS: STEEL A-240 TYPE 304
4. ANCHOR TO BE USED ONLY AT CODE BREAKS BETWEEN PGAND E DESIGN CLASS I AND II PIPING
5. ANCHOR DESIGN, TYPE 12 IS BASED ON THE MAX. POSSIBLE LOADS THEREFORE, ALLOWABLE LOADS ARE NOT NECESSARY
6. SUPPORTING STL AND WELD TO THE ANCHOR TO BE QUALIFIED BY THE ENGINEER

DC-2-S-P-2249E REV. 0

SK — 221-49 REV. 0

UNLESS OTHERWISE SPECIFIED	REF. DWG. [illegible]	SYS 24	PIPE SUPPORT
[illegible]	CLASS E/E'	UNIT 2 AREA H	-1
INFORMATION ONLY	ELEV 95'	DESIGN GHOSE	DWG. No. [illegible] REV. No. —
	ISO [illegible]	DATE 4-26-84	SHT 2 OF 2

DATAPRINT

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON PROJECT • GENERAL CONSTRUCTION
P.O. BOX 56 • AVILA BEACH, CALIFORNIA 93424 • (805) 595-7324

April 27, 1984

R. W. Karner
Pullman Power Products
Diablo Canyon Project

Dear Mr. Karner:

A Quality Concern has been conveyed to our department through the Quality Hotline which requires your immediate attention. Of concern is the possibility that supervision may indirectly and/or unintentionally be intimidating the Quality Assurance Document review personnel into not documenting deficiencies.

The caller was concerned that the proficiency of the QA Document Review Program could be affected by the possibility of supervisorial reprisals and/or termination of employment as a result of performing the personnel act. In short, the caller was concerned that if he/she documented a deficiency, management would take some disciplinary action against them. While our investigation did not reveal such an official PPP Management policy, the Hotline investigator did talk to others who had the same concern. For this reason, it is requested that this situation be evaluated in your organization and appropriate discussions take place with your document review supervisors to relieve this concern. Please provide written response to this office on actions taken.

If you should have any questions or wish to discuss this subject further, please contact this office at ext. 3045.

R. A. Hedgood
G. C. Quality Control Supervisor

Reply requested: Yes
Due Date: May 4, 1984
RAH/CStetson:klh
cc: E. Lieber
J. Manning
L. Rossetti

INTEROFFICE CORRESPONDENCE

DATE MAY 11, 1984

TO ALL QA SUPERVISORS AND LEADS

FROM H. KARNER

SUBJECT POSSIBLE SUPERVISORY INTIMIDATION OF EMPLOYEES

Information has come to me regarding the possibility that QA Document Review personnel are being disuaded from documenting deficiencies, found during review of documentation, by means of supervisorial reprisals, such as disciplinary action and/or termination of employment. (Reference: PG&E letter dated 4-27-84.) This is not an isolated case, but has been stated by several concerned individuals.

Any attempt by supervision to intimidate employees, whether directly or indirectly, will not be tolerated under any circumstances. If an individual feels that a deficient condition exists, he or she has the right and the responsibility to identify it in accordance with approved procedures. This can be in the form of exceptions noted on checklists, etc., rather than a DR/DCN until it can be discussed.

If, on the other hand, you feel it is not a deficient condition, based upon approved ESDs, specifications and/or codes, it is your responsibility to inform the individual and prove the basis for your decision. If the identified deficiency is, in fact, valid, supervision can not prevent or attempt to discourage an individual from documenting the deficiency. The solution is to correct the deficiency.

In order to maintain a good Quality Assurance organization, we must allow the system to work. If our QA personnel do not have the ability to use the system as it was designed to work, then the integrity of quality at Diablo Canyon is in jeopardy.

I expect every person that is in a supervisory or lead position to act in a responsible and objective manner when addressing potential deficient conditions regardless of who the person is that identifies the condition. Abuse of authority will not be tolerated when used to sway individual actions because of personality conflicts.

Harold W. Karner

Harold W. Karner
QA/QC Manager

HWK:sam

EXHIBIT 5

AFFIDAVIT

My name is Timothy J. O'Neill. I am providing this statement to respond to statements made by Mr. D. A. Rockwell in his June 19, 1984 affidavit. I believe that Mr. Rockwell's affidavit contains many misleading or false statements as I'll identify below.

1.) Mr. Rockwell states that I was identified in PG&E's May 17, 1984 submittal. Although this is true, it is not complete. My identity was compromised in SSER 22. This occurred because the NRC, in my opinion, mishandled the information I provided to them under a letter of confidentiality. By providing my identity to Pullman, the NRC encouraged management's negative responses toward me, which hampers my ability to identify quality-related problems.

2.) Mr. Rockwell states that I suffered no harassment as a result of my affidavits or allegations. Again this is a false statement. Not only do I consider PG&E's May 17, 1984 submittal an act of harassment, but also the affidavit of Mr. Rockwell that confirms me as an anonymous alleger. As a result I feel the QC department has been ordered not to document problems on DR's (Discrepancy Reports). PG&E publicly states "anyone at the plant can write a DR." This statement is not true, Pullman QC inspectors cannot. I believe this is Pullman's method of preventing me from continuing to identify discrepancies to PG&E. This action occurred after my identity became suspect because of the Region V NRC mishandling the information I provided to them.

3.) Mr. Rockwell states that there have been no reports to supervisors, or hot-line reports. Again this statement is misleading and false. I have verbally informed Pullman management of instances of harassment. I documented by letter to H. Karner (Attatchment 1) the details of another instance of harassment. On another occasion I identified to the QC hot-line what I feel to be implicit management harassment by discouraging QC inspectors from documenting procedural discrepancies on a Discrepancy Report (DR). Harassment from management is centered on the individuals who do not blindly accept verbal or improperly controlled instructions.

4.) Mr. Rockwell's statement concerning our June 12 meeting implies that I forced my way into his office. Again this is a misleading statement. The meeting was arranged by the Quality Hotline Supervisor, Dave Stetson. I was hesitant to take verbal replys to my issues. I requested the responses to be formal and in writing. Mr. Rockwell agreed. I made no demands as implied in his statement, and to date have not received any reply in writing from PG&E or the QC Hotline.

In conclusion, although my identity is anything but anonymous, the issues have nothing to do with who made the statement. PG&E should address the problems in a responsible manner, rather than the persons making the statements. It is a QC inspector's duty, under 10 CFR 50 App. B to identify quality-related problems, to suggest solutions, and to follow through on their resolution. PG&E and Pullman's responses to problems make this difficult. The NRC, to date, has not independently investigated all of the problems.

They have only provided affidavits to PG&E for answers and this compromised the identity of the allegers. I did not verbally report any details of acts of harassment to Mr. Rockwell because I had previously documented the harassment within the system. Had the system been functioning properly Mr. Rockwell would have been aware of the acts. He did not address the issue nor ask any questions about harassment.

I have read the above 3 page statement and swear that it is true, complete and accurate to the best of my knowledge and belief.

Timothy J. O'neill

Timothy J. O'neill

State of California)
County of San Luis Obispo) SS

Timothy J. O'neill, being duly sworn, depose and says: I have read the above 3 page affidavit and it is true, accurate an complete to the best of my knowledge and belief.

Timothy J. O'neill

Timothy J. O'Neill

Subscribed and sworn before me on June 23, 1984

Lisa R. Wenter

Notary Public

OFFICIAL SEAL
LISA R. WENTER
NOTARY PUBLIC - CALIFORNIA
SAN LUIS OBISPO COUNTY
My Comm. Expires May 9, 1986

TO: K. FOELKER, LEAD
J. WATSON, SUPV.
H.W. KARNER, QA/QC MANAGER

DATE: JUNE 6, 1984

FROM: T. O'NEILL, QC INSPECTOR

SUBJECT: CRAFT HARASSMENT

THIS LETTER IS TO DOCUMENT AN INSTANCE OF HARASSMENT WHILE PERFORMING SURVEILLANCE INSPECTIONS IN ACCORDANCE WITH ESD 219, WELD PROCEDURE MONITORING.

ON TUESDAY, JUNE 6 I WAS INFORMED THAT CRAFT WORKING ON SUPPORT 46/3A, RHR PUMP ROOM ON ELEV. 64 AUXILIARY, MAY NOT BE FOLLOWING PROPER INTERPASS TEMPERATURE CONTROL PER ESD 215 PARA. 8.8. I WENT TO THIS LOCATION ON THE BASIS OF RANDOM SURVEILLANCE TO CHECK COMPLIANCE WITH ESD 219 PARA. 3.9, 3.10, AND 3.11. I CHECKED THE TORCH FLOW RATE, AND FOUND IT TO BE 15 CFH AT THE FLOWMETER. THIS IS IN NONCOMPLIANCE WITH THE 15/16 WPS, WHICH SPECIFIES 20 CFH MIN. I CONSULTED PAT WATSON, WELDING SUPERVISOR (QC) AS TO APPROPRIATE COURSE OF ACTION. PAT SAID TO INFORM WELDER AS TO PROCEDURE REQUIREMENTS, WHICH I DID AND SO NOTED ON PIPING PROCESS SHEET. I ALSO NOTICED CRAFT WAS NOT USING A 350°F TEMPILSTICK TO MONITOR INTERPASS TEMPERATURE. I INFORMED CRAFT AS TO THIS REQUIREMENT AS WELL. NO HOLD TAG WAS APPLIED AS NO OBVIOUS WELD DEFICIENCIES WERE NOTED.

WHILE PERFORMING INSPECTIONS NOTED ABOVE, I WAS SUBJECTED TO VERBAL ABUSE BY THE FITTER WORKING AT THIS LOCATION. COMMENTS RANGED FROM "WHY ARE YOU BIRD-DOGGING US" TO "YOU HAVE AN ATTITUDE PROBLEM BECAUSE YOU DON'T GET ALONG WITH US". I REPLIED I WAS ONLY DOING MY JOB MAKING SURE PERSONS WERE FOLLOWING PROCEDURES, AND MY "ATTITUDE" HAD NOTHING TO DO WITH FOLLOWING THE PROCEDURES. I INQUIRED IF CRAFT KNEW WHAT THE FLOW RATE FOR THIS PROCEDURE WAS. THE REPLY WAS, "YOU ARE SUPPOSED TO KNOW THAT." I REPLIED THAT IT WAS <u>THEIR</u> RESPONSIBILITY TO KNOW PROCEDURE, AND MINE TO MONITOR IT. THIS IS THE SECOND TIME I HAVE BEEN HARASSED BY MEMBERS OF THIS CREW FOR ATTEMPTING TO MONITOR WELD PROCEDURE DETAILS. THE FIRST INSTANCE OCCURED WHILE WELDING STANCHIONS FOR PREVIOUS DESIGN OF THIS HANGER. THIS INCIDENT WAS DISCUSSED WITH QC MANAGEMENT, CRAFT GENERAL FOREMAN AND SUPERINTENDANT. I WAS TOLD THAT CRAFT WAS NOTIFIED

(CONTINUED)

THAT INCIDENTS OF THIS TYPE WERE UNACCEPTABLE, AND WAS SATISFIED THAT APPROPRIATE CORRECTIVE ACTION HAD TAKEN PLACE. I FEEL IT HAS NOT, IN LIGHT OF THIS LATEST INCIDENT, THEREFORE IT IS BEING DOCUMENTED HERE. AFTER THIS RECENT INCIDENT OCCURED, I INFORMED LEAD K. FOELKER AS TO THE CONTENT OF THE DISCUSSION. ON WEDNESDAY MORNING, JUNE 6, I DETAILED THIS INCIDENT TO SUPERVISOR J. WATSON, WHO STATED HE WOULD SPEAK TO CRAFT FOREMAN. THIS CONVERSATION OCCURED AT THE BEGINNING OF THE SHIFT ON WEDNESDAY, JUNE 6.

AFTER SPEAKING WITH SUPERVISOR WATSON, I ALSO SPOKE WITH CRAFT GENERAL FOREMAN, AS HE WAS INVOLVED WITH THE PREVIOUS INCIDENT AS PREVIOUSLY DESCRIBED. GENERAL FOREMAN ASKED IF I WAS "NITPICKING., BIRD-DOGGING, AND CREATING SOME "BULLSHIT". THE UPSHOT WAS I WAS NOT "TRYING TO WORK WITH THE CRAFT." I REPLIED THAT AS LONG AS CRAFT WERE FOLLOWING PROCEDURES, OUR WORKING RELATIONSHIP WAS FINE. AGAIN, MY "ATTITUDE" WAS MENTIONED. HIS POSITION WAS THAT HE DID WANT PROCEDURES FOLLOWED, WHICH I ALSO AGREED WITH. I EXPLAINED PROCEDURE, IN THIS INSTANCE, WAS NOT BEING FOLLOWED AND THAT FURTHER TRAINING MAY BE REQUIRED. I FEEL MOST OF MY REJECTIONS ARE DUE TO LACK OF KNOWLEDGE OF PROCEDURAL REQUIREMENTS ON THE PART OF THE CRAFT. AS A MINIMUM, WELDING REQUIREMENTS SHOULD BE INCORPORATED INTO AN ESD TRAINING PROGRAM. CRAFT GENERAL FOREMAN STATED HE WOULD INSTRUCT CRAFT THAT INCIDENTS OF THE TYPE WILL NOT BE TOLERATED. AS THIS WORD WAS SUPPOSEDLY PREVIOUSLY GIVEN TO CRAFT, I FEEL THIS INSTRUCTION WAS INADEQUATE.

IN CONCLUSION, I REQUEST DOCUMENTED EVIDENCE THAT APPROPRIATE INSTRUCTION AS TO PROCEDURAL REQUIREMENTS HAS OCCURED, AND THAT ALL PERSONS ARE INSTRUCTED THAT INCIDENTS OF THE TYPE ~~HER~~ DESCRIBED HEREIN ARE VIOLATIONS OF FEDERAL LAW. YOUR IMMEDIATE RESPONSE TO THIS MATTER IS REQUESTED TO PREVENT RECURRANCE.

I WAS INFORMED BY Tim O'NEIL ON JUNE 6, 1984 AND THEN SPOKE WITH "LEE HARISON" GENERAL FOREMAN ABOUT THE CRAFT ATTITUDE TOWARDS QC INSPECTORS JOB. 6/6/84 QC LEAD

Timothy J. O'Neill 6/6/84

acknowledged: 6/6/84

EXHIBIT 6

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

JUN 11 1984

Docket Nos.: 50-275
and 50-323

MEMORANDUM FOR: Chairman Palladino
Commissioner Gilinsky
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal

FROM: Darrell G. Eisenhut, Director
Division of Licensing

SUBJECT: MEETING ON MAY 22, 1984 WITH GAP REGARDING DIABLO CANYON (BOARD NOTIFICATION NO. 84-114)

In accordance with the NRC procedure for Board Notification the enclosure is provided to the Commission for information. The enclosure is a transcript of a meeting held on May 22, 1984 by members of the NRR staff with an individual represented by Mr. Thomas Devine of the Government Accountability Project (GAP) and with Mr. Charles Stokes a former employee at the Diablo Canyon project, representing himself. The meeting had been requested by Mr. Devine. The meeting was closed and was transcribed by an official reporter. Mr. Stokes also made a tape recording.

At the meeting the individual and Mr. Stokes made allegations and expressed concerns regarding certain design and construction aspects of piping supports, including the implementation of quality control requirements. During the meeting Mr. Devine referred to additional affidavits which he subsequently submitted by letter dated May 31, 1984 and which are the subject of a separate Board Notification. The individual and Mr. Stokes provided a number of examples regarding their concerns. No copies of that information was retained by the staff but an attempt was made to identify that information on the record.

Mr. Devine stated that the individual had a confidentiality agreement with the NRC from an earlier meeting and requested that it be applied to this meeting. Accordingly, consistent with the Commissions Statement of Policy on Investigations and Adjudicatory Proceedings (48 Fed. Reg. 36358) the transcript is made available in camera to the Commission and to the ASLAB and their staff. We will be available to advise the Commission as to this determination. The transcript is also provided in camera to the Office of Investigation and to Region V for their determination, with respect to any of their investigations or inspections, if the transcript can be released publicly, in total or in

8406210073

part. If the determination is affirmative we will provide the transcript to Mr. Devine requesting deletion of any information that, in his opinion, could compromise the confidentiality to his client. If the determination is negative we will not release the transcript until the investigation or inspection has been completed.

By copy of this memorandum we are also providing the in camera transcript to the ASLAB. The parties to the proceeding and the service list including Mr. Devine, are being notified by copy of this memorandum without enclosure.

Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc: J. F. Wolf, ASLB w/enclosure
G. O. Bright, ASLB w/enclosure
J. Kline, ASLB w/enclosure
T. S. Moore, ASLAB w/enclosure
W. R. Johnson, ASLAB w/enclosure
J. H. Buck, ASLAB w/enclosure
SECY (2) w/enclosure
EDO w/enclosure
OGC w/enclosure
OPE w/enclosure
Parties to the Proceeding w/o enclosure

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

#31

In the matter of:

Docket No.

IN CAMERA DOCUMENT

CONFIDENTIAL INTERVIEW BETWEEN
NRC STAFF AND THE GOVERNMENT
ACCOUNTABILITY PROJECT

Location: San Francisco, CA. Pages: 1 - 127

Date: Tuesday, May 22, 1984

IN CAMERA DOCUMENT

TAYLOE ASSOCIATES
Court Reporters
1625 I Street, N.W. Suite 1004
Washington, D.C. 20006
(202) 293-3950

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

Docket No.

CONFIDENTIAL INTERVIEW BETWEEN
NRC STAFF AND THE GOVERNMENT
ACCOUNTABILITY PROJECT

Location: San Francisco, CA. Pages: 1 - 127

Date: Tuesday, May 22, 1984

TAYLOE ASSOCIATES
Court Reporters
1625 I Street, N.W. Suite 1004
Washington, D.C. 20006
(202) 293-3950

CONFIDENTIAL TRANSCRIPT

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

CLOSED MEETING

NRC STAFF WITH THE GOVERNMENTAL ACCOUNTABILITY PROJECT

The Vagabond Inn
First Floor Conference Room
2550 Van Ness Avenue
San Francisco, California 94109

Tuesday, May 22, 1984

The meeting in the above-entitled matter commenced at 7:05 p.m.

Meeting Participants:

H. SCHIERLING, NRR Licensing, Presiding
D. VOLLMER, NRC/DE
J. KNIGHT, NRC/DE
B. BOSNAK, NRC/DE
I. YIN, NRC, Region III, Sr. Mech. Engineer
B. SAFFELL, Battelle Columbus Laboratories
T. BURR, EG&G, Idaho
D. MORTON, EG&G, Idaho
T. DEVINE, GAP
T. O'NEILL, PPP QC Inspector
C. STOKES, Ex-Diablo Pipe Support Inspector

- - -

MR. SCHIERLING: Okay, fine.

I am glad we got all your comments on the record. Just for the record, and if you later on want to make more comments, that is fine, this is a meeting between the NRC and Mr. Tom Devine of the Government Accountability Project and two of his clients that he is representing.

For the record, it is understood that this is a meeting, as you already indicated, where we will treat the identity of Mr. O'Neill as confidential. We will refer to him as Mr. O'Neill in the transcript. However, the transcript will not be made publicly available at this time.

We are currently developing a policy and an approach that we will apply to making these transcripts publicly available in whatever form is appropriate without violating any of the confidentiality agreements.

Off the record for just a moment.

(Discussion off the record.)

MR. SCHIERLING: Let's go back on the record.

With regard to your request for confidentiality, and we talked about that briefly, regarding the affidavits, I do not know if there is anything available in the hotel here. Some of us will be at the site tomorrow morning and if you feel it is needed,

I am Hans Schierling with the Nuclear Regulatory Commission, the Licensing Project Manager for Diablo Canyon.

MR. VOLLMER: I am Dick Vollmer, Director of the Division of Engineering.

MR. SAFFELL: My name is Bernie Saffell. I am with Battelle Columbus Laboratories and I am functioning as a consultant to the Nuclear Regulatory Commission.

MR. YIN: Isa Yin, NRC, Region III, Senior Mechanical Engineer.

MR. BOSNAK: I am Bob Bosnak, Mechanical Engineering Branch Chief. We have four of our people here who are the IC and DP Team at Licensing Condition No. 6.

MR. KNIGHT: Jim Knight, Assistant Director for Engineering, NRR.

MR. BURR: Tom Burr from EG&G, Idaho, consultant to the NRC.

MR. MORTON: Keith Morton, EG&G, Idaho, consultant to the NRC.

MR. DEVINE: Tom Devine, Government Accountability Project.

MR. O'NEILL: Timothy O'Neill. I am a Pullman Power Products QC Inspector.

MR. STOKES: Charles Stokes. I just represent myself as an ex-employee of Diablo Canyon.

requirements and things, and the whole purpose of just saying a quick fix superceded a design drawing goes against sound engineering I feel.

MR. KNIGHT: Could I ask a question on one remark you made. You said your experience tells you you have to go beyond your design, and I didn't catch the word, but I understood design criteria.

MR. O'NEILL: In some cases your code requirements are minimal requirements. What I am saying there are instances in welding, for instance, where the code doesn't require post-weld heat treat or something, but experience with items says that you should post-weld heat treat, you know, or things of that nature.

MR. BOSNAK: You mentioned something about the quick fix giving you the authority or the capability of the people doing the fix to go beyond certain specifications. From what we have seen, they still have to use the DCM-9 and that ESD-223.

MR. O'NEILL: Okay. I am not familiar with DCM-9. I am very familiar with ESD-223. What I have seen the quick fix used for out there is to go around ESD-223.

MR. STOKES: In the concern with M-9, specific people, and I can provide names, were assigned to the quick fix program from the San Francisco office that were hired directly from the street population and placed in

documentation that he has brought and it will answer questions such as that you raised, and as he identifies documents you all think are relevant, we will make copies and provide them to you.

MR. SCHIERLING: Along that line, I would request, to the extent that you can do it, identify these documents as clearly as you can for the record so that if need arises we can go and search for them.

MR. O'NEILL: Okay. I have here a letter. Actually it is called a noteogram. It is what we use on site out there. When you have got a problem that you feel it is deficient, but you can't specifically say it is deficient to a certain engineering specification, they would like you to write it on a memo and then they can, you know, address it. Most times they try and tell you this isn't a problem and the do a real good job out there trying to keep you from identifying problems and I have that well documented. I haven't brought it tonight because we are specifically interested with the quick fix program.

We had a training session on March 7th, 1984 which prompted me to write this memo to my lead man, Kevin Foelker and to my supervisor, Greg Chinery. The training session was held by a QA lead named Dan Teichman who got up and made a long winded speech about ESD-223, and what I brought away from the meeting, and I will read what I

A fundamental problem that they used the quick fix program for is to quick fix poor workmanship or say if you have a full penetration weld called out, the guy doesn't give full penetration. So now the game plan is to try and get a quick fix to allow a partial penetration weld rather than grind it out and do it right. I have seen cases of quick fixes used in that manner.

MR. YIN: Do you have any examples for that?

MR. O'NEILL: Yes, as a matter of fact, I do.

MR. YIN: This sounds like a non-conformance report to me.

MR. O'NEILL: You know, there have been times that I have written up -- in fact, I would like to get not only into quick fixes, but we have got a layout appeal going on out there that I think is along the lines of this because the quick fix gets into that program.

MR. YIN: Let me ask you, your earlier statement kind of confused me a little because you said that you feel some of the designs were not adequate and you were asked to mind your own business. Well, I think it is just right that you should mind your own ousiness and let the designer ---

MR. O'NEILL: As an inspector, yes.

MR. YIN: So if the designer messes around with QC, we certainly have a problem with that. So what is

know what the conditions of loading are and I don't even deal with that as an inspector. But when I, you know, see a weld that is called out as a full penetration weld and it is downgraded to a seal weld, I kind of take note of that.

MR. BOSNAK: I think the reason for the TC, as they call it, was that the fitter, and this was another problem, that the weld symbols were not properly called on on the drawings. In fact, some of them evidently had none on it. So he put down what he thought was correct and that had to be re-evaluated.

MR. SCHIERLING: Tim, to put things for the record a little bit in perspective, would it be possible for you to tell us your position, your function at the site, how long you have been employed there and also the items that you are talking about right now. Do they cover the entire period of your employment or the past or the present?

MR. O'NEILL: Mostly the documentation I have is from what I have seen from my period of employment. I began my term of employment as an inspector on July 5th, 1983, and I am currently employed with Pullman. In that time I have addressed several welding engineering type problems that the management feels I should not even be involved with, but as an welding engineer with the

overstate what we are disclosing this evening. Tim is an inspector and he is raising issues that red flagged to him. He didn't follow through to do calculations and he couldn't have with his functions. So we are helping to identify areas for you all that he convinced me were significant.

MR. BOSNAK: Do you have any quick fix numbers or something like that that could be followed through?

MR. DeVINE: Yes, we do, and to the extent, sir, that you are interested, and you may be interested in everything we go through, we will provide copies for you of the documentation.

In fact, I would prefer in a number of cases that we provide you the copies rather than that you go to management to obtain them, because to the extent they are memoranda from Mr. O'Neill, that would sort of let the cat out of the bag.

MR. O'NEILL: I might add that has already happened in the Region V investigations. They are aware of the fact that I have been talking to the NRC.

This particular quick fix I wasn't actually involved with, but I was told what happened. I was involved with the construction of the hanger. This is TC No. 1-12667 or support 384, 386R, Rev. 1. It is a sprinkler hanger.

weld was changed from a full penetration to a 7/3ths partial pen. Construction difficulties in this case amounted to the fact that the guy couldn't get a full penetration weld on that.

MR. YIN: Yes, but this doesn't say that the weld has been completed. It just says because of construction difficulties. How do I know this is before the fact or is after the fact?

MR. O'NEILL: That is one thing that that quick fix doesn't address and you will have to take my word for it, but that was done after the fact.

MR. YIN: Before the fact is perfectly legal. After the fact there should be a non-conformance report.

MR. O'NEILL: We can look at that and look at the date that the weld was fit up in this particular case which is item 5 to item 3.

This is the drawing that they sent out to the field and asked me to do a final workmanship inspection on. Needless to say, it took 14 hours to do the final workmanship inspection on this one support. It was due to the fact that the engineers that were involved with it refused to do their inspection. They called me down and said, hey, as a favor will you come straighten this hanger out for us and tell us everything that is wrong with it so we can write one quick fix and get it bought off.

MR. YIN: You are talking about the same support now?

MR. O'NEILL: The same support. Most of it is quick fixes that have been received and redone.

Here is one that is rather interesting. They want you to rewrite the whole thing because it is confusing.

MR. SCHIERLING: For the record I think in one form or another we have to identify that because otherwise how do we know later on what we are talking about.

MR. SAFFELL: We have got the TC number.

MR. SCHIERLING: Oh, you have the TC number. Quote whatever identification is on needed.

MR. YIN: This is the DP number.

MR. BOSNAK: Some of the TC's became DP's.

MR. O'NEILL: There is the DP that goes along with it.

MR. DEVINE: Tim, it would help them if each time you show a piece of paper that you give the ID at the top since they are changing numbers back and forth in here.

MR. YIN: What is wrong with this DP-13947P? It says what needs to be done is complete this hanger.

MR. O'NEILL: Here is the DP that you are asking about, findings and recommendations to DP-13947P.

Francisco had no idea what to put in without any loads. It was simply because I was told they needed a support in the YZ direction.

This package is an indication of the number of quick fixes written against various supports and the various reasons for them having been written.

Without these documents being included in the as-built review and the engineerings considering the entire package and how each TC developed, in various cases pertinent data has been overlooked in the as-built review program that is critical to the safe analysis of those supports.

Some TC's were written because anchor bolts hit drain lines which were supposed to be below a six-inch embedment. They weren't. They were three inches below the concrete surface.

The anchor bolt patter was relocated due to a TC, but whether or not they avoided a cone interference to the drain line when they quick fixed it, I seriously doubt, and I very seriously doubt that without that TC being in there recording that the drain line was ever hit, whether or not their as-built reviewer took notice of it when he evaluated the anchor bolts on that package.

MR. O'NEILL: I might add, on the anchor bolts when you submit an as-built drawing, you submit it and it

being placed in the quick fix program, we were already getting as-built drawings back from the field. Those drawings were not the same as the drawings we sent to the field for construction.

At that time we did not really understand why they were not being built the way we had sent them there. We weren't aware in March that a quick fix program existed since January of '83.

For that same reason I chased down one support which I had sent to the field and the support was changed not by a quick fix, but changed by the person who routed the drawings to Pullman for construction. It was done without a second check and review strictly on his own.

Now the policy was then that as-builts came back. It was a single sheet, no more than one page typically, and that is all we had to review it on.

Now as a quick fix engineer, I found out there are various reasons for those hangers to be changed, hitting anchor bolts from other plates on the opposite site of the wall, hitting drain lines, having to relocate the bolts and plates, hitting copper ground lines and punching through the wall when San Francisco requested 10 and a half inches embedment on inch and a quarter bolts and the wall was only 12 inches by drawing, which we never looked at because it was too difficult to chase down the

have been used to indicate how poorly they were doing their job because you could have monitored how many quick fixes were written against their work. It also never went back to be used for the as-built to indicated why the quick fix changed.

It indicates what thru-bolts. The guy asked for 10 and a half inch bolts. If he gets back a quick fix showing thru-bolts, it it explains why the wall was only 12 inches thick, he realizes that in his future designs there are 12-inch walls he needs to change, and at the same time he realizes that it didn't change arbitrarily. In other words, he can review why a change happened beyond the fact that construction just didn't want to do it that way.

Frequently welds were not made because the welder -- it was welder error. He welded all around even though it was showing two sides. That is good, but at the same time you had underwelding when it was welder error and they were quick fixed away.

What I am saying is that the changes would have been more relevant to the engineers doing the review and at the same time certain issues might have caused that support that was as-built and accepted to fail under an as-built had they had the TC's there to look at.

MR. YIN: Let me ask you this. Is there anything

as-built and we are taking a large sample of the TC's, quick fixes, DP's and so forth to look into it and whether or not they have handled the review adequately.

So if you have additional supports that you think you have a problem with, try to organize it and we will look at it all.

MR. O'NEILL: I have got a DP here that you might be interested in. This is a DP that I came across ---

MR. YIN: Read me the number.

MR. O'NEILL: Okay. Actually a reliner was sent out to do this hanger and he came to me and said, hey, the welds on this don't look good at all and why don't you come take a look at it.

DP No. 12335-P, I have identified this when I met with Region V. What they have here is they have an embedded plate. Okay, now this is also, as you guys would consider, it is class one, seismic class one. It is not safety related, but in any new plant this would be a safety related support. It is on the feedwater line coming out of the pipe rack and on the northwest side of the containment building.

The thing that caught my eye on it ---

MR. VOLLMER: The main feedwater?

MR. O'NEILL: Yes.

anywhere as being a weldable material either. Its chemistry is similar to A-325.

MR. YIN: So they documented the deficiency and what was the problem?

MR. O'NEILL: I documented the deficient welds, the disposition. There is a TC in this package where they tried to accept the deficient welds and the person doing the quick fixing said no, these welds are deficient. I can get that for you.

There is your DR. The TC in there, they asked him will you accept these welds and the person says no, you can't go out and rebuild them. They went out and in the process a field engineer misread the disposition on the DR and they didn't completely redo the disposition.

As a matter of fact, on this support the other day I signed one of our training sheets on an NCR that was written on this support that I can't understand how after I had written this DR, and you might read the number there.

(Document handed.)

MR. SAFFELL: It is TC 1-14461.

MR. O'NEILL: I realize you guys don't think this is safety related, or it is not safety related, but this kind of thing right here is the way it is done out there. If you have got a deficient condition and you can

field condition and they would come back and try and get a TC written to authorize it.

Okay, now, if it was within ESD tolerances, you didn't have to get the quick fix I believe. Okay, we have a change to an as-built within ESD tolerances, a corrective action for the redliner to correct the as-built and to initial and date the change. This is a QC accepted package.

Now QC is to verify the correction and the QC shall note correction changes on the back of the process sheet and the method of justification which nobody did. All you wrote was that you were changing this with the knowledge and approval of the QC manager.

MR. YIN: I heard a couple of times redliner. Is that a person or is it a function or how does it work?

MR. O'NEILL: A redliner is the drafter that comes out and draws the as-built drawing. The way the process goes is the package is QC workmanship inspected, which brings up another can of worms, that we don't follow our procedure on that, but we will leave that alone.

MR. YIN: Is a redliner a procedure term or do you just use it?

MR. O'NEILL: That is a term we use out there, because once the package is accepted for workmanship it is as-built. The redliner is the guy that comes out and draws

workmanship.

It would go to the Engineering Department to be as-built. You would come out and you would do your QC final inspection by comparing the as-built drawing to the approved for construction drawing and check it. That was the first step that I would do when I would do an as-built. I would look at the approved for construction and all of the tolerance clarifications in there, the TC's, and make sure that that as-built drawing reflected everything that was done in the field on the construction cycle.

Then I would compare the as-built drawing to what is actually out there on the wall, and if I found a discrepancy there, I didn't write a non-conformance report because the package was still, it was still in the document control stage is how it is done out there. I would write up all my reject comments, like this dimension isn't right.

If it is an obviously deficient condition, then I would write what is called a deficient condition notice. But for the most part any rejectable items on that as-built would be written on a sheet that doesn't become a permanent document of any kind and it would be rejected back to the Engineering Department for them to do whatever they did.

basically takes both of those and says you can do this or this, whatever the engineer can talk you into.

You have got ESD 268, which is deficient condition reporting. The definition of a deficient condition, according to that specification, is an item that can be corrected through the normal course of construction and should be identified on a deficient condition notice.

Okay, ESD 240, which is non-conformance reporting, which we call a discrepancy report out there, a DR, says that items that are non-conforming procedurally, non-conforming materially, items that cannot be corrected during the normal course of construction shall be identified on a discrepancy report. Those go to PG&E and are dispositioned by them usually.

MR. YIN: Okay. Disregard all those problems. Isn't it that the final analysis still lies on the fact that the engineer has evaluated as-builts, has done a good job in evaluating them and we selected a large sample of it and evaluate it? So this is kind of already history. They haven't got a nice QA program in there. They haven't followed the procedures. We knew that. They haven't got the training and document control is defective. All those things we knew.

But the situation is now to resolve that issue,

about that until another inspector told me that that even existed or how it related to what we were doing.

MR. YIN: Is that that cassette ---

MR. O'NEILL: Yes, that they recently came up with.

MR. YIN: Right. I saw that just recently.

MR. DEVINE: Tim, has there been a new program of training classes or instruction for you all in the last few months?

MR. O'NEILL: Let me tell you how training is accomplished out there. Your lead man comes out with a stack of documents, and these are called STPR's, steps to prevent recurrence. The guy comes out and hands you a stack of documents and says here, read this and sign this sheet and that is your training on that particular thing.

In fact, the other day he brought out a whole handful of these, six of them that were generic non-conformance reports. I read them through and looked at them and noticed that these steps to prevent recurrence on the bottom are required to close NCR number whatever. And when I handed them back to my lead man, I said, whow, it looks like you have a few non-conformance reports here. And he goes no, these aren't non-conformances, they are just DR's. I said, well you had better look at that a little closer because every one of those is an NCR. He

four months have you been working on Unit 1?

MR. O'NEILL: I was in Unit 1 about three months ago and I didn't see really any new construction going on.

MR. YIN: Okay. Now what you are talking about, all this stuff is Unit 2?

MR. O'NEILL: That has been my ---

MR. YIN: Now let me ask you, is there any program change in taking care of the TC's?

MR. O'NEILL: Well, in Unit 2 they are still called quick fixes. You have a QF number on them. They are only called TC's in Unit 1.

MR. YIN: You can call it anything you want, but the formal procedure is called TC. What I am asking you here is are they still practicing quick refix of the major modifications, you know, accepting or maybe changing design?

MR. O'NEILL: Absolutely. That is why I am here tonight.

MR. YIN: Do you have any evidence for that?

MR. DEVINE: I think probably the best way that we can make the point is by just going through some of these TC's one by one and finding the ones that you think are most significant.

MR. YIN: Yes. It is important to identify Unit 1 and Unit 2.

have been done for large bore, but it has never been done for small bore.

MR. YIN: Let me ask you this. Suppose I am telling you why should I really care about TC's. I can throw all the TC's away and I can throw all the paper away and I go out and I have the as-built and I do my calculation on the as-built. What is wrong with that? I am analyzing the hardware. Why should I care about what is going on in between two points. You know, it won't affect the safety operation of the plant at all, will it?

MR. STOKES: No.

MR. O'NEILL: Here is one thing that I have seen recently in Unit 2 that could affect that. You put a hilti quick bolt in the wall and then you decide that you don't want that there. You don't remove it and you just cut it off flush with the wall. There is no documentation of that and you move an anchor an inch and a half away from it and put another one right there, an inch and a half hilti quick.

MR. YIN: What is wrong with that as long as you as-built it?

MR. O'NEILL: It is not as-built. That bolt is not shown on the as-built drawing. You see four anchors on the as-built drawing ---

MR. STOKES: It is under the plate.

and they are asking me, a Pullman inspector, to document the depth of this hole that they hit rebar in so that they can make that when they epoxy group it and drill next to it that they are going to be drilling an inch and a half deeper than that epoxy grouted hole.

Now the problem I saw the first time they came to me with this is there was no documentation that I could put a QC inspection on. There was not approved for construction drawing and no approved special process sheet by the QA manager that I could tell, and it was just an uncontrolled operation.

There are holes all over the floor and I have got a couple of pictures of them here, and I wrote on this particular one, I wrote a DR. On that DR, I wrote that DR on February 29th and it to this day is not dispositioned.

Okay, these pictures aren't too good.

(Pictures handed.)

Again, this is a sprinkler hanger, but I can tell you there is a whole lot of safety related hangers that are done this exact same way right here.

You go down in the GL/GW area at 85 elevation of Unit 2 in the auxiliary building and look at the floor down there and you will see many, many holes drilled in there.

MR. STOKES: I personally quick fixed a support

MR. O'NEILL: Okay. This was in response to a memo that I wrote on the 8th to my supervisor asking what is the extent of Pullman's participation in light of this form.

My supervisor writes back and says "After discussing the C-51 form, Rev. 215-84 with Harold Karner, the QA/QC Manager, he showed me correspondence addressed to PG&E questioning this form and Pullman's area of responsibility, this letter dated 5/3/84."

That doesn't answer my question. That says he sent a letter to PG&E. A week later I still haven't gotten answer on this question.

MR. YIN: Isn't it a fact that all the bolts have been either tested or maybe approved tested?

MR. O'NEILL: Okay. We are not even driving bolts yet. What these guys are out doing is they are just drilling holes, and now we have got a memo from PG&E.

Again, everything out there is done on memos. This memo is dated March 1st, '84 to R. D. Etzler from G. B. Kranston of San Francisco Project Engineering, and the highlights of this memo are that, "Note, if carbide tip bits are used and drilling is stopped as soon as reinforcing bar or other embedded metal is encountered, there is no requirement to inspect for damage since carbide tip bits for masonary use only will not cause any

MR. YIN: Well, now you insist, you know, knicking it. Now knicking it, now you can consider it damaging the rebar.

MR. O'NEILL: To me knicking the rebar doesn't seem to be that big a deal either ---

MR. YIN: That is right.

MR. O'NEILL: --- but our procedures says knicked or damaged rebar has to be identified. So they are going right around the procedure with, you know, with drilling these layout holes and not documenting any kind of inspection and not documenting where the hole was drilled.

Now I feel if you are going to drill all these holes you should as-built where you can dry pack the holes in there and there is no requirement for that.

MR. YIN: Well, I grant you that in some sites they may have more procedural control as well as locating the holes, drilling the holes and so forth. But I think the final analysis is still relying on whether or not the bolt will take the load. So if you meet the torquing requirements you will meet the bolt test requirement and what else do we care. If it doesn't look too good, well, that is too bad. If it can take the load, well, that is why we care, right?

MR. STOKES: How do the torquing figures

MR. YIN: Philips and the hiltis, the wedge type, right?

MR. O'NEILL: Right.

MR. YIN: Okay. The wedge type, we had a long discussion in 1979 in regard to the 7902 bulletin of how we resolve it, and it was the staff position to accept the torque testing as a proofing of the loads.

MR. STOKES: I have got several papers on torque proofing ---

MR. YIN: Well, I know for sure that you can lubricate a bolt and unlubricate a bolt and the factor is two to one, right? I know that.

MR. STOKES: Yes. But what I am saying is if you want to accept torque proofing, I think you should have specific criteria that you have accepted allowing that practice to be ---

MR. YIN: Well, isn't it in the procedure that you torque test it?

MR. O'NEILL: We used to set them where you drive it in the hole and then you would torque it up and make sure that you got three to five turns of your nut on the bolt. The new revision in the EDS only requires that that bolt be driven down into the hole and that it be torqued to the torque that is specified on the drawing. That is the torque test right there.

MR. O'NEILL: We don't test torque anything. We drive the bolt in the wall and we torque it to whatever is specified on the process sheet.

MR. YIN: Who torques it then? Does the QC torque it?

MR. O'NEILL: No, the fitter torques it, and that is another thing that I am glad you brought that up. We have got a situation out there on thru-bolts where every time you put a thru bolt in there is no procedure for thru-bolts and there is no requirements that tell you how to inspect those holes or what you are looking for or anything on that. They torque them a different way every time they put them in.

I have seen three different ways that torquing has been done on thru-bolts out there. They have the AISC definition of snug tight, which is the normal effort of a normal man on a wrench which in structural connections may be fine, but they also use that to torque pipe flanges out there, too.

I don't know what kind of analysis they have done on that, but when you have a bolting process sheet and right there in your specification it says you torque with calibrated torque wrenches, they come out with a sheet that says torque this fitter tight.

MR. YIN: Before you go further here, I am not

X-ray on that line.

MR. YIN: What kind of bolt is that? Do you have a duct on the other side or how does it work?

MR. O'NEILL: They have used double nutted studs or they used bolts. You know, to me when you put a bolt on a drawing that means you have got a hex head on it and you have got a shank and you have got a threaded portion down here.

MR. YIN: Well, wait a minute. Your thru-bolt, one side is a stud and you have got a bolt head.

MR. O'NEILL: Right.

MR. YIN: Then you go through it and you have a double nut on the other side.

MR. O'NEILL: One nut.

MR. YIN: One nut, all right. To me that is a sure thing, right?

MR. O'NEILL: It is a sure thing, but you don't have any procedures that cover the use of it, where it should be used. Thru-bolting out there is kind of used as, you know, like I say, that is where I got involved with it on this.

MR. YIN: Well, wait a minute. Let's think about this a little bit.

MR. O'NEILL: There is a thru-bolt situation.

(Documents handed.)

they put A-36 material, the same diameter. They made no difference for the increase in loads based on the weak material being substituted because there is no criteria. There is absolutely no guidance on how to design thru-bolts, what you are doing when you do a thru-bolt configuration or how to quick fix a change to a thru-bolt where you have to substitute weaker material.

They don't tell you that you should limit a thread engagement just down to the concrete. They don't tell you that you can thread the entire rod. If you used the entire rod, they don't tell you that the threads should be included in the sheer. They don't cover those aspects of them and they are not typically within AISC because they are looked at as strange bolts. You need specific guidelines saying that those sections apply.

MR. O'NEILL: I have seen quick fixes where they write in there for information this is an AISC 7th Edition bearing connection and that is where they use the snug tight to tighten it.

Here is the quick fix that Charlie is talking about.

MR. SAFFELL: Is this on this support 2-47R?

MR. O'NEILL: 2-47R. It is TC No. 19592 where the change was to go to an inch and a quarter A325 bolt.

Well, I was personally involved with this

It appears they were aware, but as I remember, they did not ---

MR. YIN: Well, it kinds of brings me up another concern. Is the designer really aware of the fact that it is only 10 inches thick on the slab?

MR. O'NEILL: The designer was probably not.

Here is the other TC that came along with this in work, TC 113002, where they accepted as is the A36 installation.

Now what I did is when they came up with the A36, I said, okay, that is fine and I put a hold point on there for QC to verify installation of the permanent A325 thru-bolts.

The field engineer in charge got that guy on there, Kemp Bell, to say that the A36 was all right and he lined out my hold point on the process. Per this TC now they have gone from A325 down to A36 of the same diameter and they have reduced a considerably amount of the sheer that that support can take.

MR. YIN: Well, you are talking about, like the one that we just looked at, that a one and a quarter inch bolt requires a 10 and a quarter inch penetration.

MR. O'NEILL: For a hilti quick bolt.

MR. YIN: For a hilti quick bolt. It seems to me that the bolts are really tremendous.

contradicts another and you are not sure who wrote whose first.

MR. BOSNAK: I have a follow-up question and this is probably a fairly important point. With respect to the quick fix, when there is a problem and they write a quick fix for the problem, you say they tell the QC people to stay away, but sooner or later they will have to come in because we have seen those kinds of things where the quick fix may go back to or three times and you may have two or three changes, but sooner or later it has to go through their final process. Then we look for supposedly the DR and the DCN by Pullman.

Now how does that get in there or doesn't it get in there? Again, you are QCing the final change and how does that happen?

MR. O'NEILL: In a situation like this it is considered to be in work and it hasn't been even -- you haven't even gotten to the workmanship inspection here. So they have considered anything that is done on a TC before workmanship at the time this was done -- see, they revise the procedures so often, too, that you don't know what you are working with from week to week.

MR. BOSNAK: But after it gets done, then how does it get the TC?

MR. O'NEILL: Okay. If a TC were required after

You know, if you look through my inspection data, you will see many times that I have sent drawings back to Engineering for no reference to TC's on the approved for construction drawing.

The only time you look at that to make sure that that TC has been incorporated is at your final workmanship and now under our new system it is at the final inspection stage.

MR. SAFFELL: And what do you use in that final inspection stage and what does your package consist of? It consists of the TC's?

MR. O'NEILL: Well, yes, the TC's here. There was a big push there right in August in Unit 1, and I have got the memo on that somewhere here, that they changed procedures in midstream and said that from now on you don't inspect the approved for construction drawing against the as-built to make sure that those TC's have been brought forth. All you check now is the as-built drawing of what is on the wall. You don't look at the approved for construction drawing.

MR. SAFFELL: So let me make sure I understand what you have just said. So what you would inspect against, you would use the TC's and the as-built drawing?

MR. O'NEILL: Okay, I will break this package down for you. Usually the final package that you do your

site so we can verify it with some other people whether or not ---

MR. O'NEILL: The normal practice up until approximately a month ago was that you go out and you do a final workmanship inspection with the approved for construction drawing that the craft is working to. That is your QC documentation package. When you get done with that inspection, and unfortunately the one side didn't copy here, but you have got a field process sheet that you sign off specific items on that sheet and you leave two blanks blank and you leave the bottom signature blank.

MR. SAFFELL: Do you have TC's? So far you have told us under the old system you had approved for construction drawings and a field process sheet.

MR. O'NEILL: Your TC's are a part of your design drawing. Now any TC's that were generated are included in that approved for construction package and are considered a design drawing. In fact, that is the latest revision of the design drawing. That is your approved for construction and you do your final workmanship.

MR. SAFFELL: And does that get redlined?

MR. O'NEILL: Right. That drawing goes to as-built who takes and comes up with the as-built drawing, and they are supposed to list all the TC's on the front of this drawing so that they have got a history of what has

MR. O'NEILL: On-site QA, yes, and then if they accept it, it is an accepted package that is transferred to PG&E.

MR. SAFFELL: Okay. Now you said that was the system in place up until a month ago.

MR. O'NEILL: Right.

MR. SAFFELL: What changed?

MR. O'NEILL: Okay. They have put a whole lot more heat on the craft and the engineer to take care of all of the problems before it gets to the QC final stage. Now when we do the final inspections, we still do in process hold points, but once the workmanship is done the foreman has to take responsibility before he signs the sheet saying it is good and the engineer also inspects it. That is the way the procedure is written anyway and that is the way it is supposed to be done.

I will tell you the say it is done. The foreman sits at his desk and does his inspection and signs off the sheet. The engineer generally is not qualified to inspect welding or doesn't even, you know, most of them aren't aware of what quality welding looks like or code compliance welding.

MR. SAFFELL: Is the package the same?

MR. O'NEILL: The package is the same, yes. You have got the approved for construction. But then right

installation. In these cases you will then be required to research the package and get the proper authorization." And they list a TC right there as being proper authorization to accept deficient conditions.

Well, you have already got a procedure that tells you what to do with deficient conditions.

MR. SAFFELL: Okay. But what I hear you saying is that there has been, and I want to make sure I understand this correctly, that there has been in your eyes an improvement in the way that as-built configurations are inspected from a procedural standpoint, that is the fact that one person, one operation does it as opposed to ---

MR. O'NEILL: They now are more in line with their procedure.

MR. YIN: Well, this is interoffice correspondence, right?

MR. O'NEILL: Yes.

MR. YIN: Is this a substitute for a change procedure?

MR. O'NEILL: That is procedure right there.

MR. YIN: Well, that in itself is considered unacceptable.

MR. O'NEILL: I have brought that to their attention many times and it doesn't seem to do any good.

is saying in some periods he did and in some periods he didn't.

MR. SAFFELL: I missed that. I didn't hear him say that, because what I heard him say was that before and after the same steps were followed.

MR. STOKES: Except this memo says you don't have to look at the TC's.

MR. O'NEILL: Yes. See, this memo ---

MR. STOKES: So they had the package, but they didn't look at the package ---

MR. SAFFELL: All it says is the QC inspectors look at the package. It doesn't say that it is not going to get looked at, whether it be by engineering or by QA.

MR. STOKES: Well, pre-inspect may have looked at it, but they are not QC or QA.

MR. O'NEILL: But, see, it is the context of when this came out. This is when they were trying to get all these hangers green tagged for fuel load. It was a real hectic time right around then. They were bringing up inspectors and making visual inspectors out of guys that came out of NDE school in Minnesota with no previous qualifications. They would take a test, an open book test on ESD 223, pass a visual or a performance welding thing, and in case they had the test answers right there on the table for some of the other tests.

the previous procedure, which had QC reviewing these as-built drawings comprehensively, was yanked, and it was yanked for a month and a half and then they went back to it. What happened during that month and a half? Had they been preparing a program where new personnel were trained to come in and adopt that new function? We don't know.

MR. SAFFELL: Well, I think Jim said he did know. He said that there were a number of rejects coming back from QA which says that somebody was in fact doing that very thing.

MR. DEVINE: Somebody was doing some work.

MR. SAFFELL: If the rejects were coming back, and I am not going to hypothesize or why they went back to the original procedure, but it does say because there were rejects that somebody was performing that function and that the rejects were coming at a later point in time, this is what it says to me, rather than the earlier point in time.

MR. O'NEILL: Well, I think the most important point that this memo makes is that QC when they see obviously discrepant conditions they are now supposed to research the package and get a TC to accept that condition which is a violation of your procedure right there.

MR. SAFFELL: Where does it say that?

MR. O'NEILL: Down there at the bottom of the

DR-4730 in Unit 2 and DR-4678 in Unit 1, generic DR's, were written to document existing unacceptable weld conditions in supports. This form was what you would use to document those conditions on.

(Document handed.)

Now I am not sure how it worked. From the time of this memo, April 7th, which is entitled "The Temporary Policy Change For Pipe Support Pre-Inspection," okay, that temporary policy change and in the ESD's as well shows that there is no written procedure for pipe support pre-inspection.

When you are looking for deficient welds, I would think you are engaging in quality related functions that should come under the realm of Appendix B and require written procedures.

MR. YIN: Well, let me go back to what I have said previously. Unit 1, we know the QA program has got a lot of holes in it and we knew that. There is really no need to beat a dead horse. Is there anything that continues to carry on, things as usual, for Unit 2, the work that is presently going on? I think that is important.

MR. O'NEILL: The present pre-inspect program out there right now, they have taken away all welding inspection. You know, it is kind of hard to just tell you

MR. YIN: Before we jump into any other subjects, I would like to make a request to the staff to really take a look at the hanger, 2-47R. This is part of the TC 1-9121.

MR. BOSNAK: That is diesel generator exhaust?

MR. O'NEILL: Another thing you might look at when you go out and look at that hanger ---

MR. YIN: TC 1-9121.

MR. BOSNAK: That one I didn't get. Okay.

MR. YIN: And also TC 1-13002.

MR. BOSNAK: I have got that one.

MR. YIN: Now my concern in this particular area involves, first of all, the floor slab was damaged. In one case they specify a one a quarter inch hilti quick bolt with a 10 and a half inch minimum embed. So obviously you cannot achieve that. So it is changed to a thru-bolt configuration.

In other incidents for the same support, the 10 and a half inch minimum embed was changed to embedment for nine inch, and this is okay by San Francisco. I am not too sure technically this is acceptable because this is a considered a large bolt in an almost through-wall configuration. That particular configuration, I am not aware that they have ever tested to that situation.

MR. SAFFELL: You mean that high a percentage of

MR. YIN: Yes. For all practical purposes it is like through the wall already because it is such a sort distance. The concrete is already cracked and sometimes you have to through it a little bit before you can set it. So for all practical purposes the drilling is through wall, but the bolt is not. So I think the staff should take a look at that.

MR. DEVINE: Isa, that leads into one of the affidavits that I brought tonight. It was from an anonymous witness and concerned a problem with hilti bolts that were 10 and a half inches that were in 12-inch walls and a second problem with hilcy bolts that were embedded from opposite sides of the same wall and very close to each other.

In each case the witness reported that there had been cones popping out of the concrete and they were repaired with dry packing.

MR. O'NEILL: I am familiar with that. That was on the back side of the wall.

MR. YIN: I would imagine it should be popped out because it is such a short distance.

MR. DEVINE: The upshot of this is that these problems were recorded on TC's, on quick fix sheets. The whistle blower followed these through to the relevant as-built drawings and there wasn't any reference to what

imagine the majority of the cases, if you had the proper as-built, you would do the as-built evaluation and you can assure yourself that the thing will work or not, right?

MR. DEVINE: If the as-built tells you the information you need to make that evaluation.

MR. YIN: Well, that has been QC accepted.

MR. DEVINE: This is his DCN.

MR. O'NEILL: You have got as-built tolerances. There are as-built tolerances on a lot of things like member length changes. You can change a member length plus three inches, minus 12 inches and still be within your requirements.

MR. YIN: Well, that is all right because it is already engineered to accept it the way it is.

MR. STOKES: I would like to make a point on this engineering bit about the bolts. When I was in the design group on the pipe supports, we did not have any information on concrete wall, slab or any other thicknesses in the plant. We assumed the slab was thick enough for whatever bolt we wished to put in the wall or slab. That is why these problems happened with 10 and a half and a 10-inch wall.

When I was in quick fix and the 12-inch wall got punched out and there is a TC written by me on it, I put thru-bolts in it after researching the intake drawings

I am not sure what the exact figures are.

MR. STOKES: In relation to your question, at Gaithersburg we checked penetrations where pipes came in and turned all down three side walls and all the supports were on one wall. We had a two-foot wall and all the supports were on that one wall. When they did the stress counts for the wall, they needed steel plate a half inch on both sides of the wall to take the load sandwiched because the wall was overloaded.

At Diablo Canyon a lot of the walls are not two foot. Many are 18 inches, 10 inches, 12 inches. Those same counts, to my knowledge, have never been performed on those structures.

MR. YIN: Right. While I was listening to you, I was also thinking. Furthermore, I think the staff should also review the cumulative effect on the wall because it bothers me when you have such big loads and perhaps you have more than one support on the same wall, such thin wall, that the cumulative loading on the wall may be a problem, too.

MR. O'NEILL: Or on the sealing two sides of the wall.

MR. YIN: So let me summarize the three areas I would wish the staff to take a look at. The ratio of the bolt, the embedment length and the wall thickness appears

MR. KNIGHT: Let me ask just one other thing. This inch and a quarter bolt we are talking about, do you know offhand what the actual function of the line is?

MR. O'NEILL: It is the exhaust stack for the diesel generator.

MR. KNIGHT: So we have an inch and a quarter bolt on the exhaust line of the diesel generator?

MR. O'NEILL: It is the base plate on one of the supports stacked up. These lines go all the way up to the top of the turbine building. They are big, heavy steel lines.

MR. STOKES: Those lines grow in the neighborhood of six inches at the roof, and I am aware that at one time they had ignored the fact they grew so much and they actually punched through the roof material of the turbine building because normally they were considered that growth. It came from the engineers who were working on redesign of those supports for that line.

They are very heavily loaded and they are off the side of the turbine building sufficiently that structurally they are very hard to support. They in effect had to build frames low down and further up the side of the building they actually put extra beams in the turbine building to get steel to support the pipe off of sufficiently. The loads are quite substantial on that

thick and they had in the neighborhood of 16 hilti bolts on some of the original designs of inch and a quarter and 10 and a half inches deep. That says there is a lot of load there. They are boxed in between the walls even. So to move it they would have to knock out a wall, but they are very heavily loaded.

MR. YIN: As far as the programmatic, the QA procedure type, unless you have any new information, we more or less summarized that there are some problems involved and we have caused them to change quite a bit of the procedures and so on.

MR. DEVINE: Isa, I would question that. I would challenge how much things have changed.

MR. YIN: Well, right. If you can show me that they haven't really done it, then we will be very much intrested to see why the corrective action has not been embraced. For instance, you mentioned the training is still kind of unacceptable and they still throw you a bunch of paper and you have to read it and ---

MR. O'NEILL: They feel it is acceptable, you know. I don't.

MR. YIN: For those areas bear in mind two things. Be specific and, secondly, anything new or if anything is the same old habit and still exists ---

MR. DEVINE: I would like to read you from a

MR. YIN: It is not design change notices. It is actually a non-conformance report.

MR. DeVINE: This is a minor league non-conformance report.

MR. YIN: Okay.

MR. STOKES: In house so to speak.

MR. DeVINE: The inspector had written it by saying I want to know if there have been calculations on this and have the side effects of this deep embedment been considered.

A May 21st memo from Mr. Karner, the QA Manager resolves this by saying "Since this DCN addresses only questions or concerns, a discrepancy report has not been generated. Receipt of this letter will serve as the method for Pullman Power Projects to close the deficient condition notice."

No one has been back to this guy. He has been working on this now I guess for about a year in a series of DCN's. Nothing has happened. This is as of yesterday for Unit 1 bolting.

That is part of the reason why we don't share the confidence that the corrective action is being implemented and that they have learned their lesson that it is new world out there.

I am just not getting those reports from the

hang green tags and that we want production out of you? Can you give names and quotes and citations? Do not refer to "they" because they cannot be traced. You have to be very, very specific.

MR. O'NEILL: I could come up with specifics on that, yes. That is the general attitude in the QC Department.

MR. SCHIERLING: But with general attitude that is very hard to trace. We realize that you being out there and being at the plant day in and day out, that you are close to what is going on. We do not see that and the only way we truly can go and follow up on that is by not looking at general statements. That is very, very hard to do.

MR. DEVINE: Mr. Schierling, it is very well taken and he has answered yes, and we will work on it.

MR. O'NEILL: I am not prepared tonight to give you those names and statements, but give me a couple of days and I will have them.

MR. DEVINE: I would like to go one further even on this DCN on the hilti bolts. The anonymous witness told me that the first response to writing his DCN was to instruct him to change it from a DCN to a memo. I don't know how many weeks ago that was because I don't know when the things was authored. But that doesn't strike me as an

working on these issues.

I think that is why we are starting to spill over a little bit past our boundaries, and your point is also well taken. We came prepared to talk about design issues.

I think one of the most unfortunate things about quick fix is that it covers both QC and design issues that are normally handled in separate worlds. It has almost been a merger of what are usually separate disciplines and that is why some of this stuff comes up in them.

MR. YIN: Well, if you do not consider Region V's attitude and response is adequate, there are certainly channels that you can raise the concern with.

MR. DEVINE: I am sorry?

MR. YIN: There are channels, and you may know better than I do, that you can ---

MR. DEVINE: We have made requests for all those channels.

MR. YIN: Right, but still we cannot completely write them out of the picture. You know, we still legally within the bounds of our responsibility.

MR. DEVINE: I understand that.

MR. VOLLMER: You have applied, but have you written something specific saying that Region V did not

top there depicting the actual condition of the way that U bolt is installed. You will notice you have got a nut hitting into a weld and you have got it also bearing on half of the shim plate that the weld is drilled to.

Now that is shown on the as-built drawing, but it isn't shown in the detail that is shown right there.

MR. YIN: I see. So what you are saying is the fact that in some cases the as-built drawing does not reflect the actual installation conditions. Is that the issue?

MR. O'NEILL: Not all the details. You can check that for yourself. Let me show you the as-built on this.

MR. STOKES: They are not as detailed.

MR. SAFFELL: That is Unit 1?

MR. O'NEILL: That is Unit 1 diesel fuel oil system. That is your as-built view of that situation.

MR. YIN: I see.

MR. O'NEILL: If I had been adamant about him putting that on there, that wouldn't even be shown on that TC.

MR. YIN: Well, I think the staff should look into this one.

(Document handed.)

MR. YIN: Now again, is this some kind if an isolated case, or it is really like five out of ten. Are

logidity?

MR. STOKES: They analyze it as a full plate typically. They analyze it as it is a complete plate typically.

MR. YIN: Even with partial ---

MR. STOKES: Even with partial pen welds. They have no method in the base plate program to distinguish that there is a line across it where the section module is affected. So it is strictly modeled as one continuous plate and it may not function as one continuous plate. Even using ANSI you had a problem modeling that because you had a limitation on how wide a segment you could have there to represent that section before you had a modeling configuration problem. Even ANSI wouldn't model in a weld on a plate as a weld. You either had to make it wider than it was, or you couldn't make it just a line.

MR. YIN: Well, how many situations are like that, because that is certainly worthwhile to look into?

MR. O'NEILL: There are two that I know of right there.

MR. YIN: A full penetration weld or partial?

MR. O'NEILL: That is regularly done. I have seen plate that is shown. This is on the RHR Unit 2 containment sump recirc line to the RHR pump where there are two base plates with the support members attached to

has been leveling nuts. You put your nuts on and level the plate. You use shim blocks thinner than the height of the plate raises to on the nuts and you pressure grout it so that it actually forces it up against the nuts off the shim blocks and it is on the grout.

At Diablo Canyon they torque the bolts down on those shims and then grout it and the grout literally doesn't take any load. The steel is much stronger than the grout.

MR. O'NEILL: That is your as installed use.

MR. YIN: Well, the positioned nuts is always there and sometimes they use little studs, and that is very common. But you are talking about actually bolting it down?

MR. O'NEILL: That is torqued down right onto this plate.

MR. YIN: Then you don't really need the grouting. The grout is really something extra.

MR. O'NEILL: That is to keep the water out.

MR. STOKES: Well, they had to put the grout in it because if you did an analysis on those old shim blocks you will find that you are exceeding your bearing capacity stresses on the concrete from the shim blocks. So they put the grout in it so you don't ever see those shim blocks and you see your analysis based on your bearing stresses

right? There is almost no failure of bolts from compression.

MR. STOKES: The other thing about these shim blocks, they are considered in the implication of the compression loads on the cone of the anchor bolts. In other words, if you have a hell of a load coming down here and then you have a cone here, I contend they have never analyzed that system as to what it does. If they look at the concrete here they would have an overlap that is complete.

MR. YIN: Well, the loading cannot be simultaneous. See, if you pull this thing up like this over here, then this load does not exist because it relieves itself.

MR. STOKES: If you torque the nuts down, you combine a tension load on the bolt with a bearing stress to the concrete from the shim block.

MR. YIN: If this thing really happens it should show. This is already cracked and the bearing is lost and the grout is loose. So the fact is if you can torque this load to achieve the proper torquing, you know the counteracting is not really a problem.

MR. STOKES: I guess my problem, Isa, is the same problem you have with us. If I was more familiar with all of the transmitted information between you and PG&E on

GAP?

MR. STOKES: No.

MR. SCHIERLING: Send a copy of what?

MR. YIN: The procedures and all that stuff.

MR. SCHIERLING: Of everything that the staff receives, copies go to the Public Document Room, and everything that we receive from PG&E unless it is proprietary information is being placed in the Public Document Room, everything.

MR. DEVINE: Mr. Schierling that was the question at the beginning of the meeting, that there is I guess a notation in the transcript that says that certain more voluminous materials will have to be requested and that is why we were making the request, and with that qualifier of course you are right.

MR. STOKES: Well, at the last meeting you specifically discussed a new document, I-55, a new procedure, M-9 was discussed and ESD-223. I have a copy of what was the current edition of ESD-223. It has been increased roughly a third from when I was terminated at Diablo. Changes in that would be very relevant to any of the issues.

MR. YIN: Those procedures, you must recognize there are also commercial values, too. Many companies spend a lot of time to develop the procedure and they hate

my office or the NRC office or anywhere, that is no problem. We can fix that to your convenience. But it is important that you specifically request what procedure that you want. If you don't remember those numbers and so on, try your best to identify as close as possible what type of procedure you want to review and what area and we will try to get hold of a copy.

MR. SCHIERLING: We will think about that. I think we have to go and talk about that first.

MR. STOKES: Well, I am perfectly willing to sign a confidentiality statement that I won't copy it or use it.

MR. SCHIERLING: That will not do. We have to go and discuss it with our counsel.

MR. DEVINE: The other thing that is along those lines that we have agreed to with the Office of Investigations is that for certain documentation that they are not at liberty to disclose, that it could be reviewed under their supervision and that would be done, as you say, at the office or at the hotel room where they are working out of at the time. So that a copy would be reviewed but not transmitted and that whatever analytical challenges the whistleblowers wanted to make to points in that document, they could make on the spot. That might be more pragmatic for you.

right there.

MR. SAFFELL: Okay. This IC was an attempt by one person to address a situation which you wanted clarified here; is that correct?

MR. O'NEILL: Yes.

MR. SAFFELL: They are not two different things.

MR. O'NEILL: No.

MR. SAFFELL: Okay.

MR. O'NEILL: The design doesn't show it like that, and when you put shims on something, if they are less than a half inch thick per the procedure, you don't have to as-build them. That is why they are not shown on the as-built.

MR. YIN: Isn't that condition really a non-conformance condition?

MR. O'NEILL: I don't know myself.

MR. YIN: Well, I don't think that any design was originally designed that way.

MR. O'NEILL: I don't either, but now that it is on this quick fix here, it is the design drawing and I can't ---

MR. STOKES: I can answer that question. The shim blocks should have been welded on the ends opposite the U bolt installation and the nuts should not have been placed on the welds because the welds shouldn't have been

can an acceptable bolt pattern on there.

They have come up with fish plates for the holes that are oversized, but the problem is now the fish plates are out of the ESD tolerances. A fish plate is a plate that you put over a oversized hole to make it the right size hole.

MR. YIN: All the little details, I am not really concerned about, but the one particular item, the wing plate, I am going to make a request to the staff to look into it. How can you analyze the base place, you know, where there are incomplete penetration welds and concede that it is a full plate and how are you going to check the piling effect and how are you going to check the rigidity effect of the base plate and so forth?

Are there many situations like that?

MR. O'NEILL: Yes. I have seen that I can see right now, I worked on one the other day. It is kind of interesting. The plate that they were using wasn't a standard thickness of plate.

MR. YIN: Let me ask also one thing. When you are welding those wing plates, was that removed from the wall or do they just weld right on it?

MR. O'NEILL: Sometimes you weld right onto it.

MR. YIN: Don't you worry about burning up the concrete?

as meeting that criteria, I serious doubt.

It is not addressed by the criteria and it is done quite frequently. They will have a procedure for removing hilti quicks that don't torque or they won't move for some reason, and because they don't have it, they typically cut it off and leave it at the place.

MR. KNIGHT: May I ask what if your opinion would be the purpose of the dry packing or filling the hole?

MR. STOKES: To provide a means for transfer of the compression stresses in the concrete which you typically analysis for as a cone failure. Dry pack would be assumed as being the same medium as the concrete. A shell, if it is steel, is a means of transferring the compressive stresses in the concrete around the shell. A hilti quick because of the voids everywhere, except where those little expansion clips exist, is not going to transfer any load because it is void around it. You have to have failure of the concrete before it will compact enough to transfer loads to the next concrete. They are not the same.

MR. KNIGHT: These areas, these are abandoned holes?

MR. STOKES: Yes, like we were pointing out a while ago, all the drilled holes.

MR. KNIGHT: I would offer that in a number of cases there is no structural significance to even a fairly large number of holes, but what you do want to do is plug the hole so that you don't have a place to pick up dirt should contamination become a problem.

MR. O'NEILL: Well, if you have that hilti quick bolt now in there and it has never been set ---

MR. YIN: Wait a minute. We are talking about several things now.

MR. DEVINE: I think to get back to his question, if there were a significant number of cases where the bolt was left in the hole and just cut off ---

MR. YIN: Right. We also have to consider the definition problem. When you talk about shell type, are we talking about that a real shell, I mean a one-inch thick ---

MR. STOKES: I don't talk about shell. I talk about a slug being placed in a hole with an expansion round thing being driven into it adverse from an insert with a sleeve on it like hilti quicks, the little sleeves, the sliding sleeves. I consider that a stud and not a shell.

MR. YIN: It is pounded and then expands in the air. That is the kind we are talking about?

MR. STOKES: As shells.

MR. BOSNAK: --- or maintaining the edge distance, then it would be perfectly all right.

MR. O'NEILL: No, you are not maintaining either of those. You are not maintaining either of those. The case I came up on, they had a base plate where the anchors were installed. These holes were drilled by the layout crew and it was on a ledge. There was a concrete ledge here, something like this. They put these anchors in and then they realized that their base plate wouldn't fit there and it hit the wall.

So what they did was they cut these anchor off flush with the wall and moved the other anchors, in fact they did this will all four of them, to where there was like about half an inch of concrete edge to edge on the two anchors. This became your good anchor.

I asked the engineer in charge if this was an acceptable procedure because I said that anchor by the definition of the spec should be expanded. I feel that anchor is not expanded unless it is torqued and those clips are brought up into the concrete.

Charlie tells me that is not an expansion in the term of the word expansion anchor, but they call them those cut there.

My concern is like you say, this would act as an edge for this anchor that is the good anchor. I asked

if the same thing occurs, and I am saying if because the TC's were not looked at to see if they existed in conjunction could cause a problem. They may torque initially because I haven't looked at the torque requirements, but they may not be there 10 years down the road after it has been loaded to do the several changes in the systems, up and down, hot and cold, from loading the fuel.

Those situations, you know, if they had a program where every five years they went in and rechecked all the bolts to see if there has been a change in what is there, I would feel a lot more comfortable.

MR. SCHIERLING: Can we go off the record for just a second.

(Discussion off the record.)

(Recess while the parties caucus.)

MR. SCHIERLING: We will go back on the record.

We caucused briefly and have come to the following conclusion which is hopefully acceptable to you. I think the evening is late and we would like to close the meeting out at this time.

From the past discussion it appears to us that most, if not all, of your concerns that you still have fall into the area of quality control and we believe it is appropriate to rethink our approach to that aspect.

be helpful in whatever agenda you wish to prepare to identify those things that will deal with Unit 1 and those things that will deal with Unit 2.

As Hans indicated, we would like to get a different group together to address the issues. That will include I think some of the people here tonight in case some of these have design implications or there are issues specifically dealing with design interface. But for us to be involved and try to deal with some of the issues we have talked about tonight, you just are not really talking to the right people and we need to take steps internally to assure that you talk to the right people and these are handled in the apropriate way.

Again, your offer to write down specifics will be very helpful to us, Tom, and as soon as that is possible we would welcome that. I know it is quite a job.

MR. DEVINE: We would be pleased to take it on.

I have a few questions.

One is what is the time frame that we are talking about so we can plan our own work?

MR. SCHIERLING: A follow up on this meeting?

MR. DEVINE: Yes, sir. I realize you are estimating.

MR. SCHIERLING: Yes. Probably in two weeks.

MR. DEVINE: The second question I had is one

will provide it to you promptly. Whatever steps Region V and OI are taking to release that information to you, from my point of view, it will be one NRC policy and we will likewise make the transcript of this meeting available on the same basis. So I have to check with the people what they have in mind, and we want to be consistent in that regard.

MR. DEVINE: Okay. I sure respect that. I just to re-emphasize that we can do a better job if we are not working quite as blindly.

MR. SCHIERLING: Absolutely. On the same item, let me ask you if we were to make this transcript available to you, would you be able to go through the transcript and clean it up in quotation marks such that it could be released on Board notification? Would you be able to do that?

MR. DEVINE: Yes, sir. In fact, I have made that proposal before. Our concern, of course, is confidentiality slip-ups, and we would take on that responsibility.

MR. SCHIERLING: Okay. So why don't you give me a call early next week and I will let you know where we are standing.

MR. DEVINE: Sure. The third question I have is one that was a late breaking developing that led to this

MR. BOSNAK: We are in San Francisco.

MR. DEVINE: We will be going back down to San Luis Obispo tonight or so.

MR. SCHIERLING: And this is the only copy you have?

MR. DEVINE: Yes, sir. That was the reason for my question.

MR. BOSNAK: We took notes on what you said, but it is a lot better to have a copy.

MR. SCHIERLING: The only way I can see it that you can give it to us at the airport tomorrow morning when we arrive there or tomorrow night when we leave.

MR. DEVINE: When are you arriving and leaving?

MR. SCHIERLING: We arrive at 8:40 and I am currently scheduled to leave at around 7 o'clock again tomorrow night.

MR. DEVINE: I think we had better shoot for that one, Mr. Schierling, since I am not sure the services will be open by the time you arrive.

MR. SCHIERLING: Okay.

MR. DEVINE: The fourth question that I have on my list here is connected with that. The witness gave me enough information to write up this summary, but as he called up to follow through on it, I of course was pushing to see if we could make the record more complete. He

MR. KNIGHT: It seems to me that in order to keep what is a very multitaceted review going here with any sort of order, I would like to say that Hans as the Project Manager will be the point of contact.

MR. VOLLMER: These are again Unit 1 issues, Tom?

MR. DEVINE: This is for one particular issue. It is the bolting issue that is alluded to in more generalized fashion in my statement. It is the evidence behind it.

MR. VOLLMER: We are certainly interested in all issues, but clearly our charter right now and what we are trying to accomplish deals at this point in time with Unit 1 and the particular makeup of the crew.

MR. DEVINE: These are Unit 1 issues.

MR. VOLLMER: So if you can get Hans the documents, we can get the correct people to get involved in it.

MR. SAFFELL: And are they issues that are similar to the ones we have discussed tonight?

MR. DEVINE: Yes, I introduced these issues this evening. This was Tim's meeting, but there was one point that I wanted to share with you since I raised it. I have summarized it in writing, and while the documents aren't available for me, they are available for you and I want to

have got eight NRC representatives here who are quite responsible officials who have apparently come to some contrary conclusion.

For me to be able to summon two witnesses who are very nervous about talking to the NRC I have to be able to convince them that the representatives they are dealing with are interested in following through on these issues.

If it is the same people who came down from Region V the first time, Mr. Kirsch and Mr. Hernandez, they have already demonstrated that they are not interested in pursuing those issues.

We went through an exercise in April where the Commission directed Region V to return to some issues they weren't interested in and it was a complete waste of time and it left the witnesses very embittered about the process of working within this regulatory system.

I am requesting very strongly that there be technical people assigned to this who haven't already rejected the relevance of these issues. We think that their significance is becoming moot at this point, but we have to have an open mind in the forum that we raise them.

MR. VOLLMER: Let me ask one thing. Are you saying that the issues are not being considered by the Region? Have they been closed out in some way or have you

from the paper or there is anything that is not clear from the paper, it is not going to become clear or be part of the record and we view these statements as a starting point to work from rather than as the entirety of what we have to share with you all.

MR. VOLLMER: Okay. And that was precisely the reason for my question since it is not possible yet to tell how significant the we think the issues are until we see the documentation and pursue it further.

MR. DEVINE: But at least you are asking us for more and there is a follow through process here. We started and stopped in one evening in January on this issue with quick fix and it was discussed in detail then.

MR. VOLLMER: Jim?

MR. KNIGHT: (Nodding negatively.)

MR. VOLLMER: Anybody else?

(No response.)

MR. SCHIERLING: I think that is it.

Well, thank you very much for coming.

MR. DEVINE: Thank you all for your kindness.

(Whereupon, at 10:31 p.m., the closed meeting concluded.)

- - -

CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the NRC COMMISSION

In the matter of: Confidential Meeting

Date of Proceeding: Tuesday, May 22, 1984

Place of Proceeding: San Francisco, CA

were held as herein appears, and that this is the original transcript for the file of the Commission.

Mary C. Simons
Official Reporter - Typed

Mary C. Simons
Official Reporter - Signature