



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

MAT 6 84

Mr. Carl Czajkowski
Brookhaven National Laboratory
Upton, New York 11973

Dear Mr. Czajkowski:

Attached you will find a copy of the Office of Inspector and Auditor investigation report for Mr. E. Earl Kent dated April 3, 1984. This report is furnished to you for your independent review of the Kent issues. This report may be reproduced and used as necessary to assist you in performing your task. The contents of this report must not be discussed with anyone outside the NRC and only on a need-to-know basis. Please return this copy and all information pertaining to this report when your review is completed to the NRC, Region III. The purpose for this precaution is that this report has not been released by the agency.

You are also authorized to reproduce or take with you any information necessary from the Region III Kent files to assist in your effort.

Your review of the Kent issues should include those topics pertaining to the Midland nuclear facility as well as the generic issues related to codes, standards, Bechtel's welding procedures and past NRC inspections. At the conclusion of your review you are requested to issue a complete independent report detailing the scope of your review, findings, and conclusions.

Any necessary contacts with Mr. Kent or visits to the Midland site should be coordinated with the NRC Region office (myself or Mr. R. Gardner).

Should you have any questions or need assistance, please do not hesitate to contact me (FTS 384-5635).

Cordially yours,

J. J. Harrison

J. J. Harrison, Chief
Section 1D (Midland)
Division of Project and
Resident Programs

Attachment: As stated

36"

M-632 SH2 REV. 15/F1 (ELB)
FW 1

"A" DIMENSION
.296"

Pipe OD

AREA OF CONCERN
+ INDICATING BETWEEN
THE 9 & 12 O'CLOCK
POSITION, EXAMINE
POST.



1/16" MAX

NOMINAL WALL

2375

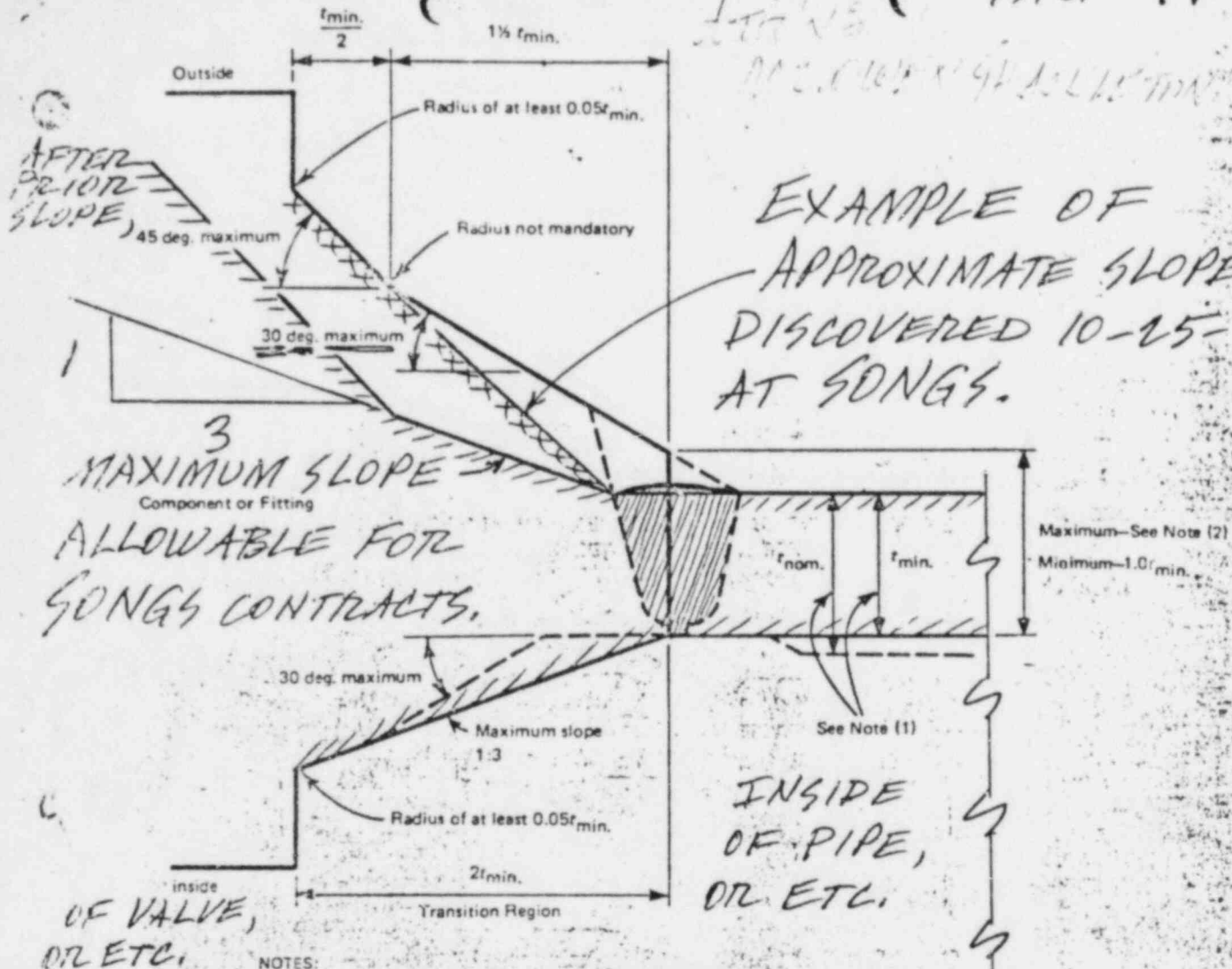
SYSTEM: 2 ELB-11

DWG: M-632 SHEET 2 REV 15/F1

FIELD WELD # 1

INSPECTION RECORD LOG # 40196

1. Yes. The results of the Bechtel program (generic issue of undersized welds accepted by QC personnel) were found to agree with the sample of welds inspected during the NRC inspection on 3/3-4/82, which also included three welds specifically identified by E. Kent in his discussion with the NRC. By comparing the dates, it can be seen that Bechtel QC was aware of deficiencies & had initiated corrective action prior to the date E. Kent was terminated. This was also prior to the date of the allegation.
2. No. There is a number of questions that have to be answered with the correct answer to pass the test in which E. Kent could not do.
3. Yes. That is part of the QA/QC job.
4. Yes. Work is reviewed by more than one person even if it is accepted the first time. It is not always accepted by the second person.



NOTES:

- (1) The value of t_{min} is whichever of the following is applicable:
 - (a) the minimum ordered wall thickness of the pipe;
 - (b) 0.875 times the nominal wall thickness of pipe ordered to a pipe schedule wall thickness which has an under tolerance of 12.5%;
 - (c) the minimum ordered wall thickness of the cylindrical welding end of a component or fitting (or the thinner of the two) when the joint is between two components.
- (2) The maximum thickness at the end of the component is:
 - (a) the greater of $t_{min} + 0.15$ in. or $1.15t_{min}$ when ordered on a minimum wall basis;
 - (b) the greater of $t_{min} + 0.15$ in. or $1.10t_{min}$ when ordered on a nominal wall basis.
- (3) Weld bevel is shown for illustration only.
- (4) The weld reinforcement permitted by NB-4426 may lie outside the maximum envelope.

FIG. NB-4250-1 WELDING END TRANSITIONS — MAXIMUM ENVELOPE

REGION: VISE

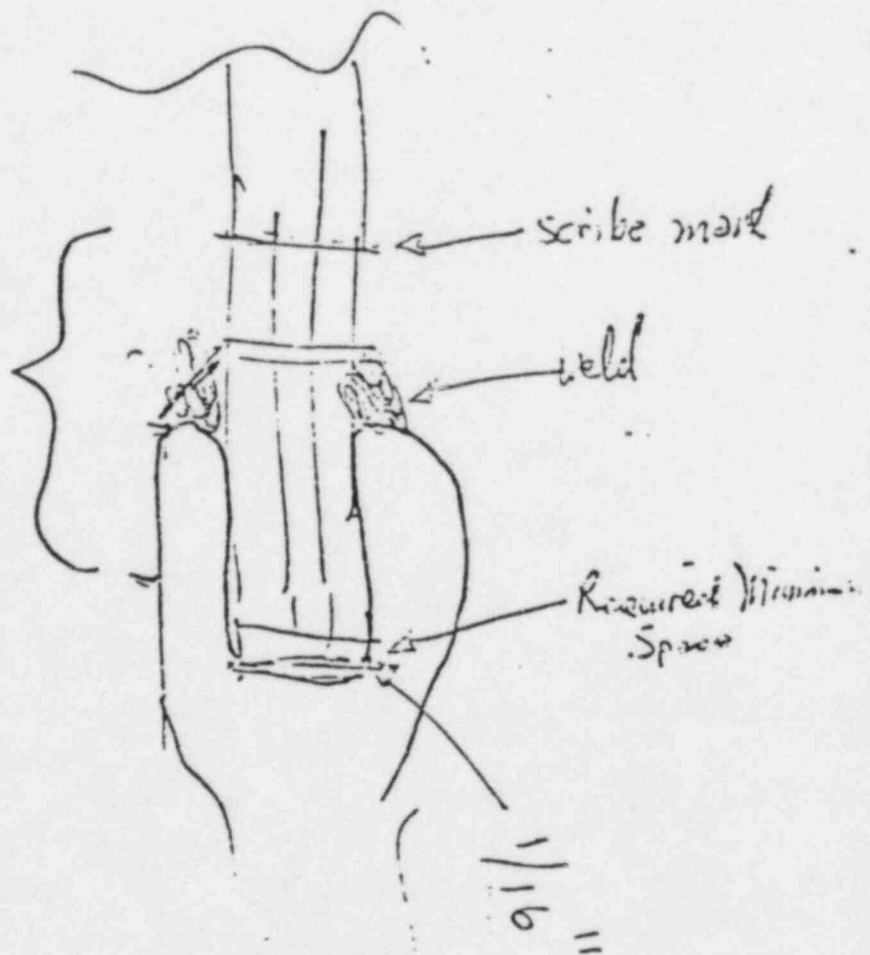
1982 NOV 12 PM 1:34

RECEIVED
NRC

G/20

S-36

Example of a
Socket Weld



E. E. KENT - R.V.
SAY ONORE

FOIA 82-528
CARPENTER

16607 55-131

17060 1-318

17061 1-55

17175 194-198

FOIA 82-618

17042 259-261

17493 7-45

18381 158-173

INTERNAL
(FORTUNA)

18893 - 150-165

NOTES w/FASTER

17493

041

G/22

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MONEY!**

**MAIL
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North American and International Correspondence Schools
Dept. PCS82
Scranton, Pennsylvania 18515

FIELD CHANGE REQUEST

PAGE 1 OF 1

FCR NO.

44900

DESIGN NO. 7220	DRAWING NO. THBC-222-1-H15	SHEET NO. 1	REV SYM. 0	Q ITEM YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	TITLE OF DWG- HANGER SKETCH
CHANGE PROPOSED FCR <input checked="" type="checkbox"/>	PREPARED BY AND DATE NICK EILF 12/28/81	CHANGE APPROVED YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	PFE SIGNATURE AND DATE <i>[Signature]</i> 12/28/81		DISPOSITION OF FCR REQUIRED BY DATE 1/15/82

REASON FOR CHANGE

HANGER CANNOT BE INSTALLED AS DESIGNED

EXISTING CONDITION

ITEM #1 & 3 CAN NOT BE INSTALLED BECAUSE OF
A 4" ELECTRAL GOUND. (INT6006). RAILWAY SYSTEM T/O DATE
IS PRIOR TO HYDRO DATE.

DESCRIPTION OF CHANGE

PROJECT ENGINEERING TO RESOLVE

HYDRO DATE 4/12/82

INTERIM APPROVAL BY RESIDENT ENGINEER:		SIGN. <i>[Signature]</i> DATE 1/28/82		AAO CONTACT DATE NAME	
OTHER DWGS OR SPCS AFFECTED	CIVIL N/A	ELECTRICAL N/A	INSTRUMENTATION N/A	MECHANICAL N/A	PIPING N/A
CHECKED BY FIELD LDE	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
CHECKED BY PE GR SUPV					
FCR <input checked="" type="checkbox"/>	APPROVED		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	PROJECT ENGINEER SIGNATURE AND DATE <i>[Signature]</i> 1/28/82
REMARKS HGR REDESIGNED, SEE REV #1					
G/24					

Hydro Inst GJ-CT-1-PT2

CONTROLLED
TABLE



FIELD CHANGE REQUEST

PAGE 1 OF 1
FCR NO. **M4877**

NO DWS NO

JOB NO. 7220	DRAWING NO. FSK 2HBC-254-1	SHEET NO.	REV SYM 1	CITEM YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	TITLE OF DWS PIPING
------------------------	--------------------------------------	-----------	---------------------	--	-------------------------------

CHANGE PROPOSED FOR <input checked="" type="checkbox"/>	PREPARED BY AND DATE NICK ELLIS 12/21/81	CHANGE APPROVED YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	PFE SIGNATURE AND DATE <i>[Signature]</i> 12/22/81	DISPOSING FOR REQUI BY DATE 1/5
---	--	--	--	--

REASON FOR CHANGE
PIPE CANNOT BE INSTALLED AS DESIGNED

EXISTING CONDITION
LINE 2HBC-254-1 HAS PROXIMITY PROBLEMS WITH 2HBC-255-1, 1HBC-255-1, ELECTRICAL BOX INS 909 AND LARGE BORE 2HBC-197-5 & 1HBC-306-5

DESCRIPTION OF CHANGE
PROJECT ENGINEERING TO RESOLVE

HYDRO DATE 4/11/82

INTERIM APPROVAL BY SIGN _____		AAO CONTACT: DATE _____				
RESIDENT ENGINEER: DATE _____		NAME _____				
OTHER DWS OR SPEC AFFECTED	CIVIL	ELECTRICAL	INSTRUMENTATION	MECHANICAL	PIPING	WELDING OR OTHERS
	N/A	N/A	N/A	NA	NA	N/A
CHECKED BY FIELD LGE				AK	UTO	
CHECKED BY PE OR SUPV						
FOR <input checked="" type="checkbox"/>	APPROVED	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	PROJECT ENGINEER SIGNATURE AND DATE FSD/white / LHC 2-2-82		
REMARKS RESOLVED - SEE FSK-M-2HBC-254-1 REV2 ISSUED 7/21						

HYDRO GJ-CT-5-DT

News

25c Per Copy

March 4, 1982



CALIFORNIA DREAMIN'
— Zipped up against the wind and cold, E.E. Kent of 2201 Eastlawn Drive walks home to his apartment this morning. Just two months ago Bechtel Corporation employee Kent was a resident of

California. His car failed to start while he was on an errand today, forcing him to walk. "It never snows in Orange County," Kent sniffed. (Daily News photo by Glenn M. Roberts)

MAR 9 1982

G/25

Press Intelligence, Inc.
WASHINGTON, D.C. 20005

Front Page	Edit Page	Other Page
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DETROIT, MICHIGAN

NEWS SEP 5 1982

EVENING - 631,836

SUNDAY -- 820,139

Suspect A-plant welds are found to be safe

By Denise Crittendon
News Staff Writer

Consumer's Power Co. has discovered no faulty pipe welds at its Midland plant after re-examining more than 50,000 X-rays of the welds.

Consumer's spokesman Norman Saarti said yesterday the welds were safe, despite the fact that 50,000 of them were performed by ITT Grinnell Industrial Piping Inc.

ITT Grinnell is one of two companies under investigation by the Nuclear Regulatory Commission (NRC) for allegedly altering X-ray films with pencils to make it appear that they conformed more closely to safety standards. Associated Piping and Engineering Corp. of Compton, Calif., also is being investigated.

According to the NRC, the two companies have supplied pipe and pipe-weld X-rays for several

other nuclear units. Five are operating and others, like the Midland plant, are under construction. The two-reactor Midland plant is to open in 1984.

Saarti acknowledged that the re-evaluation showed some of the X-rays were misleading but that the welds themselves all conformed to safety standards.

"When it was discovered in November that the radiographs (X-rays) had been doctored, we re-examined them and found a total of four faulty radiographs," he said. "We then went back to test the welds and they were OK. The problem wasn't with the weld, it was with the X-ray."

Meanwhile, officials at about three dozen other nuclear plants across the country are continuing examinations of X-rays of piping welds. But NRC spokesman John Kopeck said no defects have been found at any of those units.

OCT-12-82

Nuclear plant investigation sought

148 By PAUL RAU
Daily News staff writer

A coalition of environmental and anti-nuclear groups is calling for a Congressional investigation into allegations of improper construction at three nuclear plants, including the Midland project.

The groups say the U.S. Nuclear Regulatory Commission has failed to promptly investigate allegations made by a welding engineer who worked at all three nuclear plants, two of them in Michigan.

The engineer, Earl Kent, was to go public with his allegations today at a news conference in California, where he now resides. The news conference has been set for 5 p.m. Midland time.

Kent's allegations about the Midland plant were given to the NRC on June 29 in the form of a signed affidavit written with the help of the Government Accountability Project, a Washington, D.C.-based group that represents persons who blow the whistle on waste and fraud.

At the news conference, Kent is expected to describe improper welding techniques used at the Midland and Palisades

nuclear plants owned by Consumers Power Co., and at the San Onofre nuclear plant in California.

Kent, who has 17 years of experience at six nuclear plants, said in his affidavit that the Midland project is "the worst nuclear facility I have ever seen." The Daily News read Kent's affidavit in June.

Kent also wrote that other Midland welding inspectors admitted to him they had approved bad welds for years before Kent showed them the proper welding procedures.

"This information and the failure of the NRC to act on it has generated national anger and a call to action ...," according to a news release from one group in the coalition, the Lone Tree Council. Lone Tree operates in the Tri-Cities area.

Other groups calling for the Congressional investigation are GAP, Alliance for Survival (based in Orange, Calif.), Critical Mass and the Nuclear Information Research Service of Washington, D.C., and Michigan's Great Lakes Energy Alliance.

The coalition also is asking that an "aggressive, independent audit" of the design of the three nuclear plants be given to Congress, and that the NRC publicly explain why it has not followed up on Kent's allegations.

The NRC has said that its investigation into the allegations as they pertain to Midland has been delayed due to a shortage of personnel and other probes with higher priority. But the NRC has promised the Atomic Safety and Licensing Board that the Midland investigation will be completed by January.

Consumers Power also has said it is anxious for the NRC to complete the Midland probe so that the alleged problems will be revealed.

Utility spokesman Michael Koschik said, "Give us some specifics and we'll investigate them and respond to the proper authorities."

Lone Tree spokesman Terry Miller of Bay City said in the news release, "We are forced to bear the burden of these plants as ratepayers while also shouldering the

tax burden of a governing body (the NRC) that does not seem to work in our best interests. How much more can we expect mid-Michigan residents to tolerate?"

N-plant pipe weld warnings ignored?

BY DAVE SEDGWICK
News Staff Writer

A former engineer at the Midland Nuclear Plant site charged today that the Nuclear Regulatory Commission has failed to probe his warnings about faulty pipe welds.

Earl Kent, a quality control engineer now based in California, had made allegations about the shoddy welds in a secret affidavit last June.

Kent originally had offered an affidavit to the Government Accountability Project, an activist group based in Washington. The group withheld his identity, but revealed the allegations to The News Washington Bureau last June.

The small-bore pipes must be carefully welded and installed because they carry water to cool the reactors. Those pipes must carry highly pressurized water at high temperatures.

A burst pipe could cause a loss of coolant, endangering the plant's safety. In his June affidavit, Kent charged the NRC had failed to correct corrosion problems in the small-bore pipes.

"In my professional opinion, Midland is the worst nuclear plant I have ever seen," said Kent at the time.

The organization later turned over the affidavits to the Nuclear Regulatory Commission for investigation. Kent recently decided to "go public" when he concluded the NRC had not checked out his allegations about poor welding. A shortage of federal inspectors has delayed the NRC probe, acknowledged NRC spokesman Jan Strasma.

"We have not proceeded as quickly as we wanted to. There are higher priority projects that have diverted our attention from Midland," Strasma said.

The NRC inspectors, for example, spent a lot of time investigating construction problems at the LaSalle

Nuclear Plant in Illinois, which went on line earlier this year.

Consumers Power Co. officials still won't comment on the allegations supplied to GAP. "We have not seen the allegations," said Consumers Power spokesman Norm Saari.

The Lone Tree Council has joined GAP in a call for a congressional probe of the welding problems at Midland and other sites. The council also has accused the NRC of foot-dragging on its probe.

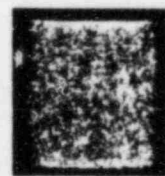
"We are forced to bear the burden of these plants as ratepayers..." said Lone Tree Council spokesman Terry Miller. "How much more can we expect mid-Michigan citizens to tolerate?"

SAGINAW, MI

NEWS

E-54,513; S-57,549

OCT-12-82



Press Intelligence, Inc.
WASHINGTON, D.C. 20005

Front Page	Edit Page	Other Page
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SAN DIEGO, CALIF.
TRIBUNE OCT 13 1982

EVENING - 127,672

Onofre weld flaw charge probe set

By Michael Richmond

Tribune Staff Writer

The Nuclear Regulatory Commission will investigate allegations by a former quality control inspector for Bechtel Power Corp. of defective welds and improper construction in two new power reactors at the San Onofre nuclear power plant.

The charges were made by Elmo Earl Kent of Cypress, 56, who was fired by Bechtel last February after he failed two job certification tests, said Jim Mackin, a Bechtel spokesman in Los Angeles.

A Nuclear Regulatory Commission spokesman, Jim Hanchett, said Kent first reported his concerns about defective welding procedures at San Onofre to the commission's Region 3 office in Walnut Creek last month.

"We looked into the allegations made at that time, as did Southern California Edison, and found that none of them were substantiated," said Hanchett.

Kent could not be reached for comment. He was to hold a press conference later in the day in Orange County, however.

The allegations in September involved four supposedly faulty welds on hangars for pipes in San Onofre's Unit 2, which began low-power operations last July.

The supports hold pipes that carry coolant critical to the stability of the reactor.

Hanchett said a probe of the latest allegations reported to the commission by Kent will begin Friday.

He said the charges are similar to earlier ones but involve different locations and different specific problems. "They have to do with welding procedures more than anything," he said.

As an example, he said one charge "is that pipefitters used pipe cutters to place scribe marks for socket weld measurements and that the pipe cutter caused grooves in the stainless and carbon steel pipes.

"He thinks this sort of problem exists all over the plant," said Hanchett, who is public information officer for the NRC's regional office.

Hanchett called the Kent charges "typical of allegations that we receive from virtually every new (nuclear)

construction project in America. We investigate them all. Some turn out to be true, but most turn out to be either problems that already have been identified and corrected, or non-problems."

Bechtel Power is the world's largest architect-engineer and constructor of nuclear plants. The company was the prime contractor for Units 1, 2 and 3 at San Onofre.

Bechtel spokesman Mackin said his company is unaware of the new allegations by Kent and would not learn the details until after the commission completes its investigation and submits its report to the company.

He said the company would have more to say about the allegations once the NRC investigation is completed.

Agency Probes San Onofre Charges

Claims of improper welding procedures and other allegations involving defective practices in the construction of the San Onofre Nuclear Power Plant Units 2 and 3 are being investigated by the federal Nuclear Regulatory Commission.

The claims were made by a man identified as a former welding inspector with Bechtel, Inc., general contractor on the two units, according to Jim Hanchett, NRC spokesman in Walnut Creek.

"This individual made some allegations last month," Hanchett said. "Both Southern California Edison and we checked them out and determined there wasn't any problem."

"Now the same person has made some new allegations that are different, but of the same general nature of things he believes were done wrong. Our inspectors have been checking them out this week," Hanchett said.

It could take a week or so to determine if the new charges are accurate, he said.

Hanchett said it is against the NRC's policy to identify workers who make such allegations. "If he wants to identify himself at a press conference, that's up to him," Hanchett said.

The individual is working with the Alliance for Survival, an anti-nuclear group, reportedly planning a press conference in Orange County today.

The same individual worked at nuclear power plants in Michigan where he made similar allegations that were investigated by inspectors from the NRC's Chicago office that were not substantiated, Hanchett said.

Hanchett said he would not call the alleged deficiencies critical to the safety of the plant.

"We were contacted last Wednesday or Thursday and he talked to

some of the inspectors in our office," Hanchett said. "Depending on the specificity of his charges, and how hard it is track down individual welds, the investigation could take a week or more."

"We can look at the individual welds and the radiographs and decide if there is evidence to substantiate what he is saying," Hanchett said.

"We receive allegations about almost every nuclear project in the country, which must be checked out," he said. "Most commonly, it is a case of the individual not understanding what he has seen or not realizing that the defect has already been spotted, analyzed and corrected without his knowledge," Hanchett said.

The 1,100-megawatt Unit 2 reactor was shut down Sept. 24 after several mechanical problems surfaced, including a leaky valve in the reactor's cooling system.

SAN DIEGO, CALIF.
UNION

MORNING - 198,334
SUNDAY -- 320,754

OCT 13 1982

WASHINGTON, D.C. 20003

ont	Edit	Other
ge	Page	Page

ANY DATES S.D.

Santa Ana, CA
Orange Co.)
Register
(Morning Edition)
(Cir. D.)

UNIT 1 3 1987

Safety problems at San Onofre?

²⁴²⁸
NRC investigates
claims of faulty
weld certifications

By Chuck Cook
Register staff writer *cook*

The Nuclear Regulatory Commission is investigating claims of construction irregularities — including certification of faulty welding — in critical safety systems at Units 2 and 3 of the San Onofre nuclear power plant.

The claims were made by a former senior quality control inspector for Bechtel Power Inc., the general contractor on the two

units, NRC spokesman Jim Hanchett said Tuesday.

Hanchett said commission policy prohibits releasing the identity of the complaining party. However, The Register has learned that the complaints were lodged by E. Earl Kent, 56.

Kent, a Cypress resident, was hired by Bechtel as a quality control inspector for San Onofre Units 2 and 3 on Oct. 6, 1980, said Jim Mackin, a Bechtel spokesman. In August of last year he was transferred to Ann Arbor, Mich., to work at the Palisades nuclear plant, and was transferred to the Midland, Mich., nuclear power plant project on Dec. 5, 1981.



E. Earl Kent
Former quality control inspector

Bechtel discharged Kent on March 1 after he failed two certification tests required for his job, Mackin said.

Kent said Tuesday that the two tests were so designed as to be
Please see ONOFRE/A17

cont.

Cont. Santa Ana Register Oct 13-1973

ONOFRE: NRC reopens probe

FROM A1

impossible for him to pass. He said he believes company officials were trying to get rid of him because of questions he had raised concerning Bechtel's construction of power plants in California and Michigan.

Investigators from the commission's Region V office in Walnut Creek will begin their investigation Friday of Kent's new allegations of faulty welds and other construction irregularities at the seaside reactor at San Onofre, both Hanchett and Mackin said.

"The same person came to us in September and made some allegations," Hanchett said. "We, along with Southern California Edison (Co.), checked them out and found no apparent violations."

"But recently the man has come up with some new allegations and we are investigating them at this time," Hanchett said. "We closed the original file in September after we found no substance to the allegations. But we have reopened the investigation now."

The complaints made in September by Kent involve at least four faulty welds on pipe hangers at San Onofre Unit 2.

Three complaints made by Kent were not specific, and a fourth one was found not to be justified, Mackin said and commission officials confirmed.

Kent also alleged that a critical spacer plate was missing on the personnel hatch leading into the containment building for Unit 2. But the commission investigation revealed the plate was not missing, commission and Bechtel officials said.

Kent said the new allegation also deals with problems in welds made in critical areas of the plants. "There are some good welds, there are some bad welds and there are some very bad ones," he said.

Part of the problems in the welds at Units 2 and 3 of San Onofre result from poor design, Kent said. "The design structure of the plant is so bad it borders on Rube Goldberg design."

Kent said that in March of this year when Unit 2 was on a 1 percent testing program, a pin sheared on an electric motor that powered a pump that supplied water to cool the unit's reactor. He said that if this would have occurred when the plant was operating at full capacity, a meltdown could have resulted.

"There would be a possibility of a meltdown but I am not predicting one," Kent said.

In addition to the problems with the welds, Kent's latest complaint to the commission involved non-construction safety violations, he said.

Hanchett said commission officials could not elaborate on Kent's newest complaints.

"All I can say is that the new allegations are fairly specific," Hanchett said. "If they prove to be true, they would be a violation of our standards."

After returning to Orange County from Michigan, Kent said, he became increasingly concerned with the quality of construction at San Onofre. He complained to Edison officials at San Onofre, he said, and they agreed to check into the alleged discrepancies.

"I got a letter from them about a week later saying that everything had been taken care of," Kent said.

Suspecting that the problems had not been solved, Kent said, he then turned to the commission and filed a formal complaint.

After the commission ruled that Kent's original complaints had no substance, the former senior quality control inspector began cooperating with the Orange County Alliance for Survival, an anti-nuclear group.

Ellie Cohen of the Alliance for Survival confirmed that they were working with a former Bechtel employee. She refused to discuss Kent's allegations.

However, Bechtel and Southern California Edison officials were more willing to discuss Kent's allegations.

Bechtel officials are confident the commission will find Kent's newest complaints of faulty welds are not valid, Mackin said Friday.

"As far as the allegations are concerned, both Bechtel and Southern California Edison have conducted audits of the past allegations and find no basis for them," Mackin said. "The audits confirmed that the welding in question complied with the appropriate sections of the American Society of Mechanical Engineers codes."

"These codes were endorsed by the Nuclear Regulatory Commission in conjunction with the NRC's licensing procedure for San Onofre Units 2 and 3," he continued. "In addition, the NRC has reviewed the actions taken by Bechtel and Southern California Edison to resolve the allegations and has concluded that appropriate action had been taken. The NRC considered the matter closed."

"Subsequently, the NRC apparently has received additional allegations and these will be investigated by the NRC on this coming Friday, Oct. 15," Mackin said. "And it is anticipated that they also will be satisfactorily resolved. The allegations (made by Kent) will not be made known to Bechtel or to Southern California Edison until after the NRC investigation is made."

Questions concerning Kent's allegations to Southern California Edison were referred to Bechtel.

ONOFRE: Inquiry Into Welding

Charges by Fired Engineer

Los Angeles Times

Allegations of Substandard Welding Raised at Onofre

By JOHN O'DELL, Times Staff Writer

10-13-81

The Nuclear Regulatory Commission is looking into charges that substandard welds were approved in construction of critical safety systems at two of the nation's nuclear power plants, including San Onofre. The Times has learned.

The NRC has launched a full-scale probe of welding practices at the Midland, Mich., facility and has scheduled a formal inspection at San Onofre. Both plants were designed and built by Bechtel Power Corp.

The commission's actions are in response to charges made by E. Earl Kent, a former Bechtel quality control engineer who was fired by the firm in March.

Kent told The Times that unless Bechtel corrects "thousands" of

substandard welds on pipe and electrical system supports at the two plants, a breakdown of cooling water and radioactive water pipe systems could result.

Kent described the pipe supports as critical because they are used to suspend piping and electrical conduits. If they fail, he said, the pipes and conduits could sag and break. Such weaknesses threaten the systems which cool the reactor and carry radioactive water in a closed loop within the containment building.

He said he was not offering a prediction but rather a "probability" which he arrived at based on 40 years of experience in welding, including 17 years as a welding and quality control engineer.

Please see ONOFRE, Page 2

Continued from First Page

Bechtel officials denied Kent's charges. The firm maintained that all welding work in nuclear power plants it has built has been done in strict conformance with applicable codes and is designed to provide substantial safety margins for equipment subject to severe stress.

At Southern California Edison Co., operator of San Onofre, quality assurance manager Jarlath Curran said a review of Kent's charges about welding work there has not revealed any deficiencies in Bechtel's design or procedures.

However, Moss Davis, an official of the American Welding Society, said that some of Bechtel's rules for field inspection of welds on supports in nuclear power plants are "not even good for an outhouse."

Specifically, Kent accused Bechtel of failing to follow American Welding Society code requirements for use of a special type of reinforcing weld, called an end return, on thousands of piping and electrical equipment support beams at San Onofre. Although the welding society's code does not apply to safety related systems in nuclear plants, Kent claims that it should because it is the most stringent code available.

He charged that American Society of Mechanical Engineers codes regulating certain piping welds called socket welds have been systematically violated at the Midland plant.

Kent claimed that weakened welds can result in both cases.

He also said that welders at San Onofre units 2 and 3 often used a pipe-cutting tool rather than the approved marking device to inscribe lines on piping.

When a cutting tool is used to inscribe lines, Kent said, the resulting groove can be much deeper than necessary and can damage the pipes themselves—an especially critical situation because many of the pipes carry steam and radioactive water.

Kent first contacted NRC investigators in Chicago about two months after he was fired. Since then, he

try "whistleblower" under a confidentiality agreement concealing his identity.

But he now has decided to make his allegations public. Kent said he was prompted by Bechtel's denials and by the desire to let people judge his claims in the context of his experience as a quality control engineer for such firms as Bechtel, the Fluor Corp., Boyle Engineering and Litton Industries.

Kent, who says he is "neutral" about nuclear power, said he did not go to the NRC until after he had been fired because he had consistently complained to his supervisors within Bechtel about welding at Midland and even after being fired wanted to give them a chance to correct the situation internally.

When he decided in September to complain about conditions he witnessed at San Onofre, Kent said, he went directly to Bechtel and Southern California Edison.

Dennis Kirsch, chief of the NRC's West Coast reactor inspection division, confirmed that Kent did not speak to him about San Onofre until after Bechtel and Edison had prepared a report that said his allegations were "unsubstantiated."

Kirsch said that he discounted Kent's allegations after reading the Edison-Bechtel report last month but that after talking directly with Kent last week he has decided to order a special inspection of welding work at San Onofre.

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Contact With NRC

In August, Kent met with James Foster, now acting chief of investigations for the NRC's Chicago region, and repeated charges he had made earlier.

Foster said that his office conducted a spot inspection at Midland and subsequently ordered a full investigation of welding and other construction practices there.

The NRC official said last week, however, that he had not yet referred Kent's concerns about San Onofre to NRC officials in California.

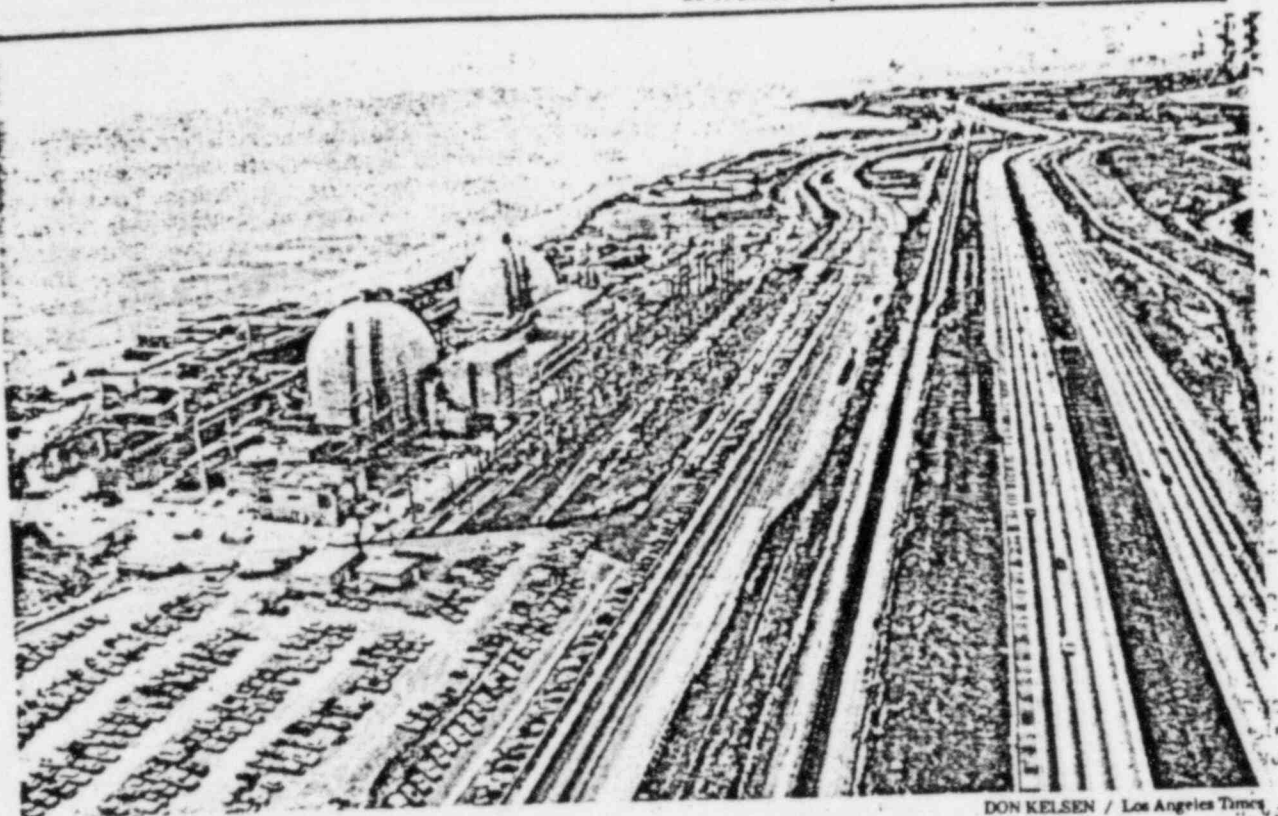
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Edison quality assurance manager Curran confirmed last week that none of the welds were reinforced with the end returns Kent claimed are necessary to reinforce pipe and electrical equipment supports against earthquake damage.

There also were several welding problems reported on Unit 2, where major construction was wrapped up earlier this year and which has been placed in operation for tests prior to being run up to full capacity in January.

Those problems, however, were characterized as normal faults that were found by Edison and Bechtel inspectors and that were repaired

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DON KELSEN / Los Angeles Times

Allegations regarding possible defective welding procedures have been raised at the San Onofre plant.

before the plant was started up.

The review of event reports did not turn up any welding-related problems at Unit 3.

Edison said none of the faulty welds in Unit 1 represented a safety problem, although all are thought to have been defective since installed in the early 1960s.

Kent's allegations appear to stem from his training in the regulations of the American Welding Society Code, which governs structural welding but is not used by the NRC as the code for the welding of piping and pipe supports in nuclear plants.

For welding in that area, the NRC requires construction firms and designers to apply the American Society of Mechanical Engineers' nuclear code.

John Collins, senior metallurgist with the NRC's engineering and quality assurance division in Maryland, described the codes as "very different."

He said he believes many questions about the adequacy of nuclear

welding "would be eliminated" if the American Welding Society codes took precedence over the ASME code.

One item that NRC investigators in both California and Michigan were concerned with is a Bechtel document establishing rules for acceptance of visually inspected welds in support beams for pipes and electrical equipment in nuclear plants.

Several items in the document appear to be at odds with prudent welding practice, NRC officials told The Times.

'According to Code'

But Bechtel officials in Los Angeles, including chief plant design engineer Landon Brown, said that the company's rules are based on code interpretations published by the ASME.

In addition, Brown said, the welds are all tested by tearing them apart and subjecting the metal to stress analysis before they are approved for use in the field.

"All of the work is done in accordance with the ASME code... all of the welders who execute these welds are qualified in the ASME code. In our analysis of piping systems we do incorporate vibration, thermal loads and seismic loads, so the welds that are shown on the drawing are the result of consideration of all these factors," Brown said.

But, when The Times obtained a copy of the procedures and read them to NRC officials in California and Michigan, they expressed surprise that they would be used in a nuclear plant.

"If they are what they seem to be, then we will certainly look into them," said Kirsch, chief of the NRC's Region 5 reactor project section in San Francisco.

Kent has met with officials of the Orange County Chapter of Alliance for Survival, an anti-nuclear group that hopes to use Kent's information in its bid to overturn the NRC's recent decision to grant an operating license for Units 2 and 3 at San Onofre.

ONOFRE: Inquiry Into Welding

Continued from First Page

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Whistleblower goes public

EDITOR'S NOTE: Elmo Earl Kent is the second "whistleblower" to go public with his allegations about construction problems at the Midland nuclear plant after making the charges earlier this year. These articles are based on an affidavit Kent signed in June, two telephone interviews with Kent, information from the Government Accountability Project (GAP) and Nuclear Regulatory Commission inspection reports.

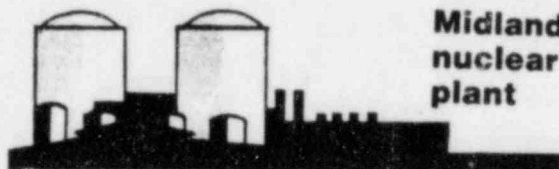
By PAUL RAI
Daily News staff writer

Whistleblower E. Earl Kent blames poor training of welders, deficient welding codes and "Rube Goldberg" designs for welding problems he claims may endanger the safe operation of three nuclear plants he worked at, including the Midland plant.

He said deficient welds at the Midland plant "absolutely" can degrade the plant's safety, particularly bad welds in the plant's high-pressure piping.

Kent worked at the Midland plant from December 1961 to March 1, 1962, as a senior quality control (QC) inspector for the Bechtel Power Corp., the plant's prime contractor. Before that, he held the same position at San Onofre nuclear units 1, 2 and 3 in California and the Palisades nuclear plant in Michigan.

He said welders at the Midland plant and the others consistently used improper techniques to make fil-



Midland nuclear plant

let welds, which usually "run in a straight line, socket welds, which curve in a circle around pipe fittings, and end returns, welds which secure structural members to their seats."

End return welds are missing in "thousands of places" in all three nuclear plants, Kent said. "It may be a gross oversight, or it may be negligence," he said.

Kent said many fillet welds approved by Midland inspectors on high-pressure piping lack sufficient strength because they are undersized, meaning not enough base metal was melted during the welding process.

HE CRITICIZED welding codes written by the American Society of Mechanical Engineers and the American Welding Society because they allow welding techniques that are improper for the nuclear industry, but also put part of the blame on Bechtel for scanty training of its welders and inspectors.

Kent wrote in his affidavit, "I can state that they were not properly

trained. Even something as basic like knowing how to use the fillet gauges correctly to measure the size of welds was beyond the ability of some of the Bechtel inspectors."

"When inspectors don't know how to use a fillet gauge to measure welds, you know that the overall program standards cannot be very high," he added.

He also said in the affidavit, "High-pressure piping, which contains up to 3,000 pounds per square inch (pressure), is very vulnerable material. A weakness in any part of the piping is a danger to the entire length."

"Because of this, I was very concerned to discover that many welds in the piping had been improperly ground down, grinding down the pipe wall thickness along with it," Kent wrote.

In telephone interviews, Kent also said many pipehangers in the Midland plant are overloaded, because, often, only two or four bracket sides were rigid. He said such welds then become the weak links in the chain. "They're loading up the welds far too

much," he said.

Kent said that when he attempted to correct such practices, he was told by Bechtel management officials not to worry because the welders and inspectors were qualified.

He claims he acquired a reputation as a troublemaker on the Midland project that eventually led to his firing early this year.

"I believe they were afraid of my ability. I was unwelcome there. I rocked the boat," Kent said.

ASKED WHY HE went public with his allegations after several months during which the U.S. Nuclear Regulatory Commission kept his identity confidential, Kent said he made the decision after being contacted for an interview by a Detroit television station.

"I said, the cat's going to be out of the bag, so I might as well go ahead and say it — I'm the one who rocked the boat. I feel a bit apprehensive. I don't want people to think I'm stirring up something that does not deserve to be stirred up."

"I don't want people to think I'm trying to sell newspapers or anything like that. But I call a spade a spade. I'm just going to tell it like it is and if Bechtel doesn't like it, or anybody else doesn't like it, too bad."

"I've tried my best to enhance the quality (of the Midland plant) by working quietly within the company, but there's too much stuff to stomach," Kent said from his home in Cypress, Calif.

Claims of bad welds checked, rejected

By PAUL RAI
Daily News staff writer
and the Associated Press

A former Bechtel Power Corp. engineer who made accusations of substandard welding at Consumers Power Co.'s nuclear plant under construction at Midland has a track record of mistakes, a utility spokesman says.

"During the time he was at Midland, he claimed he had found welds that were faulty," Consumers spokesman Michael Koschik said Wednesday in Jackson. "These were investigated independently by the Bechtel people and, in turn, independently by Consumers and a third time by NRC inspectors. They found there was no substance to any of the claims he made."

NRC inspection reports from March, June and July show that allegedly deficient welds at the Midland plant were found to be acceptable.

"Based on that experience, we think we have sound reason to believe that there would be nothing to these latest charges," Koschik added.

Koschik's comments followed a U.S. Nuclear Regulatory Commission announcement that it was probing allegations of faulty construction at nuclear plants at Midland and San Onofre, Calif.

"There is a great potential for safety hazard," said Elmo Earl Kent, 57, of Cypress, a former Bechtel quality control (QC) inspector, whose complaints prompted the probe.

Kent said NRC inspectors must

have gone into the Midland plant "with their eyes closed," and added: "If they want to sweep it under a rug, they can go ahead and sweep it under a rug. But in nuclear work, where lives and property are at stake, I'm appalled they didn't do anything."

KOSCHIK SAID HE doubted the reliability of Kent's claims, noting that Bechtel fired the man in February 1982 after he failed two job certification tests.

Kent bristled at the utility's doubts, claiming his failure to pass oral and written examinations "that would have qualified him to be a level two QC inspector" was "just one of the engineering" by Bechtel because he was viewed as a troublemaker.

Kent said he was a level two QC inspector at both the San Onofre and Palisades nuclear plants before he worked at Midland. "Evidently, they didn't want me to have that status or I would have easily attained it," Kent said.

He said the Bechtel employee who administered the tests "mumbled" during oral portions of the test, and that he was downgraded for failing to answer promptly.

"I was too dangerous for them because I was rocking the boat," Kent said. "They did a good job of getting rid of me. It was very smart, very subtle, and probably very legal."

KENT, WHO SAID welding has been his profession and hobby for 40 years, said his credibility is "ex-

tremely important" to him, and issued a challenge to Consumers and Bechtel.

"I'll put my expertise up against anyone at the Midland plant. I don't care who they are. I can put on a hood and weld with the best of them," he said. Kent also offered to publicly debate Midland project officials on any topic related to welding.

Kent said he began welding when he was 16, and that he has been a shipfitter, a welding instructor in the Navy and a civilian welding instructor. He said he has 17 years' experience in nuclear industry welding at six nuclear plants, and has been a senior QC inspector at three of them.

He said he has been a welding author since 1961, that his welding techniques and name are featured in welding encyclopedias and that two books he published in 1977 have enjoyed world-wide sales.

BACKING KENT'S credentials is the Government Accountability Project, a Washington, D.C.-based group that represents persons who "blow the whistle" on waste and fraud.

GAP official Billie Garde said Kent's credentials were found to be "impeccable" after a thorough investigation by GAP legal intern David Croll and others.

Ms. Garde said GAP checked into Kent's welding license and education, interviewed six persons who worked both with and under Kent at nuclear projects, contacted profes-

sional organizations he belongs to, verified articles and books written by Kent and interviewed officials at schools where Kent taught welding.

The worst comment GAP received about Kent is that he is a perfectionist. Ms. Garde said. "All said he had meticulous attention to detail. He is extremely conscientious at work and interprets ASME (American Society of Mechanical Engineers) codes literally. Nobody said he was unreasonable," she said.

KOSCHIK SAID of Kent's Midland allegations, "These charges were originally made back in June in affidavits given to the NRC. The NRC has not given us any specific information regarding them, and therefore we can't comment about any specifics. We just don't know."

Koschik acknowledged the Midland units, now about 85 percent complete and expected to be on line in late 1983 and mid-1984, have had several problems since construction began in 1969. In the process, the plant's cost has risen from \$350 million to at least \$3.4 billion.

"We firmly hope the NRC will get moving on this as quickly as possible so we can lay all this to rest, or if there are any problems, get them fixed," Koschik said. "But the longer we're left without having this looked into, the longer we run the risk of having our reputation damaged by things we can't even verify."

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Team To Probe Allegations At Onofre N-Plant

By STEVE LaRUE

Staff Writer, The San Diego Union

The Nuclear Regulatory Commission will dispatch a two-member team to the San Onofre nuclear power plant to investigate allegations by a former quality control engineer that supports for reactor cooling pipes may have been improperly welded and that shoddy workmanship has damaged the pipes themselves.

NRC spokesmen would not say when the team would arrive, but said the inquiry will last about a week and a report will be issued in about one month.

The charges are being leveled by E. Earl Kent, 57, a senior quality control engineer at San Onofre for about one year between the winter of 1980 and 1981.

Kent says that "thousands" of welds at the San Onofre plant and the Midland nuclear plant in Michigan are weaker than believed because they were performed to specifications allowing "cold" welds in which the metal of the pipe brace and the surface to which it is attached are not strongly bonded.

"I've seen too much of this, where it is just stuck on like soldering or brazing, when it has to be melted underneath the weld," Kent said in a telephone interview. "The most important thing in welding is that you melt the base metal."

These welds are likely to fail before the plants complete their 40-year design lives, he indicated, particularly if subjected to unusual stresses such as earthquake vibration.

If so, serious safety problems could result because many of the welds occur in brackets that support critical reactor cooling pipes and electrical circuits important to control room operations, he says.

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However, in Kent's talks with NRC officials last week, "There was no reference to particular systems — that's one of the problems," said Thomas A. Bishop, the NRC's western regional chief of nuclear projects.

Bishop said: "We intend to hammer this down in our typical fashion until we see either that there is not a problem or, if there is, that the problem is being properly handled."

NRC spokesman Jim Hanchett called the inquiry "a routine investigation into allegations of substandard construction — we do this all the time."

(Continued on B-3, Col. 1)

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Team To Probe Charges At Onofre N-Plant

(Continued from B-1)

On the average, two such allegations are received each month at the NRC's regional office in Walnut Creek, Hanchett said, and all are investigated at some level. He agreed, however, that most of these allegations are not made from sources as credible as former senior quality control inspectors.

Said Bishop: "In the vast majority of cases, it turns out to be a non-problem, or a problem that was already documented and known, or the fellow didn't have the full story — which is typically the case — or else somebody has a grudge to bear."

"We're out to close San Onofre, and this is the closest we've come yet," said Ellie Cohen, manager of the Orange County office of the Alliance for Survival, an anti-nuclear group that has been scheduling Kent's media interviews.

Kent said he first went public with his concerns in March 1982, shortly after his late-February firing as a quality control engineer at the Midland nuclear power plant in Midland, Mich.

Returning to Southern California, Kent said, he contacted quality control officials at Southern California Edison Co., operator of San Onofre, in mid-September but found them unresponsive.

The visit touched off an in-house investigation by Edison and plant contractor Bechtel Power Corp, Kent's employer.

The faulty welding charges "were thoroughly investigated by Bechtel, Consumers Power Co. (of Michigan) and Southern California Edison," and were reviewed by the NRC, said Bechtel spokesman James Mackin.

"The facts confirm that there were no safety concerns,"

he said.

NRC inspectors reviewed the Edison-Bechtel study of the charges during an routine inspection, and found the charges groundless, Hanchett said.

Mackin said Kent was fired because he twice failed a piping inspection test "for reasons that aren't clear at all to us" in early 1982 after transferring to the Midland plant.

"We had no choice but to terminate him because passage of the exam is a requirement of employment," Mackin said.

Kent's version is that he was cashiered "because I complained about too many things that were not according to the code and were not right — I was rocking the boat."

The new charges Kent brought to the NRC last week — prompting the enlarged NRC probe — concern pipe fitters' alleged practice of marking measurements on pipes with cutting tools rather than with non-destructive markers. He said this practice often leaves deep grooves in the pipes that will wear over the years and cause failures.

"Instead of doing this lightly, some of them really bore down on the pipe cutters and gouged the pipes deeply — I've seen it in stainless steel and in some of the critical piping," Kent said.

"You could have a real problem because, once you have a deep crack, you can have complete failure of the pipe under peak loading. Eventually, it will occur. Vibration can completely weaken the pipe."

Mackin, of Bechtel, said, "We are confident that the (Kent's) most recent statements concerning potential safety concerns at San Onofre will be found to have no factual basis."

Kent's chief complaint with welding of pipe supports at San Onofre and Midland is that it is performed to comply with specifications of the American Society of Mechanical Engineers, rather than the American Welding Society.

Both codes are in use in nuclear plants, Kent said, but "The AWS code is directly applicable for pipe supports and electrical hangers and other structural applications."

But the NRC's Bishop said that this was only the case before 1974, when the ASME standards for pipes and pressure vessels were extended to also apply to supports and brackets for safety-related piping.

"The ASME code is much more stringent than the structural (AWS) welding code" for this use, Bishop said. The AWS code, he said, was developed for use in general structural welding, such as in bridges and buildings.

BERWICK, PA.

OCT 15 1982

Enterprise (m)

Circ. 7,823

Charges filed by fired worker

NRC probes Bechtel welds

The Nuclear Regulatory Commission is looking into charges that substandard welds were approved in construction of critical safety systems at nuclear power plants in California and Michigan.

The Los Angeles Times reported yesterday the NRC has launched a full-scale probe of welding practices at the Midland, Mich., facility and has scheduled a formal inspection at the San Onofre plant in California.

The revelation follows by about a week an announcement by Pennsylvania Power and Light Co. that a substandard weld was found in a similar system at its Susquehanna plant near Berwick.

All of the plants were designed and built by Bechtel Power Corp.

PP&L's John Saeger said, however, that the utility does not believe links exist between the problems at Susquehanna and those alleged at the other plants.

"I'm sure the problems aren't related," he said. "As far as I know, we don't have any indication this is a generic problem at plants across the country."

Susquehanna's Unit 1 reactor was shut down for maintenance and modifications Oct. 4. Restart, which had been set for the beginning of this week, was postponed until Tuesday after the bad weld was found during routine a design verification program.

Under an agreement with the NRC, utility technicians were to review 200 of the 500 welds brought into question by the discovery before restart, and the remaining 300 afterward.

The Times said the NRC's actions are in response to charges made by E. Earl Kent, a former Bechtel quality control engineer, who was fired by the company in March.

Kent told The Times that unless Bechtel corrects "thousands" of substandard welds on pipe and electrical system supports at the California and Michigan plants, a breakdown of cooling-water and radioactive water pipe systems could result.

Kent described the pipe supports as critical because they are used to suspend piping and electrical conduits. If they fail, he said, the pipes and conduits could sag and break. Such weaknesses threaten the systems that cool the reactor and carry radioactive water in a closed loop within the containment building.

He said he was not offering a prediction but rather a "probability" which he arrived at based on 40 years of experience in welding, including 17 years as a welding and quality control engineer.

Bechtel officials denied Kent's charges. The firm maintained that all welding work in nuclear power plants it has built has been done in strict conformance with applicable codes and is designed to provide

substantial safety margins for equipment subject to severe stress.

At Southern California Edison Co., operator of San Onofre, quality assurance manager Jarlath Curran said a review of Kent's charges about welding work there has not revealed any deficiencies in Bechtel's design or procedures.

And Saeger said PP&L has been satisfied with Bechtel's work at Susquehanna.

"We have been well satisfied with the work they've done here," he said.

However, Moss Davis, an official of the American Welding Society, said that some of Bechtel's rules for field inspection of welds on supports in nuclear power plants are "not even good for an outhouse."

Specifically, Kent accused Bechtel of failing to follow American Welding Society code requirements for use of a special type of reinforcing weld, called an end return, on thousands of piping and electrical equipment support beams at San Onofre. Although the welding society's code does not apply to safety related systems in nuclear plants, Kent claims that it should because it is the most stringent code available.

He charged that American Society of Mechanical Engineers codes regulating certain piping welds called socket welds have been systematically violated at the Midland plant.

Kent claimed that weakened welds can result in both cases.

NRC probing San Onofre weld complaint

The Nuclear Regulatory Commission has begun investigating allegations that some welds on pipe and conduit supports in the San Onofre nuclear power plant are faulty.

Two commission inspectors and a supervisor have been at the power plant since Monday inspecting welds in the Unit 2 and 3 reactor buildings. They should complete the probe by the end of the week, said Jim Hanchett, of the commission's Walnut Creek regional office.

The investigation began following reports to the commission by E. Earl Kent, a former quality-control inspector for Bechtel Power Corp., that numerous welds were improperly done at the two plants. Bechtel, general contractor for the nuclear reactors, says Kent was fired in February after failing two certification tests required for his job.

The plant's owner, Southern California Edison Co., said the inspections would not interfere with the resumption of operation of the new Unit 2 reactor this week. The unit was shut down Sept. 22 for maintenance and repairs but resumed operation this week.

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WASHINGTON, D.C. 20003

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SAN DIEGO, CALIF.
TRIBUNE OCT 20 1987
EVENING - 127,672

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WASHINGTON, D.C. 20003

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BELFAST, MAINE
REPUBLICAN JOURNAL
OCT 21-1987
WEEKLY--7,124

Congressman asked to probe n-plant charges

128 By PAUL RAU
Daily News staff writer.

U.S. Rep. Edward J. Markey, D.-Mass., has been asked by a coalition of anti-nuclear and public interest groups to investigate allegations that substandard welding procedures were used at three nuclear plants, including the Midland nuclear plant.

Markey is chairman of the House Oversight and Investigation Subcommittee of the Committee on Interior and Insular Affairs.

A spokesman for Markey's office said the congressman is concerned about the Midland situation, but would promise no action until checking into the allegations.

Consumers Power Co., owner of the Midland nuclear plant, said a Congressional investigation is not necessary because welding allegations already have been probed and found to be without merit by the U.S. Nuclear Regulatory Commission.

A request that Markey's subcommittee investigate allegations made by E. Earl Kent, a former welding inspector at the Midland, Palisades and San Onofre nuclear plants, was made by letter this week by the Government Accountability Project (GAP).

GAP is a Washington, D.C.-based public interest group that represents "whistleblowers" who expose fraud or safety and health hazards.

Similar letters to Markey and other legislators are being sent by the Lone Tree Council of the Tri-Cities area, the Orange County, Calif., chapter of Alliance for Survival and the Critical Mass Energy Project of Washington, D.C., according to GAP and area Lone Tree officials.

GAP'S LETTER ASKS that Markey's oversight subcommittee investigate Kent's allegations, and that it "intervene" in the NRC's probe into those allegations "before it is too late to accurately identify the extent and the cause of the welding deficiencies pointed out on the three sites."

The letter adds, "We believe the only way to have an accurate assessment of the problems will be to have Congress ask the hard questions — of both the NRC and the Bechtel (Power) Corporation," which is the Midland plant's prime contractor.

Richard A. Udell, who conducts research for Markey's subcommittee, said this morning: "I'm afraid I'm not going to be able to give you too much of an answer yet."

"We're concerned, but we don't know

how concerned we are; we need more information. We're interested, and we're going to look into the problem," Udell said. "But that doesn't necessarily mean there will be hearings."

He said Kent's allegations, if true, are potentially serious. Udell said he tentatively plans to talk to Kent and the NRC, and to review Kent's affidavit containing the allegations with the NRC or Consumers Power.

Billie Garde, director of GAP's Citizens' Clinic for Accountable Government, said she brought the Midland allegations to Markey's attention because of his aggressiveness in seeking answers from the NRC on nuclear power issues.

"I really hope Markey follows through and at least fires off a letter to the NRC so they know they have to answer to him," Ms. Garde said.

Udell said a letter is a possibility, along with hearings. "Right now, we have a lot of questions about the quality (of the Midland plant). We think the NRC has, too. I'm not sure they're doing all they can do. That's why we're here," he said of the oversight subcommittee.

CONSUMERS POWER spokesman Norman Saari said Udell is "a noted anti-nuclear critic. He's with Critical Mass."

Any research into Udell's background will indicate where his concerns with nuclear power lie.

He said Consumers fully cooperates with the NRC in all of its hearing processes, and also with Congressional delegations. "If additional information is requested from Consumers Power, we will respond as appropriate," he said.

Saari also said three NRC inspection reports show that Kent's allegations about improper socket welds at the Midland plant were investigated by the NRC this summer and found to be "without substance or merit."

He disputed Kent's claim that the former Midland worker had attained the position of level one QC inspector here. "He was in training. He twice failed his level one test and was discharged ... because we don't have positions for people who can't qualify," Saari said.

Kent has said he failed the level two QC test because the person administering it "mumbled" and then downgraded him for failing to answer promptly. He claims his test failure and discharge were engineered by Bechtel because he "rocked

the boat" about improper welding.

GAP, which has taken affidavits from a number of former Midland plant workers, wrote Markey that "Mr. Kent is by far one of the most credible and honest individuals with whom GAP has had the opportunity to work."

IN RELATED moves:

- Mary Sinclair, a Midland resident and a citizen intervenor in the licensing process for the Midland plant, was in Washington, D.C., from Friday until Tuesday talking to various members of Congress or their aides about the Midland plant and the allegations of substandard construction.

- U.S. Rep. Donald Albosta, D-St. Charles, has asked that he be provided with a copy of revised testimony to be filed with the Atomic Safety and Licensing Board by James Keppler, director of NRC's Region III office in Illinois.

Keppler earlier this year gave the ASLB his "reasonable assurance" that Quality Assurance programs at the Midland plant will be capable of assuring the plant's proper construction and the public's health and safety.

Recently, continued problems with implementing QA at the Midland plant caused Keppler to say he will revise that earlier testimony. His new testimony is due to be filed Oct. 29.

Albosta's office said the request to see the new testimony was spurred by a letter written by Lucy Hallberg of Midland, who is GAP's local contact.

MIDLAND, MI
DAILY NEWS
E-17,025

OCT-20-82

House unit may probe Midland N-plant welds

By JACQUELINE TEARE
Journal Washington Bureau

WASHINGTON — A House subcommittee, in the first step toward a possible investigation, is beginning to make inquiries into allegations of faulty welds at the Midland Nuclear Plant.

The preliminary action follows a request by the Washington-based Government Accountability Project (GAP), a group working with the Lone Tree Council, that the House Interior oversight subcommittee probe charges made by a former engineer at the Midland facility.

The early subcommittee questions do not necessarily mean formal congressional hearings will follow. They do, however, indicate substantial interest in obtaining more information than the documents provided by GAP.

"The materials and allegations (presented by GAP) appear to be cause for concern," said Richard Udell, a spokesman for the subcommittee chaired by Edward J. Markey, D-Mass.

Some sources questioned whether Congress would open a full investigation of the allegations, since what one called "grosser problems" exist at nuclear facilities.

"Congress just doesn't have the expertise" to look into weld problems, one source said.

Some lawmakers believe Congress should not become involved in this type of probe until after administrative avenues have been exhausted — in this case Nuclear Regulatory Commission investigations. "If the problems are significant enough, it's the NRC that will stop the plant, not Congress," one source said.

In her letter seeking congressional action, Billie Garde, GAP project director, questioned NRC efforts to respond to the weld allegations.

Those allegations come from Earl Kent, a quality control engineer formerly employed by Bechtel Corp., prime contractor at the Consumers Power Co. Midland plant. He said in an affidavit filed with the NRC in late June there were serious welding defects at the twin-reactor plant.

GAP said in its letter to the subcommittee that the NRC did not act on Kent's charges until after they were made public.

An NRC spokesman said a shortage of federal inspectors delayed commission action on Kent's allegations. Consumers Power Co. has declined comment on GAP's materials, saying it has not seen them.

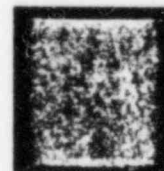
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FLINT, MICHIGAN
JOURNAL

OCT 20 1982
EVENING - 105,428
SUNDAY -- 105,404

OCT 26 1982

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San Onofre Tour Sparks New Dispute

Welder's Claim of More Violations Denied by Bechtel

By MARCIDA DODSON,
Times Staff Writer

A fired engineer whose charges of shoddy welding at the San Onofre nuclear plant prompted a federal investigation said Tuesday he discovered additional problems during a Nuclear Regulatory Commission inspection tour of the facility this week.

However, a spokesman for the Bechtel Power Corp., builder of the nuclear plant, flatly denied the new claims made by E. Earl Kent, who led NRC and Bechtel officials through the facility Monday to point out what he considered problem areas.

Spokesmen for the NRC and Southern California Edison Co., operator of the nuclear plant, also tempered Kent's claims.

New Violations Claimed
Kent, who has charged that there are substandard welds in critical safety systems at the San Onofre plant, said he found new violations in the machine work around pipes and valves that could lead to metal fatigue and failure, possibly resulting in leaks of radioactive material, cooling water or whatever is carried in the pipe where the break occurs.

NRC officials on the tour were "aghast that something like that could exist," said Kent, a former Bechtel quality control engineer who was fired in February.

But Bill Homer, Bechtel engineering manager, said the officials on the tour were in fact "aghast at Mr. Kent's lack of understanding."

"The plant is in full compliance with the codes," he said.

David Barron of Southern California Edison said no problems "of any significance" were pointed out during Monday's tour.

NRC Declines Comment

And Jim Hanchett, spokesman for the NRC regional office in Walnut Creek, said he could not comment while the inspection was still going on but added that he "didn't hear anything in the office to indicate any new problems were found."

He said the inspection of the plant may be wrapped up today.

But Kent said he pointed out a major problem, and he estimated it would cost millions of dollars to repair.

He said the "transition slopes"

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TOUR: New Dispute

Continued from First Page

that connect pipes with such equipment as valves and fittings were made at a 1-1 ratio, or a 45-degree angle, when the maximum ratio allowed by the American Society for Mechanical Engineers code is 1 to 3 that is, one inch of vertical rise for three inches of horizontal run.

The sharper slope "shortens the life of the equipment," allowing vibrations to wear down the connection faster, he said.

Kent has 40 years of experience as a welder, including 17 years as a welding and quality control engineer. A Bechtel spokesman said Kent has no college degree and was fired after he failed two "rudimentary" welding exams. Kent claims he was fired because he was too critical of the welding work at a Michigan nuclear plant.

The NRC inspection tour was prompted by Kent's charges earlier this month that welds on pipe supports at San Onofre and a nuclear plant in Midland, Mich., were substandard and could allow pipes and conduits to sag and break. Bechtel has denied Kent's charges.

Kent said he first showed the entourage Monday that the office building itself at San Onofre was not in compliance with welding codes and pointed out "extremely skimpy and inadequate" welds.

He also said he pointed out examples to support his original charge, that a special type of reinforcing weld, called an end return, is substandard. "There is a gross lack of end returns," he said Tuesday, and much of the existing welding is "not full strength (with) open seams."

Kent was invited by the NRC on the tour to show officials specific examples of his claims of shoddy work at the San Onofre plant, a spokesman for the NRC said.

Pattern Seen In Inspector's N-Plant Alarm

By STEVE LARUE

Staff Writer, The San Diego Union

A quality control inspector who reported seeing "thousands" of dangerously weak welds at the San Onofre nuclear power plant after being fired by Bechtel Power Co. was fired by a previous employer who he also accused of being responsible for shoddy work.

The inspector, E. Earl Kent, also was fired by Litton Industries, which

(Continued on B-3, Col. 1)

Pattern Seen In N-Plant Weld Alarm

(Continued from B-1)

he claimed later, used "junk steel" to build Navy warships in company shipyards, a Litton spokesman said yesterday.

Reviews by the Navy and Litton's Ingalls Shipbuilding Division in the mid-1970s found no merit in Kent's charges, spokesmen said.

"Technically, I don't consider him competent either in the materials or in the welding area," said Donald Hertzell, a former Litton metallurgist who worked with Kent and served on an in-house panel that probed Kent's charges about the assault ships built by Ingalls.

John Vasta, former marine structural scientist with the Navy's Ship Engineering Center, chaired that panel and agreed that Kent's charges had no merit.

Kent insists that the Navy was incorrect and that the ships, most of which have spent years at sea by

now, the Navy says, still are ^{up}safe.

Kent was fired from Ingalls early in 1971 for unsatisfactory work, Litton spokesmen said, about three years before making the "junk metal" charge in press conferences.

Kent said he was forced out of the firm on trumped up charges because he told superiors that, "Litton was deliberately downgrading the integrity of Navy warships," and, "I just couldn't keep quiet anymore."

Kent, 57, later a senior quality control inspector for Bechtel, reported the weak welds to the Nuclear Regulatory Commission after being fired in February 1982 because, Bechtel officials say, he twice failed a refresher exam administered to welding inspectors. Kent says he was maneuvered out of the company because he was calling attention to improper procedures.

Several months after being fired, Kent gave his account of the faulty

welds to reporters through news conferences arranged by the Anti-Nuclear Alliance for Survival.

A team of NRC inspectors has spent almost two weeks at the coastal plant and may issue a statement of findings next week.

Kent had little opportunity to notice thousands of defective welds at San Onofre, a Bechtel spokesman said, because he was assigned to an office in an administration building for eight of the 11 months he worked at the plant. There he filed and cross-checked welding diagrams.

"For the majority of time, he was not on the floor inspecting the welds," Bechtel spokesman James Mackin said.

Kent said, "I worked all over the area," and noticed the faulty welds in brackets supporting critical cooling pipes and brackets for electrical wiring. He added that he worked in an office in Office Building One, "and that's where I saw that the welds in the girders are not adequate."

Kent said he was complimented for good work by Bechtel officials at the Palisades Nuclear Power plant in Michigan, where he briefly worked.

He added: "I even have a letter from the manager of quality assurance for the Los Angeles division of Bechtel Power about my good work at San Onofre Units I, II and III. They can't deny that they gave me a letter of commendation."

Said Vasta, the retired Navy marine structural expert, "Mr. Kent has the unusual knack of reading the technical literature, extracting what he thinks is important, and then marching forward to make all kinds of accusations about it — and no member of his peerage agrees with him."

San Onofre Complaint Probe Over

By DAWN GARCIA
Staff Writer

SAN ONOFRE — Nuclear Regulatory Commission officials Wednesday wound up their eight-day investigation into allegations of faulty welding at San Onofre.

However, results of the inspections and interviews will not be released until next week at the earliest, said Jim Hanchett, NRC spokesman.

The investigation was sparked when a former Bechtel Corp. quality control engineer went to the press with charges that substandard welds were approved for critical systems at San Onofre nuclear power plant's Units 2 and 3.

Southern California Edison — the major operator of the plant — contracts Bechtel Corp. for construction work on the three-unit nuclear generating facility near San Clemente.

E. Earl Kent, a worker who was fired from Bechtel last March, said missing welds, inadequate structural supports and design errors threatened the safety systems which cool the 560-degree Fahrenheit reactor.

Kent was also fired by a previous employer who he also accused of poor workmanship.

After being fired twice from his job at Litton Industries in the mid 1970s, Kent claimed the company used "junk steel" to build Navy warships, a Litton spokesman said.

"He sent a telegram to President Nixon accusing us literally of designing floating coffins," said Donald Hertz, a former Litton metallurgist who worked with Kent at the time.

Reviews by the Navy and Litton officials found no merit in Kent's charges, a spokesman said.

"I don't feel his charges were valid," Hertz said. "He didn't seem to have the technical ability to work in the design area as far as welding and metallurgy goes."

Kent, 57, said he based his allegations about San Onofre on 40 years

(Continued on Page 2)

Probe . . .

(Continued from Page 1)

experience in welding, which included 17 years as a welding and quality control engineer.

"All of my life has been welding and I'd put my expertise against anyone up there (at Bechtel)," Kent said.

Bechtel officials, however, say Kent doesn't know what he's talking about.

"Many of us were astonished at his lack of code understanding," said Richard Kosiba, Bechtel's chief civil structural engineer. Bechtel officials adamantly maintain that the power plant was built in compliance with codes.

However, one of Kent's complaints is that Bechtel is not adhering to the most stringent codes when building nuclear power plants.

NRC officials say they'll investigate code usage as well as Kent's other allegations.

"He (Kent) disagrees with the rules and we're going to have our licensing people in Washington take a look at the adequacy of the existing codes," Hanchett said.

NRC officials will release a formal report on the San Onofre investigation in about a month, Hanchett said.



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SAN DIEGO, CALIF.
TRIBUNE OCT 29 1982

EVENING - 127,672

NRC probe data due on weld flaw

The Nuclear Regulatory Commission hopes to tell next week what it found in an investigation of an allegation of faulty welds at the San Onofre power plant.

Commission spokesman Jim Hanchett said the staff must review the data gathered and prepare a report.

Four commission inspectors spent eight days at the plant checking the allegation by a quality-control engineer that welds holding pipe supports were substandard.

The engineer, E. Earl Kent, was fired by the Bechtel Power Corp., which built the plant.

San Onofre Probe Ends

San Onofre

An investigation into allegations of shoddy workmanship at the San Onofre nuclear power plant has been completed by the Nuclear Regulatory Commission, but the agency's findings won't be released for at least a week.

Inspectors from the NRC spent eight days examining welds at the nuclear facility after a former quality control engineer who was fired from his job claimed that welds holding the pipe supports were substandard.

Associated Press

Report Rebuts Charges Of Bad Reactor Welds

By STEVE LARUE

Staff Writer, The San Diego Union

An investigation by the Nuclear Regulatory Commission has found that a former quality control engineer's claims that "thousands" of faulty welds exist at the San Onofre nuclear power plant are unfounded.

The NRC will release the report Monday at a press briefing in Santa Ana.

The agency's 100-page document clears Bechtel Power Co., plant designer and builder, of a wide variety of charges made by E. Earl Kent, ranging from allegations of substandard joints between pipes and valve bodies to charges that scribe marks have seriously weakened piping, according to sources close to the investigation.

Kent, 57, said the defects could cause key reactor coolant or other safety-related systems at the plant to

fail, creating a serious safety hazard.

The report was circulated late this week among officials of Southern California Edison Co., plant operator, and Bechtel Power Co., plant designer and builder.

The findings have been expected since NRC chairman Nunzio Palladino told reporters Nov. 15 that the investigation had found no reason to withhold a low power license for reactor Unit III — where Kent spent most of his time while assigned to San Onofre.

Kent was employed by Bechtel at San Onofre from October 1980 through August 1981, Bechtel officials said. They added that he actually worked inspecting welds for about three months, and was either in training or assigned to file and cross-

(Continued on B-6, Col. 1)

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SAN DIEGO, CALIF.
UNION

DEC 4 1982
MORNING - 198,334
SUNDAY - 320,754

Report Rejects Faulty Weld Claims

(Continued from B-1)

check engineering diagrams the remainder of his tenure.

He was fired as a senior quality control engineer at Bechtel after twice failing job certification tests last February at the Midland nuclear power plant in Michigan, where he had been transferred, a company spokesman said. Soon after, he alleged that Bechtel was responsible for faulty welds at the Midland plant. A review by Bechtel and the NRC found the charges without merit.

Assisted by the Alliance for Survival, a citizens group opposed to nuclear power, Kent charged in mid-October that substandard welds existed at San Onofre in brackets supporting critical reactor cooling

pipes and electrical cables needed to control reactor operations.

He had made these allegations in mid-September to Edison officials after applying for a job as quality control inspector with the utility, but a review by Edison and Bechtel had found no merit to the charges. The NRC agreed.

In his October statements, however, Kent added the charge that in the course of measuring piping, some welders had grooved deep marks in pipes that would cause them to fail prematurely.

The current NRC probe ended two days after a plant tour Oct. 25 in which Edison, Bechtel and NRC officials accompanied Kent to learn

where he felt shoddy work had been done. Kent said after the tour that he had been prevented from pointing out specific faulty welds but that he had noticed that valve bodies and pipes were not welded together in accordance with welding codes.

"If they're trying to cover this up, it could be horrible because there are many, many valves at San Onofre" that are improperly welded, he said.

In addition, he alleged other violations, ranging from substandard handrails to faulty welds in the members of a temporary office building where he once worked, and corrosion of components of fish traps, which prevent fish from being entrained in the reactor coolant system.

Experts ponder pipe corrosion cause

By PAUL RAY
Daily News staff writer

Some stainless steel piping at the Midland nuclear plant has sustained severe pitting and corrosion, despite protective measures and the fact the Midland environment is not highly corrosive, a consultant testified Wednesday.

One buried pipe, six inches in diameter and 12 feet long, was found in June 1979 to have deep pits through three-quarters of its wall thickness, according to reports introduced during the federal hearing on soil problems at the nuclear plant.

This pipe — attached to the plant's condensate storage tank — was not safety related, but the discovery led Bechtel Power Corp. to unearth similar stainless steel pipes that are safety related. Visual inspection of those revealed no corrosion or pitting.

In full 1980, corrosion also was found on two other non-safety-related, stainless steel, buried pipes. The severely pitted pipe was replaced in 1980; it is not clear whether the two other pipes were replaced, although a report said one of them was abandoned.

Bechtel — the architect-engineer and prime contractor for the Midland nuclear plant — concluded that stray electrical currents from improperly grounded weld-

mical Co. were expected to ask more questions today about Bechtel's initial conclusion.

However, consultant Dr. John R. Weeks of Brookhaven National Laboratories said an analysis of water in the nuclear plant area failed to show the presence of highly corrosive chemicals.

Weeks was testifying for the U.S. Nuclear Regulatory Commission. He said the water analysis was provided to him for his review.

He said groundwater in the area is slightly alkaline — favorable to inhibit corrosion — and that the only nearby source of corrosion-causing chlorides is water in the plant's cooling pond, which should not come in contact with buried pipes.

"We do not have ... by itself an environment unique to this community that I would classify as highly corrosive," Weeks said.

Intervenor Mary Sinclair disputed that conclusion, saying that Midlanders "know our cars corrode rather quickly" due to the environment here.

Weeks said he and his colleagues at Brookhaven agree with Bechtel's theory that the corrosion was caused by stray electrical currents.

IN A 1979 REPORT Bechtel advanced several other theories, among them that the severely corroded pipe had been exposed to human urine before it was buried. Cleaning solvents and hydrochloric acid also could have caused the corrosion, Bechtel said.

The report said, "Discussions with the Bechtel Medical Department indicate that human urine contains substantial chlorides as well as often being acidic. This type of fluid would be corrosive to Type 304 austenitic stainless steel when

combined with the extremely low oxygen availability associated with buried pipe lines."

The report said the steel itself was not the cause of the corrosion, and recommended that field personnel "review their housekeeping procedures" to make sure harmful chemicals do not come in contact with stainless steel components.

MRS. SINCLAIR said Wednesday she is concerned with the corroded pipes because reports from the NRC and other parties have identified pipe corrosion as a factor that is "slowly crippling" a number of U.S. nuclear plants.

She said corrosion has "serious safety implications" because it can block pipes, create excessive pressures and jam valves important to the operation of nuclear plants.

A report said Bechtel determined there are only four safety-related pipes at the Midland plant made from unprotected stainless steel. The rest are made of carbon steel that is protected by coating, wrapping and what Weeks called "galvanic protection," in which a small negative electrical charge is sent through grounded pipes to inhibit the electrochemical corrosion reaction.

The severely corroded pipe was buried in 1977. The galvanic protection system was energized in full 1980, and Weeks said it now protects all buried carbon steel and stainless steel pipes at the nuclear plant "that I know of."

Weeks said the protective measures should provide a safety factor of 20 to 40 against corrosion; in other words, even the stainless steel pipes should have been able to withstand a far more corrosive environment than found at the nuclear plant.

BURIED PIPES are an issue in the hearing before the Atomic Safety and Licensing Board because poorly compacted soils in some areas of the plant have settled under their own weight, causing deformation of some buried pipes. In the worst case, pipes near the diesel generator building settled 21 inches from their intended locations. There have been no refits.

Plant owner Consumers Power Co. has been required to replace or rebore some pipes, particularly 26- and 36-inch pipes connected to the plant's service water system.

The NRC has set acceptable limits for pipe deformations, and Consumers will be required to monitor pipe locations and the strain placed on them for many years.

Other NRC witnesses testified Monday that based on these corrective actions and others, the agency has concluded that all pipes at the nuclear plant will function adequately.

Soil hearing

ing equipment caused the corrosion, despite the fact no field welding was performed near the corroded pipe.

Reports show Bechtel originally attributed the corrosion to chemical contamination. Citizen intervenors, who apparently see a linkage between the chemical contamination theory and the proximity of the nuclear plant to Dow Che-

MIDLAND, MI
DAILY NEWS
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WASHINGTON, D.C. 20003

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SAN DIEGO, CALIF.

TRIBUNE DEC 6 1982

EVENING - 127,672

FAULTY WELD CLAIMS UNFOUNDED

NRC report clears San Onofre station

By Mike Richmond

Tribune Environment Writer

Southern California Edison Co. said today it is hopeful a Nuclear Regulatory Commission report clearing it of charges of faulty construction at the San Onofre Nuclear Generating station will allay any fears by the public concerning safety of the plant.

The 109-page federal report, released by the commission today in Santa Ana, concludes none of the allegations was substantiated.

The report details results of the agency's extensive investigation of charges made by a former Bechtel Power Corp. employee who had charged that "thousands" of faulty welds exist at the San Onofre plant.

Lengthy inspections of the plant by three NRC inspectors and two investigators, plus review of welding documents and specifications found the charges were unfounded, the commission report said.

Edison spokesman Dave Barron, said the company is pleased the "investigation results have found no basis for allegations concerning the quality of welding at the plant."

He said the commission "confirms the company's confidence in the quality of the work" at the power plant and the utility "hopes the result of the NRC investigation will allay any questions which may have been raised in the minds of the general public because of the wide publicity given to the allegations."

The claims concerning alleged faulty construction procedures were made Oct. 6 by E. Earl Kent, who was employed by Bechtel from October 1980 to August 1981. Bechtel was the contractor for all three nuclear power reactors built at San Onofre. Kent was fired by the company after twice failing job certification tests in February at the Midland nuclear power plant in Michigan, where he had been transferred.

The Nuclear Regulatory Commission said today its investigation of Kent's charges was limited to allegations concerning systems and components in the plant that are important to nuclear safety.

The agency said its inspectors found some of Kent's concerns had been previously identified and resolved by SoCalEdison and Bechtel and he had misinterpreted some welding code requirements.

"In addition, the inspectors found that Mr. Kent disagreed with certain established and NRC-approved welding and inspections standards," the report said.

The commission's Nuclear Reactor Regulation branch in Bethesda, Md., had reviewed some of Kent's concerns regarding adequacy and implementation of welding codes "and reaffirmed their acceptability for nuclear power plant use," the report said.

Kent could not be reached for comment concerning the NRC report. A Bechtel spokesman, Jim Mackin, said the company was pleased with the results.

CLIPPING SHEET

CLIPPED FROM The Wall Street Journal
 CLIPPED BY KL Buechler
 DATE OF ISSUE 12/7/82 CITY Midland



Consumers
Power
Company

S. California Edison Cleared of Allegations Of Bad Welding at Unit

By a WALL STREET JOURNAL Staff Reporter

WALNUT CREEK, Calif.—The Nuclear Regulatory Commission's staff said it hasn't found any evidence to substantiate charges that builders used defective welding on a Southern California Edison Co. nuclear power plant.

The findings were in a report issued in response to allegations by E. Earl Kent, a former quality-control engineer for Bechtel Power Corp. Mr. Kent had charged that welding on the San Onofre nuclear generating station in Southern California was dangerously defective. Bechtel, an engineering and construction concern, had built the plant.

The agency's regional office here concluded that NRC regulations hadn't been violated in the construction of safety-related equipment at Units 1 and 2, generating units at the San Onofre plant.

The report also concluded that some of Mr. Kent's concerns already had been addressed and resolved by Bechtel and Southern California Edison. The report disagreed with Mr. Kent's contention that the commission's standards for welding are inadequate.

Last March, Mr. Kent was dismissed by Bechtel after he allegedly failed an oral examination on quality control. Mr. Kent has contended that he was dismissed because he had called attention to the defective welds at San Onofre and at a nuclear plant in Midland, Mich. owned by Consumers Power Co. The NRC hasn't yet issued a final report on the Michigan plant.

A Bechtel spokesman said the company was pleased with the NRC's findings, adding that they confirmed investigations conducted by Bechtel and Southern California Edison.

The company added that it hoped the findings would "increase public skepticism" about "anti-nuclear groups that use whistle blowers and the media."

Mr. Kent, who lives in Cypress, Calif., couldn't be reached for comment.

Inquiry Fails to Support Charges on San Onofre

NRC Says Investigation Found No Evidence That Substandard Welds Were Used at Nuclear Plant

By GARY JARLSON, Times Staff Writer

A month-long investigation has failed to substantiate charges that substandard welds were used in construction of critical safety systems at the San Onofre Nuclear Generating Station, the Nuclear Regulatory Commission said Monday.

The federal agency said its inquiry—involving selective examination of welds at the power plant, review of inspection documents and interviews with workers—had turned up no evidence to support allegations by E. Earl Kent, a former Bechtel Power Corp. quality control engineer.

"We have found no construction problems that would indicate any kind of safety problem," said Tom Bishop, branch chief for the commission's regional reactor projects in Walnut Creek. "We found the procedures that are in use by Bechtel were satisfactory, were in accordance with codes and our standards."

Built by Bechtel

Bechtel Power Corp. was the builder of the plant, which is operated by Southern California Edison Co.

Kent, who was fired by Bechtel in March, had claimed that "thousands" of substandard welds on pipe and electrical system supports could lead to the failure of cooling water and radioactive water pipe systems at San Onofre and another nuclear plant that Bechtel is constructing in Midland, Mich.

Kent had said when he made his charges public in October that he was not offering a prediction, but rather a "probability" he had arrived at based on 40 years of experience in welding, including 17 years

as a welding and quality control engineer.

Kent could not be reached for comment on the commission report Monday. However, Billy Garde of the Washington-based Government Accountability Project, which presented Kent's allegations regarding the Midland, Mich., plant to the commission, called the report a "whitewash."

'One of Most Honest'

Garde, who described the project as a "whistleblower group and public-interest law firm" said Kent is "one of the most honest and accurate nuclear witnesses we have ever represented."

For its part, Bechtel said the commission's findings confirmed an earlier investigation by itself and Edison "that welding at the plant has been performed in full compliance with federal regulations."

Bob Dietch, Edison vice president of nuclear engineering and operations, said "I hope that the public, based on seeing the NRC conclusion, would recognize there was no substance to the allegations. We've built a safe plant."

A major portion of Kent's allegations focused on what he claimed was Bechtel's failure to follow American Welding Society code requirements for use of a special type of reinforcing weld on thousands of piping and electrical support beams at San Onofre. Although the society's code does not apply to safety-related systems, Kent claimed that it should because it is the most stringent code available.

The commission, however, requires construction firms and designers to use a different code developed by the American Society of Mechanical Engineers.

Press Intelligence, Inc.
WASHINGTON, D.C. 20005

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LOS ANGELES, CAL.
TIMES DEC 7 1982

MORNING - 1,018,490
SUNDAY - 1,302,325

Press Intelligence, Inc.
WASHINGTON, D.C. 20005

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MANCHESTER, N.H.
UNION-LEADER

DAILY - 65,463

NOV 23 1982

Radioactive Waste Storage Hearings Set

Public hearings on the siting of low-level radioactive waste storage facilities in the Granite Street have been scheduled throughout the state for December.

Sessions will be held in Littleton, Dec. 1. Keene, Dec. 8. Portsmouth, Dec. 15 and Nashua Dec. 29. A hearing has also been scheduled for Concord on Jan. 5.

S. California Edison Cleared of Allegations Of Bad Welding at Unit

By a WALL STREET JOURNAL Staff Reporter

WALNUT CREEK, Calif.—The Nuclear Regulatory Commission's staff said it hasn't found any evidence to substantiate charges that builders used defective welding on a Southern California Edison Co. nuclear power plant.

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was pleased with the NRC's findings, adding that they confirmed investigations conducted by Bechtel and Southern California Edison.

The company added that it hoped the findings would "increase public skepticism" about "anti-nuclear groups that use whistle blowers and the media."

Mr. Kent, who lives in Cypress, Calif., couldn't be reached for comment.

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USA TODAY

DAILY DEC 7 1982

Completion of Clinch River breeder urged

An unusual coalition — including the AFL-CIO, the U.S. Chamber of Commerce and the NAACP — called Monday for the completion of the controversial Clinch River breeder reactor in Tennessee. The House is scheduled to vote soon on whether to cut off funding for the nation's first demonstration breeder. A breeder differs from current nuclear plants because it would create more nuclear fuel than it consumes, while still producing electricity. The coalition said the breeder project would create jobs, but opponents say a soon-to-be-released General Accounting Office review will show that electricity from it will cost 25 cents per kilowatt hour, compared to the 5 cents now charged by the Tennessee Valley Authority.

San Onofre Is Cleared Of Safety Allegations

By STEVE LaRUE

Staff Writer, The San Diego Union

Press Intelligence, Inc.
WASHINGTON, D.C. 20005

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SAN DIEGO, CALIF.
UNION DEC 7 1982

MORNING - 193,334
SUNDAY -- 320,754

However, Bishop said, "There were several places where we feel he misunderstood the codes or their application."

For example, Bishop said, Kent charged that many large valve bodies in reactor cooling systems are incorrectly welded to smaller-diameter pipes because the weld's taper is steeper than the allowed 30 degrees. He explained that this would restrict the flow of water inside the pipes too abruptly, causing metal fatigue in the piping.

"He was pointing to the wrong area (of the valve), which did have a steeper taper but was not subject to the code," Bishop said. He added that the weld in question is tapered to distribute vibration and other stresses; it has nothing to do with internal pressure within the piping.

A federal study dismissing claims of substandard construction at the San Onofre nuclear power plant was accompanied yesterday by pointed criticism of the anti-nuclear group that circulated the charges, and by vows from that group to press for congressional hearings into plant safety.

"It is unfortunate that the public's confidence in San Onofre has been briefly shaken by the highly publicized allegations of a disgruntled, fired employee," Jim Mackin, spokesman for Bechtel Power Co., said of the safety allegations leveled by E. Earl Kent, a senior quality control engineer with the firm before he was fired last March 1.

Kent, who worked at San Onofre from October 1980 through August 1981, alleged that the safety of the new, 1,100-megawatt reactors II and III, as well as that of the 14-year-old Unit I, has been undermined by substandard welds, use of incorrect codes, and other errors.

"We did not substantiate any of the allegations," Thomas W. Bishop, reactor projects chief for the Nuclear Regulatory Commission's western region, told reporters at a briefing yesterday.

"We did not do a superficial job, I assure you, in looking into these allegations," he said. "There are no nuclear safety-related systems which we found to be deficient."

The NRC's 106-page special inspection report released yesterday dealt with allegations made by Kent during a seven-hour interview with two NRC inspectors Oct. 15, as well as during an Oct. 25 plant tour, Bishop said.

A spokesman for the Alliance for Survival, which assisted Kent in publicizing his charges in mid-October, criticized the findings.

"It is a bad distortion of the truth," said Tim Carpenter, media director. "We don't think this is the exhaustive investigation we were hoping for."

He said the alliance is working with the Washington-based Government Accountability Project to prod the NRC to order an independent study of the charges, and to interest the House Subcommittee on Oversight and Investigations to make Kent's charges the subject of congressional hearings.

"It is important to note that Mr. Kent has 40 years of experience in the welding business and came out of Bechtel," Carpenter said. "He is cut out of their same cloth."

Kent was said to be beginning a new job in a remote area of the Mojave desert. He could not be reached for comment.

Mackin, of Bechtel, however, said the NRC results should prompt "renewed public skepticism about anti-nuclear groups that use both whistle blowers and the news media to abuse public confidence."

Though Kent's title was senior quality control engineer, an engineering degree is not required for the position, and he is not a registered engineer, Mackin said.

"His allegations fell into areas in which he was not qualified and for which he was not hired," he said.

NRC investigators interviewed two co-workers Kent said might support his charges, but neither did, the report states.

The report cost the NRC 240 hours of personnel time and \$13,000, and the agency will pay the tab because it found no deficiencies, said NRC spokesman Jim Hanchett.

Bishop declined to answer questions about his opinion of Kent's technical qualifications or motives for making the charges.

Said Hanchett: "We very specifically avoided going into the man's background. We treated it on purely a technical basis."

NUCLEAR COMMERCE IN THE '80s

Conference Proceedings

On April 28-30 key government officials and top-level executives within the nuclear and uranium industries got together at a conference sponsored by Nucleonics Week, NuclearFuel and Inside N.R.C., to discuss the dollars and cents of nuclear business in the decade. All areas pertaining to the industry were covered — utility economics, overall prospects, fuel supply, services to new and operating plants, waste handling, utility/government interaction.

The spotlight quickly came to rest on the services business — estimated by some speakers to be a \$10-billion-a-year business in this decade and broken down category-by-category for the first time by Charles Jones of NUS Corp.

His and all the other 18 addresses, in order of presentation, including diagrams and summaries of panel discussions are now available to you in a single volume. Read these conference proceedings to see what and where the opportunities lie in the coming years.

Quantity is limited, so order your copy today; price \$110. Phone toll-free 800-223-6180 (in New York State call collect 212-997-6410), or write to us at 1221 Ave. of the Americas, New York, N.Y. 10020. For orders outside the U.S. or Canada, telex: RCA 232365, attention Nucleonics Week.

STEPHEN HANAUER HAS LEFT NRC TO JOIN A PRIVATE CONSULTING FIRM, Technical Analysis Corp., Arlington, Va. He had been director of the division of safety technology in the Office of Nuclear Reactor Regulation. Harold Denton, director of that office, has appointed Frank Schroeder, assistant division director for generic projects, to act as head of the safety technology division until a permanent replacement is selected.

Hanauer's new firm, which he joined a week ago, has state regulatory agencies as its principal clients. Hanauer said he will be providing technical expertise in the areas of power plant design and operating costs. Hanauer began his career as an electrical engineer with the Oak Ridge National Laboratory in 1950. From 1965 to 1970 he was a professor of nuclear engineering at the University of Tennessee and served as a member and chairman of the Advisory Committee on Reactor Safeguards. At AEC and then NRC since 1970, his responsibilities included work on the reactor safety study (Wash-1400), plant systems, unresolved safety issues and human factors safety.

NRC HAS DISMISSED ALLEGATIONS MADE BY A FORMER WELDING INSPECTOR that Bechtel's welding practices at Southern California Edison's San Onofre nuclear generating station were deficient. However, the inspector's attorneys are charging that the NRC investigation was a "whitewash."

NRC's Region V office in Walnut Creek, Calif., said Dec. 6 that three inspectors and two investigators from that office had looked into the allegations brought by E. Earl Kent, a former employee of Bechtel Power, builder of the three San Onofre units. "The NRC inspectors found that some of Mr. Kent's concerns had been previously identified and resolved by Southern California Edison and Bechtel, that he misrepresented some welding code requirements and that some allegations were not related to the nuclear safety of the plant," said the Region V office's official statement. Overall, said the statement, "The report concludes that none of the allegations concerning nuclear safety-related systems and components was substantiated and no violations of NRC regulations were identified."

But a source at the Government Accountability Project (GAP), which is representing Kent, said the NRC regional report represents just "the first round." Neither Kent nor his attorneys had received a copy of the investigators' report three days after the NRC press release, the source said, but what they have been able to learn indicates the investigation "does not appear to meet minimum standards." NRC investigators did not talk to a number of persons to whom Kent referred them for corroboration and all his allegations were not included, the source claimed. Kent has 40 years experience as a welder, the source said. His most significant allegation, the source said, involved some Bechtel welding standards which, he alleged, did not meet American Welding Society codes. Kent claimed to have seen the problem, the source said, both at San Onofre and later at the Midland construction site. NRC said Kent "disagreed with certain established and NRC-approved welding and inspections standards," but NRC had reviewed them and found them adequate.

Kent was transferred by Bechtel from San Onofre to a job at the Consumers Power Palisades plant and then to construction at that utility's Midland plant, a job also run by Bechtel. Bechtel spokesmen said Kent was fired at Midland after failing twice to pass an examination certifying him as a welding quality control

inspector. The GAP source said the group, as Kent's attorney, also is questioning the propriety of that firing. Bechtel, however, declared the NRC Region V report a vindication of the conformance of San Onofre to federal safety regulations and in a press release termed Kent "a disgruntled fired employee." Kent's allegations received substantial publicity in California, the statement noted, and said, "We would hope that the product of this exercise would be renewed confidence in the plant and its constructor as well as the integrity of the regulatory process under which nuclear plants are constructed in this country. It would seem inescapable that another product of the Kent affair should be increased public skepticism" about both "the integrity and motives of so-called whistleblowers" and also about antinuclear groups "that use both whistleblowers and the media."

UTILITIES SHOULD SET UP REGIONAL TRAINING CENTERS to train reactor operators, a training expert told a session of the American Nuclear Society's winter meeting in Washington, D.C. William E. Short of Associated Technical Training Services said every utility now is hiring instructors and setting up its own program to train reactor operators, resulting in uneven quality in training and a shortage of training personnel. The academic work involved in training and some basic reactor operations vary little from plant to plant, he said. He urged utilities to pool their resources and have the academic and basic reactor training done at a university with a research reactor. Short suggested programs that would turn out operators who had passed basic written NRC exams, who would then return to the plant for which the utility wanted them licensed and take their plant-specific training. The utilities would save money and alleviate the trainer shortage, he said.

Robert Cockrell, head of the North Carolina State University nuclear program, said utilities should also consider smaller regional programs, particularly within states with concentrations of nuclear plants. Colleges may need utility help in developing appropriate programs, he noted. Several other persons involved with training expressed some doubt about whether utilities could work out funding for regional training and about how much training can be centralized rather than plant specific.

NRC IS PROPOSING TO REVISE ITS LICENSE FEES UPWARD, as much as \$2-million in some cases, to recover increasing costs incurred for inspection of licensed programs and for the review of license applications and approvals for facilities and materials. The new schedule would move charges for reactor construction permits from a range currently estimated at \$846,800-\$1,069,000 to a new estimate of \$2,239,100-\$3,260,000. The fee schedule for operating licenses would be hiked from the currently estimated \$829,100-\$1,024,500 to a new range of \$2,735,000-\$3,181,600.

Most fees for amendment reviews also would jump from the present estimated \$400-\$45,900 to a new estimate of \$150-\$164,600. Research and test reactor amendment reviews would go from the current \$600-\$20,000 to a new estimate of \$150-\$42,100. Other areas that would experience fee increases and some new areas of fee assessment would include applications for requalification and replacement examinations for reactor operators; reactor license amendments and approvals; NRC reports for industry; and radioisotope licenses. The fees for these services would be calculated for the "actual" cost of the activity based on the cost per professional staff-year. The accompanying table shows how this last cost figure is developed.

HOW NRC CALCULATES THE COSTS OF PROFESSIONAL REGULATORS

	NRR	IE	NMSS	ACRS	ASLBP	ASLAP
Personnel compensation costs	\$27,201,000	\$31,058,000	\$10,539,000	\$1,738,000	\$1,661,000	\$615,000
Personnel benefits	2,540,000	2,900,000	985,000	162,000	155,000	57,000
Administrative support costs	11,927,000	6,837,000	6,191,000	563,000	541,000	215,000
Travel & transportation of persons	1,046,000	3,895,000	409,000	342,000	275,000	16,000
Program support	---	---	---	87,000	255,000	---
Subtotal	\$42,714,000	\$44,690,000	\$18,124,000	\$2,892,000	\$2,887,000	\$903,000
Less consultants	174,000	---	130,000	---	---	---
Subtotal	\$42,540,000	\$44,690,000	\$17,994,000	\$2,892,000	\$2,887,000	\$903,000
Proportionate share of PDA/PTS	9,443,129	8,327,225	3,910,612	341,129	657,480	228,757
Total costs	\$51,983,129	\$53,017,225	\$21,904,612	\$3,233,129	\$3,544,480	\$1,131,757
Average cost/professional staff-year	\$111,843	\$94,843	\$104,807	\$111,487	\$110,765	\$118,385
Average cost/professional staff-hour	\$62	\$53	\$58	\$62	\$62	\$66

NRC figures 1,800 staff-hours equal one productive staff-year. Calculated here are FY-81 costs for the Office of Nuclear Reactor Regulation (NRR) with a professional staff of 465, for the Office of Inspection & Enforcement (IE) with 559 professionals, the Office of Nuclear Materials Safety & Safeguards with 209, the staff of the Advisory Committee on Reactor Safeguards (ACRS) with 29, the staff of the Atomic Safety & Licensing Board Panel (ASLBP) with 32, and the staff of the Atomic Safety & Licensing Appeal Panel with 9.56. PDA is program direction and administration, PTS is program technical support.

14

Fired Bechtel Worker Seeks \$100 Million

A Southern California man who claims he was fired by the Bechtel Group for raising questions about the safety of nuclear power plants being built by Bechtel sued the San Francisco-based construction firm yesterday for more than \$100 million.

Bechtel spokesmen confirmed that the man had been fired, but they said that poor job performance, not whistle-blowing, was the reason.

The suit was filed in San Francisco Superior Court by E. Earl Kent, 56, who lost his job as a quality control engineer either last February, according to Bechtel, or last March, according to his attorneys.

He claims he was fired for reporting nuclear power plant safety defects to the Nuclear Regulatory Commission. The suit adds that it is a federal felony if someone knows of safety problems at nuclear installations and does not report them to the NRC.

Kent, who is represented by San Francisco attorney Melvin Belli, seeks \$1 million in general damages and \$100 million in punitive damages.

Paul Cain, a Bechtel spokesman, said that Kent was fired because he twice failed an examination he was required to pass as a condition of keeping his job.

Kent's lawsuit claims that the oral examination, which he had previously passed, was a subterfuge for the real reason he was fired — telling the NRC about numerous defective welds in nuclear plants.

The Bechtel spokesman added that Kent told the NRC about purported welding deficiencies at the Midland Twin Nuclear Power Plant in Michigan but the commission found the charges to be groundless.

A spokesman for the NRC in Chicago, however, said the agency has reopened the case and is re-investigating Kent's charges.

Press Intelligence, Inc.
WASHINGTON, D.C. 20005

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SAN FRANCISCO, CAL.
CHRONICLE

MORNING - 474,001

FEB 19 1983

Press Intelligence, Inc.
WASHINGTON, D.C. 20005

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SAN FRANCISCO, CAL.
EXAMINER

EVENING - 157,293

EXAMINER-CHRONICLE

SUNDAY - 663,303

FEB 19 1983

\$200 million suit against Bechtel

Two former Bechtel Corp. employees have filed twin \$100 million damage suits alleging they were fired because they complained of defective work on nuclear power plants.

The suits were filed yesterday by Paul Monzone of Melvin Belli's law firm.

E. Earl Kent, a senior quality control engineer, alleged in a complaint to the Nuclear Regulatory Agency that there were substandard welds on supports at the San Onofre plant in Orange County and also at the Midlands, Mich., nuclear facility. Both were Bechtel-built. The NRC completed an investigation of his charges, but found them without merit.

Shortly thereafter, Kent, who is in his 50s and had worked for Bechtel less than two years, was terminated. A Bechtel spokeswoman said Kent was let go in February 1982 after flunking two oral examinations for a different job.

The spokeswoman, Kristy Machlanski, also said that Kent's job description at the time of his termination was not quality control engineer, but welding inspector.

The other suit was filed by Ken West, who worked for Bechtel in La Mirada as a piping engineer involved in parts destined for Korean nuclear power plants. His complaints alleged that certain defects in critical valves of the power plants were being manufactured and shipped abroad.

Machlanski said that West's title was senior designer and not piping engineer. She said he was fired for "unsatisfactory job performance." She said the firm has no record of West's defective valve reports.

The twin suits each seek a minimum of \$100 million in punitive damages.

Ex-Inspector Sues Bechtel Power, Links Faulty Weld Report To Firing

A former senior quality control inspector sued Bechtel Power Corp. for \$101 million yesterday, claiming he was wrongfully fired because he reported "thousands" of faulty welds at the San Onofre and Midland (Mich.) nuclear power plants.

Bechtel spokesman Jim Mackin said, however, that inspector E. Earl Kent, 57, did not make his allegations to company officials until after he was fired "after twice failing an oral examination to qualify for promotion to piping quality control inspector."

A \$13,000 study by the Nuclear Regulatory Commission of Kent's charges concluded in early December that none of the allegations regarding San Onofre was true, and that Bechtel had not violated NRC rules in building the plant.

His charges of substandard welds at the Midland plant were found groundless in an earlier NRC review.

The suit, filed yesterday in Superior Court in San Francisco, alleges that Kent was fired for reasons other than his failure to pass an oral examination, as Bechtel officials have stated.

"If we can show that they terminated him because he complained, then we have a wrongful termination," said Paul Mongione, Kent's attorney and an associate of flamboyant lawyer Melvin M. Belli.

Mongione said the Belli firm is confident it can illustrate that the welds were faulty, despite the NRC findings.

"The NRC is probably involved in a whitewash of these deficiencies," he said.

But he said the suit will focus on the contention that the real reason the company fired Kent in February 1982 were his reports of substandard work.

The Belli firm also filed a parallel suit asking \$101 million from Bechtel for the alleged wrongful firing of Kenneth West, a welder who charges that he was discharged only because he complained that the company had manufactured faulty valves for use in Korean nuclear power stations.

Mackin said West initially charged that his dismissal for "unsatisfactory job performance" was age discrimination.

"We have no formal records from Mr. West of alleged valve problems — this is the first we have heard of them," Mackin said.

Mongione said the Belli firm is handling the case for a percentage of any settlement with Bechtel. If not settled out of court, the case could wait two to three years before being heard by a jury, he said.

Press Intelligence, Inc.

WASHINGTON, D.C. 20002

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SAN DIEGO, CALIF.
UNION FEB 19 1983

MORNING - 198,334
SUNDAY -- 320,754

Press Intelligence, Inc.

WASHINGTON, D.C. 20001

Front Page	Edit Page	Other Page

SOUTHAMPTON, N.Y.
PRESS FEB 17 1983
WEEKLY - 7,363

Opposed to Shoreham

To the Editor:

The text of the following letter has been sent by us to our various officials in Albany, Washington, and Hauppauge. We urge others to do likewise.

For the following reasons we are unalterably opposed to the operation of the Shoreham Nuclear Power Plant.

1. No authority can guarantee that there will not be an accident.

2. There is no way we people on the eastern end of Long Island could be evacuated.

3. There is no way to dispose of the nuclear wastes.

4. The cost to the ratepayers will be prohibitive.

5. Long Island will not need the additional power generated at Shoreham.

6. In 30 years the plant will be obsolete. Some other way must be found to solve this problem. Another wrong will not make a right.

We depend on you to act responsibly in this matter. Stop the Shoreham Nuclear Power Plant from operating.

Most sincerely,
JANE B. SEABURY
DONALD S. SEABURY
Bridgehampton

FEB 20 1983

Allen's P.C.B. E.C. 1888

—Belli sues Bechtel for \$100 million—

66-12
A lawsuit seeking \$100 million in damages from Bechtel Inc. of San Francisco was filed Friday in San Francisco Superior Court for the wrongful firing of a whistleblower who found construction defects in two nuclear power plants built by Bechtel.

Attorney Melvin Belli said at a press conference he is filing the suit on behalf of E. Earl Kent, a senior quality control engineer, because he was fired without good cause. Kent had worked for the Bechtel Power Corp. for nearly three years.

A companion suit filed by former Bechtel employee Ken West, a welder, will also be filed. West worked for the firm for nine years.

"What's at stake here is the health and safety of hundreds of thousands of Americans, not only those who work in these facilities, but innocent people who live within the range of

what could be potentially a lethal nuclear accident," said Belli.

Plaintiff Kent contends substandard welding and valves were used to build the Midland Michigan and San Onofre nuclear power plants.

Kent's discovery of substandard welds on pipe and electrical system supports could potentially trigger a breakdown of cooling water and radioactive water pipe systems in the power plants, said Belli.

Belli said Kent was discharged in March 1982. Kent initially brought the construction defects to the attention of Bechtel officials, but nothing was done. Last September he went to the federal Nuclear Regulatory Commission to inform the NRC of alleged poor workmanship at the nuclear facilities.

Although the NRC's investigation found that

none of Kent's allegations concerning safety features were substantiated, the NRC is currently conducting another probe after the Government Accountability Project, a Washington, D.C., nuclear power watchdog organization, complained the initial probe was improperly conducted.

"Kent's attempt to prevent a China Syndrome, in fact, cost him his job. But we should be grateful that he had the guts to speak up," the San Francisco attorney said.

"I feel very strongly about nuclear power," Belli said. "but here you have a big construction company attempting to belittle the concerns of two former employees who found defects in power nuclear power facilities. I think that this is a horrendous situation."

A Bechtel spokesperson was unavailable to comment on the suit.

Among the suit's damages are wrongful discharge, intentional infliction of emotional distress, breach of contract, defamation and fraud and deceit.

BACKGROUND INFORMATION ON ALLEGED AT ~~XXXX~~ SITES
OTHER THAN MIDLAND. EXEMPTED FROM FOIA P3-446 PER
8/19/83 TELCON WITH POLY SCHORFIELD.

WEL

KENT CHRONOLOGY

6/6/25	Birthdate
10/69-5/71	at Litton Industries Marine Tech. Div.
10/8/80	50.55e on socket welds
11/7/80	interim 50.55e on socket welds

San Onofre	
10/80-8/81	Kent at San Onofre

12/16/80	final 50.55e report on socket welds
8/24/81	Bechtel to Kent, thank you ltr on DG repair effort.

Palisades	
8/31-11/20/81	Kent at Palisades

Midland	
2/9/82	Kent at Midland, given LI test first time
2/12/82	Kent given formal counseling session
2/22/82	memo documents counseling, Kent declines to sign
2/24-25/82	trips to field with Vandenberg
2/25/82	Kent says was advised of termination
2/26/82	Kent contacts FBI office
3/1/82	Kent interviewed by Don Daniels, formal termination

3/2/82	RIII contacted by FBI in the a.m.
3/2/82	1:05 conference call, Kent, Stamanis, end 1:53
3/2/82	8:21 p.m. Foster re-contacts Kent
3/3/82	calls to Midland, Foster to Cook and Ward
3/3/82	Foster memo
3/4/82	Foster memo
3/2-4/82	inspection period
3/4/82	Kent's picture in paper (unrelated)
3/5/82	Foster memo
3/8/82	memo re: Kent
3/9/82	R. Cook sends weld travelers to Foster
3/9/82	Bechtel memo, cert file for Kent
3/17/82	call to R. Vandenberg @ 9:10 p.m.
3/17/82	Stamanis calls RIII
3/17/82	Kent calls RIII (in transit)
3/22/82	Foster memo
3/24/82	inspection report 329/82-04 issued
5/12/82	letter, Stamanis to Foster
6/26/82?	Cook memo states socket weld issue closed
6/29/82	GAP sends Kent affidavit & 5 others to RIII
7/16/82	Kent affidavit modified & dated
8/10/82	Kent calls RIII
8/12/82	Kent in RIII, interview taped, 10:25-12:45
8/16/82	Kent calls RIII
9/3/82	Kent contacts San Onofre licensee
9/7/82	GAP letter to Keppler
9/13/82	Kent calls RIII, says WXYZ has called him
9/16/82	ltr to Kent, Curran, alleg. not substantiated
9/17/82	Rpt. 361/82-27, inspectors notified of allegations

9/24/82 memo, Foster to Keppler re: GAP ltr of 9/6/82
 9/27/82 Kent contacts John O'Dell, LA Times
 9/30/82 Foster memo
 10/6/82 Kent calls RIII
 10/6/82 John O'Dell calls RIII @ 1:20 p.m.
 10/7/82 O'Dell call to Foster
 10/12/82 response to GAP letter from Keppler
 10/12/82 Saginaw news article
 10/13/82 LA Times article
 10/15/82 NRC RIV interview
 10/16/82 Kent refuses to sign NRC affidavit
 10/18/82 Ltr to Sen. Cranston, Comm. Energy Action Network
 10/18-27/82 inspection at San Onofre
 10/22/82 Kirsch memo, Kent tour of areas, concerns
 10/25/82 San Onofre plant tour
 10/27/82 FOIA request, Alliance for Survival (82-528)
 10/29/82 Sen. Cranston sends 10/18 ltr to NRC
 11/2/82 B. Garde phone call
 11/5/82 Response to Cranston ltr from Dincks
 11/17/82 ASLE for Midland notified
 11/30/82 Insp rpts 206/82-31, 361/82-31, 362/82-27 issued
 12/14/82 FOIA request, GAP for E. Kent (82-616)
 2/10/83 Kent on TV program "lie detector"
 2/18/83 Kent & another file suit for \$1 million vs Bechtel
 6/20/83 GAP ltr protesting RV mishandling

1/31/84 OIA TELEPHONICALLY INTERVIEWS FOSTER (ONLY RIII INTERVIEW
 IN REPORT).

4/3/84 OIA REPORT ON RIV REPORT, HANDLING OF KENT.

4/4/84 TRANSMITTAL OF OIA REPORT TO COMMISSIONERS.

3/6/85 GAP LETTER RE HANDLING OF KENT CASE
 (RECEIVED IN RIII 3/14/85).

E.E.KENT CHRONOLOGY

6/6/25 Birthdate
10/69-5/71 at Litton Industries Marine Tech. Div.
10/8/80 San Onofre 50.55e on socket welds
11/7/80 interim San Onofre 50.55e on socket welds

San Onofre

10/80-8/81 Kent at San Onofre
12/16/80 final San Onofre 50.55e report on socket welds
8/24/81 Bechtel to Kent, thank you ltr on DG repair effort.

Palisades

8/31-11/20/81 Kent at Palisades

Midland

12/81? Kent at Midland, weld inspector trainee
2/9/82 Kent at Midland, given LI test first time
2/12/82 Kent given formal counseling session
2/22/82 memo documents counseling, Kent declines to sign
2/24-25/82 trips to field with Vandembosch
2/25/82 Kent says was advised of termination
2/26/82 Kent contacts FBI office
3/1/82 Kent interviewed by Don Daniels, formal termination

RIII Contacted

3/2/82 RIII contacted by FBI in the a.m.
3/2/82 1:05 conference call, Kent, Stamaris, end 1:53
3/2/82 8:21 p.m. Foster re-contacts Kent
3/3/82 calls to Midland, Foster to Cook and Ward
3/3/82 Foster memo
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3/2-4/82 inspection period
3/4/82 Kents picture in paper (unrelated)
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5/12/82 letter, Stamaris to Foster
6/26/82? Cook memo states socket weld issue closed.

GAP involvement Begins

6/29/82 GAP sends Kent affidavit & 5 others to RIII
7/16/82 Kent affidavit modified & dated
8/10/82 Kent calls RIII
8/12/82 Kent in RIII, interview taped, 10:25-12:45
8/16/82 Kent calls RIII

Region V

9/3/82 Kent contacts San Onofre licensee
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 10/12/82 Saginaw news article
 10/13/82 LA Times article

 OI:RV Involvement

10/15/82 NRC RIV interview
 10/16/82 Kent refuses to sign NRC affidavit
 10/18/82 Ltr to Sen. Cranston, Comm. Energy Action Network
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 2/10/83 Kent on TV program "lie detector"
 2/18/83 Kent & another file suit for \$1 million vs Bechtel
 6/20/83 GAP ltr protesting RV mishandling

 1/31/84 Foster interviewed via telephone by Puglia (DIA).
 4/4/84 DIA review report, treatment of E. E. Kent.
 5/14/84 GAP FOIA on DIA report re: Kent handling.
 5/30/84 GAP appeal of "effective denial" of DIA report.
 7/6/84 SECY-84-272 re: GAP FOIA appeal.
 7/12/84 response to two FOIA letters, above.
 8/23/84 BNL letter, proposed review of allegations.
 8/28/84 Foster memo to Harrison, review of above letter.

 3/6/85 GAP letter asking for ASLB review of allegations.
 4/11/85 FOIA by C. Rillo, of Thelen, Marrin, Johnson & B.

3 welds characterized as "worst socket welds", these were found to be two-inch lines in the auxiliary building.

weld FSK-M-11-1BC-58-2, log #149252 #91, welded 1/29/82,
inspected by Schulz 1/29/82.

weld FSK-M-11-1BC-58-2, #90, welded 2/2/82,
inspected by Schulz 2/2/82.

weld FSK-M-11-1BC-58-2, #89, welded 2/2/82,
inspected by Schulz

=
= "ON FULL DAY:

= CONSUMERS POWER CO HAS MADE SUBSTANTIAL EFFORTS OVER THE PAST YEARS TO ASSURE THAT PLANT WORKERS HAVE OPEN CHANNELS OF COMMUNICATION TO EXPRESS ANY CONCERNS THEY MAY HAVE ABOUT THE CONSTRUCTION, TESTING, OR OPERATION OF THE MIDLAND NUCLEAR PLANT. THESE PROGRAMS HAVE BEEN CLEARLY STATED TO THE 4500 WORKERS ON SITE BY POSTINGS THROUGHOUT THE PLANT AND IN EMPLOYEE INFORMATION MEETINGS.

= GWP HAS BEEN AWARE OF THESE PROGRAMS AND MOST RECENTLY THE COMPANY'S COMMITMENT WAS REINFORCED IN A JUNE 16 LETTER SENT TO THE GWP ORGANIZATION FROM B. H. MARGUOLIS, DIRECTOR OF THE MIDLAND PROJECT QUALITY ASSURANCE PROGRAM. THE LETTER GAVE GWP THE OPPORTUNITY TO STATE ITS ALLEGATIONS ABOUT THE PLANT AND MR. M. PLEDGED THAT A COMPLETE INVESTIGATION WOULD BE MADE AND THAT FINDINGS WOULD BE SUBMITTED TO GWP.

= GWP HAS NOT RESPONDED TO THE CONSUMERS OFFER, BUT INSTEAD CHOSE, STARTING LAST FRIDAY TO INFORM SELECT NEWS MEDIA OF VAGUE ALLEGATIONS WITH THE OBVIOUS INTENT OF PROMOTING ADDITIONAL PRESS COVERAGE. GWP'S INNUEENDO AND BLANKET STATEMENTS DO NO ONE ANY GOOD IN THE CONTINUING DISCUSSION OF THE MIDLAND NUCLEAR PLANT.

= CP CANDIDLY ASKED GWP FOR THE OPPORTUNITY TO MAKE AN OBJECTIVE AND OPEN APPRAISAL OF ALLEGATIONS. INSTEAD OF RESPONDING TO CP AND GIVING US A CHANCE TO DEMONSTRATE OUR INTEGRITY, GWP HAS SLIGHTED THE MIDLAND COMMUNITY AND HAS CHOSEN TO HOLD A PRESS CONFERENCE IN LANSING. EARLY IN GWP'S INVESTIGATION THEY PROCLAIMED THEY WERE HERE "TO WORK WITH US". CP GAVE THEM THIS OPPORTUNITY BUT GWP HAS REFUSED TO COOPERATE WITH ANY MEANINGFUL INVESTIGATION. INSTEAD, WE ARE TREATED TO TRIAL BY MEDIA, GUILTY UNTIL PROVEN INNOCENT, AND POLITICAL TACTICS REMINISCENT OF THE MCCARTHY ERA.

= CONSUMERS POWER OPENLY ENCOURAGES EMPLOYEES TO MAKE KNOWN ANY CONCERN THEY MAY HAVE ABOUT ANY ASPECT OF THEIR WORK. IF THEY PROVIDE SUBSTANTIVE INFORMATION, EITHER ANONYMOUSLY OR OPENLY, A COMPLETE AND THOROUGH INVESTIGATION IS MADE. OUR EMPLOYEES HAVE FOLLOWED THIS COURSE OF ACTION AND HAVE HAD THEIR CONCERNS RESOLVED. UNTIL WE ARE GIVEN THE BENEFIT OF THE SPECIFIC GWP ALLEGATIONS, IT IS IMPOSSIBLE FOR CP TO FULLY RESPOND TO THEIR CONCERNS. THE OPPORTUNITIES THAT CP HAS GIVEN GWP TO PRESENT ITS CONCERNS DEMONSTRATE THE GOOD FAITH EFFORT MADE BY THE COMPANY TO USE ALL POSSIBLE COMMUNICATION CHANNELS TO INVESTIGATE ANY POTENTIAL ALLEGATION AND TAKE APPROPRIATE ACTION IS REQUIRED.

= SUBVERTING THIS PROCESS AND NOT GIVING THE COMPANY THE OPPORTUNITY TO INITIATE A THOROUGH INVESTIGATION IS A DISSERVICE TO THE PLANT WORKERS, SAFETY OF THE PLANT AND THE GENERAL PUBLIC.

DO NOT DISCLOSE
Contains identity of
confidential source

G/28

EARL KENT

WELDING CONSULTANT

9809 SPRUCE COURT

CYPRESS, CALIFORNIA 90630

(714) 828-8064

OVER



E. E. KENT

QUALITY ENGINEER

WESTERN PRECIPITATION
DIVISION
JOY MANUFACTURING CO.

4565 COLORADO BOULEVARD
LOS ANGELES, CALIF. 90039
(213) 240-2300

G/29

38
300

FBI Detroit 3/2/82

Midland
Alleging defective welds

(AUEBER) C. Earl Kent - Sen. QA Eng. for Bechtel

Plant 74% complete
Has detected 100% welds ^(HUNDREDS OF WELDS) ON 3000 PSI lines →
→ which were defective

Were Brought to attn. of Eugene Smith + William Creel
Bechtel SF CA CSHE PERSONNEL PER LOOK

Welds were passed anyway
He Brought to attn of his superiors (no names given)
+ was told to keep mouth shut

- 2/25/82 was discharged
- called FBI on 2/26/82

Taken by: Robert Burton
3/2/82

called R. Look @ 10:30 3/2/82
J. Foster

(41)

I-1

1:05 p.m. 3/2/82

conference call
Kent, Stenaris,
WARRICK KEY, DANIELSON
Bill Dayton

E. EARL KENT,

QC not reading fillet gauges on
socket welds - socket fillet
allowing undersized welds to be
passed

legs touching blade -
High-pressure systems.

December

came from Balisades, San Angelo

QC engr. - insp. visual.

Area - misc.

Problem - others had inspected
and OK

Bill Creel - his boss
he + another: KUNSKI AND (SCHULZ)
and took 8 at random - DID AUDITS
13 - 3 required re-welding
() in another

I-2

~~1-2~~

Welds undersized - no corrective
action

Weld not need to touch blade

Paul Schulz - brought to his attention.
drew him a diagram

Engene Smith - Proj. field QC

Older welds undersized

^{TO CORRECT}
Made a request to behtel for all
welds to be reinspected

7 main steam piping - showed ^{SAND WAS REMOVED}
one weld has concavity not allowed
outside of containment before relief
valve.

peeling over of the edge of the socket
weld

GROOVE Weld

Yesterday terminated - was going to

DON DANIELS - FROM ANN ARBOR - talked
to him at Holiday Inn

Employee

Not agree with any of the above -
ask for inv. of above

Never seen so many untrial
w/ also accepted!

26

SMITH - FRIDAY TERM. "FROZEN"

DANIELS SAID ALL INSPECTORS
QUALIFIED - DID NOT SAY WHY FIRED..

DREW PICTURES + DIAGRAMS

NOT DISCUSSED WITH ANI OR RESIDENT



Wants us to check academic standing
of all people involved.

4
of 5

STAMPERS - weld on containment liner plate

Kent - 2nd hand info - X rays of liner plate - FEB 12 -
MAY have been - in front of other inspectors

not how if 100 RT
only how of statement
not how if corrective

check hangers - subject to question

only welds at web - none at flanges - generic
1/2 welded

check socket welds 1st -
all Q systems

(not full 3 mo).

San Onofre 1-2-3
PALISADES

16 mos. nuclear
TOTAL

1.46

Called 2/26 - FBI - wanted
protection - not threatened -

Melting of rim - socket weld

INSP SOCKET
FIND STEAM WELD
CONTAINMENT LINER PLATE

TECHNICAL SUPPORT

5
45

Negative count on Greel's knowledge
re: blades used to measure milk-

end: 1:53

(..)

VANDEVIER

VAN DER KENBERG

VAN-Y

3/2/82

Stone Call

E. EARL KENT RE: MIDLAND
(1)

1
104

8:21 pm.

"GENERIC"

both SS OR CS

schel. 40 or 60 or 80

3/4 - 1 - 1 1/2 - 2 - 3

150 lbs - 3,000 lbs.

lowest elevation, auxiliary area. 9 p.p.m.

IR - inspection reports for last year.

* () - good man - has tried
to make plant good -
(DUTCH) called him this evening ---
has looked at main steam - agreed
that weld is unacceptable.

8:31

() was in SAN ANTONIO - good man

() can give list from "AUDIT"....

LOG NO. 149252 UNDERCUT WELD#
DRAWING FSK-M-1HBC-58-2-91
1HBC 58

INSP. BY
PAUL
STULZ

" 149253 FAILED
FSK-M-1HBC-58-2-90 SIZE

" 149251
FSK-M-1HBC-58-2-89 FAILED
↑ WORST
↓

I-3

3/2/82

EARL KENT

Phone call

2
2 of 2

other 10 were acceptable

2" I.A. Carbon steel line

using fillet gauges incorrectly.

published several articles...
Welding instructor...
Welding encyclopedia...

8:47

WANTS CONFIDENTIALITY....

BECHTEL SPEC ON E 7018 CODE
8 HRS COLD + OUT OF
WARMER

BECHTEL
SPECS.

PURGE SPEC. 1-40 CFM
100 MOUTH LATITUDE

9:00

DEW POINT NOT CHECKED ON ARGON
NO RECORDS

9:06

MISC ON BECHTEL
end

3/2/82

1.

2.

9:14 → NO ANS.

DIRECTORY ASSISTANCE

)

NO

SAYS WANT R/H
WORKS FOR BECHTEL

)

YES

3/3/82

RON COOK

Phone Call

KVIN WARD

3:30

29 welds looked at this A.M.
3(1") rest 2" dia

36 in pipe steam line 1st weld gap
slight mismatch

has been UT'd - OK

lines plate Feb. 12
meeting - NCR FEB 19th

Hartford Steam + Boiler review of
100% review S. Bailey Worker
100'S OF WELDS

19 welds techniques or quality
borderline or "GRAY" AREAS
critical review

talked to []
Kent was trying to qualify for
level I visual exam...

Did not check moisture level of ARGON... RICHMOND

[] = KENT SAW EVERYTHING AS WRONG
WALK BY SOMETHING - SAY "THAT DOESN'T LOOK
RIGHT."

and
3:47

~~II-4~~
II-4

3/2/82

Phone Call

12:40

three "worst welds" - OK. look nice

right-on dimensions
look good - suggest

in addition
looked at 25-27 welds - really great
talked to several others -

he failed 1st test - tried to work in
field - did everything but what was desired
failed 2nd test ^{gave every chance}

showed papers he had written

he believed and saved
cooled down - daves
1,000's of bad welds...

() - had been on p.m. shift
problems - paperwork errors -
sent inspectors after him
December-January disqualified
retrained - requalified

GUY SAID HE WAS GOING TO GO
TO NRC

IS BEING TRACKED IS IN SYSTEM - WE
WILL FOLLOW UP

IS

3/3/82

9:35

Kent

Phone Call

RON COOK + KAVIN WARD

KENT

never been certified at Midland
could not pass test for qualification
was erratic - sorted & moved

YESTERDAY

INSPECTOR (MORRIS) WAS DISQUALIFIED - MISSED
UNDERSIZED WELD (SOCKET) -
HAS INSPECTED 1,000 ± welds
BEEN REQUALIFIED....

PROCEDURE IS IN DECIMALS -
GUAGE IS IN FRACTIONS

PLAN: LOOK AT 3 WELDS

LET LICENSEE LOOK AT (1) + OTHER
SOCKET WELDS -

LICENSEE FOUND

MPQAD - LOOKING AT GENERIC PROBLEM -
- MAY SAMPLE

PLAN TO BACKTRACK (1) WELDS

END
9:50 ±

COOK + WARD FEEL SHOULD LET LICENSEE
DO JOB - NOT HAVE NRC DO JOB FOR THEM

3/9/82

FTS:

STAMMARIS

RE: MIDLAND
E. EARL KENT

FEB. 9th

1ST TEST

3/17/82 returning her call of 3/16/82.

3/18/82 called R. Cook - discussed new info
grave .195 vs .250 required
conservatism built in -

.055 conservatism

1/16 - 0.0625

3/17/82

Phone call

(1)

E. EARL KENT

called collect
location unknown

Steam line in weld
opposite of what I told him
- did not meet code

- not meet min. offset
socket welds

all 3 need re-welding
if use it correctly, fillet gauge
not just touch, but
no light under 45° angle

Paul Schultz - incorrectly reading
fillet gauge - surprised when shown

all 8 undersized of 8 weld sample
agreed

recommend

all piping welds re-inspected -

LII San Onofre

LII - Calisades VT + PT^{VT}

I advised LII^{VT} at Calisades.

() - agreed - feel RTH incorrect

#

F-7

3/17/82 KENT

2

Socket Weld Engagement
READ TO ME:
So PHONE Call MEMO

April 24, 1981. 10:20 EST.

phone call
E. SMITH to
HACKNEY - MN455

SUB. SOCKET WELD ENGAGEMENT

BWS (PROCEDURE #). TALKED TOO FAST...

Intent $\frac{1}{8}$ ^{gap} prior to weld
 $\frac{1}{16}$

minimum

(HIS PROBLEM): maximum - such that
pipe is not withdrawn
from fitting....

ANY GAP between pipe + socket
acceptable over minimum

QC to use interpretation of
code

feels not meeting the intent of the code -

3/17/82 KENT

3

intent of Code.

Bill Auel

not "welcome him on site."

Tests: only one other grade 26 there
Schuty - wanted to hire people off of
the street + train

Written + practical test

Set up test to discredit him....

2 TRIES

Site policy - BECHTEL policy

Welding expertise...

Since 1961 - know

his publications:

Welding Structural Steels
Structural Steels

Welding Engineers ^{magazine} Engineering
Sept 1961 Date
FORMS

Our inspectors not on the ball
+ if agreed welds need re-work

Personal Opinion - Audit all welds in plant.

3/17/82 KENT

4

Correct way of reading fillet
guage shown to SCHULTZ -
he said had been doing this
the wrong way - he expressed surprise

ANN ARBOR GUY - AMAZED

WERE NOT READING FILLET

GUAGES CORRECTLY -

end

2:07

3/17/82

Phone Call

1

9:10

RE: MIDLAND
EARL KENT

Earl thought had some findings
IR's in last meets
borderline calls by 1st inspector
tighter gauge
→ rounded 16th gauge - undersized
std. 195 filler leg

Welds met code size
socket welds these welds were
8 of eight done years ago
on generic NCR
re: undersized welds NOT YET
RE DONE
Earl knew of this - I told him
gave him the NCR # he may have not
believed me...

Monis - had some problems
recertification - WELDS REINSPECTED
all documented - many findings - NCR'S.

Main steam line - Earl had concern
151 prep. - transition area -
did meet Code - he had no
concern - well within the
acceptable range

9:25 Concurred that area was in
"judgment area" - if took exact
ASME gauge - some are judgment
calls

~~#1~~
I-8

3/17/82

) re: Midland

2

EARL HIM

asked if he was inspector, how would
he call it...

(is in a technical group. ~~Dis~~

problems being identified... corrected OK.
no concerns to report

Signing Mechanical Group 1st line
technical group

surveillance + NDE
dispositions

On site 3 yrs.

end 9:40 p.m.

→ Worked w/ Earl at San Onofre

3/17/82 Barb Stomaris

10:15(+) talked to Kent - he is in transit (?)

LI test

Kent: reason not pass - already
asking questions about builds at site.

said was level II. at palisades.

+ wrote Welding Magazine articles in
1961 - 1974
publication

according to Kent - was w/ 8 of 8 undersized

documentation

he had gotten resume from Cook...

* Need to call ()
ask about 8 of 8 + misc.

end 10:25

note: I advised: Kent took 2nd
test 2/26/82,
info from Palisades - was LI VISUAL
LII PT

H-9

Phone call

8/10/82 **E. EARL KENT** RE: Midland

my work corrected

[told him weld transition
slope violated ASME Code

like to come to MO - draw pictures
and show us some things -
in St. Louis -

Reinforcement on groove welds

$\frac{1}{3}$ "	vs.	$\frac{1}{8}$ "
↑		↑
Beveled		Code
max.		max.

9/13/82

1:03 p.m.

to Carl Kent

Will present

()

~~WXY2~~

WXY2 - called him

WXY2 - will be doing series on
Midland.

wanted to help on investigation at
Midland - said had been contacted
by WXY2 - "someone" had put them in
touch with him..

I advised we might need to contact
him - got it

Nice friendly conversation --

JH

September 20, 1982

Mr. R. L. Patterson, Manager
Division Quality Assurance
Echtel Power Corporation
P. O. Box 60860, Terminal Annex
Los Angeles, CA 90060

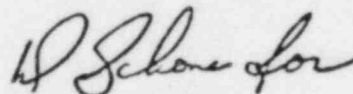
Dear Mr. Patterson:

SUBJECT: SCE Quality Assurance Audit Report DPCS-13-82
San Onofre Nuclear Generating Station, Units 2 & 3

Enclosed is a copy of the registered letter to Mr. E. E. Kent. Also enclosed are the results of the audit conducted on September 8 through 9, 1982 to address allegations raised regarding the adequacy of welding and Nondestructive Examination performed at San Onofre Units 2 & 3.

There were no Corrective Action Requests (CAR's) generated as a result of this audit. The audit is transmitted for your information.

Very truly yours,



J. M. Curran
Manager, Quality Assurance

✓ GPVaslos:dsg

Enclosure

cc: H. F. McCluskey
J. H. McCarty
J. W. Sheppard
bcc: L. T. Papay
R. Dietch
K. P. Baskin
J. A. Beoletto
D. B. Schone/Site QA File
CDMC

September 16, 1982

RECEIVED
SEP 20 1982
S.O.N.G.S. 2 & 3

Mr. Earl Kent
9809 Spruce Court
Cypress, California 90630

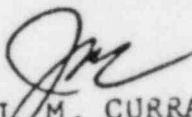
Dear Mr. Kent:

Thank you for bringing your concerns relative to welding and nondestructive examination at San Onofre to our attention on September 7, 1982.

To thoroughly investigate and address your concerns, special quality assurance audits and inspections were performed. In addition, the Bechtel and Edison Engineering organizations have been consulted to evaluate compliance of San Onofre with the ASME Code, AWS D.1.1 welding standard and SNT-TC-1A, where applicable. For each of your items, it was determined that welding and nondestructive examinations, conducted at San Onofre comply with the applicable codes and standards. Accordingly, our findings do not substantiate your claims.

Again, Mr. Kent, we thank you for your interest. Please be assured that we will continue to audit these and other areas to verify that the requisite quality of work at San Onofre is maintained.

Sincerely,



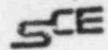
J. M. CURRAN
Manager, Quality Assurance

12/1/82 JMC

JM Curran

bcc: L. T. Papay
Robert Dietch
D. E. Nunn
K. P. Baskin
P. R. King
D. C. Stonecipher
G. P. Vaslos
J. A. Beoletto
D. M. Barron
D. B. Schone/Site QA File
J. M. Curran
J. G. Haynes

1279Q



QUALITY ASSURANCE ORGANIZATION

AUDIT REPORT

1. Project SONGS 2 & 32. Audit Report No. BPCS-13-823. Audit Dates 9/8-9/824. FOR DOCUMENTATION
CONTROL CENTER
USE ONLY5. NAME AND ADDRESS OF COMPANY AUDITED
Bechtel Power Corporation
SONGS 2 & 3 Jobsite6. CRITERIA BEING AUDITED
10CFR50, Appendix B
Criterion III, X, XVIIAUDIT PURPOSE AND SCOPE

This special audit was performed to address allegations brought to the attention of Southern California Edison Company on September 3 and September 7, 1982, regarding the adequacy of welding performed at San Onofre Units 2 and 3. These concerns are documented in Attachments 1 and 2.

AUDIT HISTORY

Previous recent audits of welding control are as follows:

<u>Audit Report Number</u>	<u>CAR's Issued</u>
BPCS-6-81	None
BPCS-66-80	None
BPCS-6-79	S023 F-724 and S023 F-725
BPCS-14-79	None

The Corrective Action Requests (CAR's) generated during BPCS-6-79 have subsequently been closed.

AUDIT PLAN

See the attached Audit Plan Items 1 through 3.

AUDIT COMMENTS

Mr. J. H. McCarty, Project QA/C Manager, San Onofre Units 2 and 3, Bechtel Power Corporation, was notified on September 8, 1982, of the scope of this audit. His assistance was requested in order to resolve these issues in a timely manner. On September 13, 1982, a formal request was made to Mr. R. L. Patterson, Manager, Division Quality Assurance, Bechtel Power Corporation to obtain the Bechtel Corporation position (Attachment 3).

(Continued)

8. AUDIT PERFORMED BY	DATE	9. APPROVED	DATE
<i>G. P. Vaslos</i> G. P. Vaslos	9/8/82	D. B. Schone <i>D. B. Schone</i>	9/20/82

10. PERSONNEL CONTACTED

J. H. McCarty	J. W. Newbrough
J. W. Sheppard	R. S. Ruiz
B. O. Faber	D. Martin

11. AUDIT TEAM MEMBERS

G. P. Vaslos
V. A. Gow

12. CORRECTIVE ACTION REQUESTS OR NONCONFORMANCE REPORTS ISSUED AGAINST THIS AUDIT REPORT

None.

13. DISTRIBUTION	DATE	14. APPROVED	DATE
<i>G. P. Vaslos</i> G. P. Vaslos	9/20/82	D. B. Schone <i>D. B. Schone</i>	9/20/82

R. L. Patterson-Bechtel	K. P. Baskin	D. C. Stonecipher
J. H. McCarty-Bechtel	O. J. Ortega	P. R. King
J. W. Sheppard-Bechtel	D. E. Nunn	G. P. Vaslos
B. O. Faber-Bechtel	J. M. Curran	D. B. Schone/Site QA File
CDMC		

AUDIT COMMENTS CONT

The four issues identified during the meeting on September 7, 1982 (Attachment 2) were addressed in this audit:

1. The concern that the welding requirements of AWS D.1.1 were not being followed regarding end returns. Audit Plan Item No. 1 addresses this issue. A sample of drawings were reviewed, found to call out end returns as required, and an inspection was performed to verify their actual installation. Attachment 4 documents the Bechtel Field Inspector's Report performed on September 10, 1982 to reverify end returns had been applied in each case.

The details and sections in the sample were also verified as being on the drawing revisions in effect during November and December 1980. The person making the allegation worked in the field at San Onofre during November 1980 only. He was assigned to office tasks during the other periods.

2. The concern that a spacer plate was missing on the inside door hinge of the Unit 2 personnel hatch. Drawing S023-205-5-369-4 was reviewed. No spacer is required for this installation. A field surveillance was performed on both Units 2 and 3 which is documented in Attachment 5. Unit 3 installation was in accordance with the drawing as was the lower Unit 2 hinge support. However the upper hinge support has an undersized fillet weld with a 3/16" gap in the fit-up.

Both Bechtel and Edison Engineering were consulted to determine the adequacy of the undersized fillet weld. The results of their investigations (Attachments 6 and 7) confirmed that the upper hinge support weld is structurally sound.

It should be noted that this subject had been brought to Bechtel attention on March 10, 1981 by the person making the allegation as documented in a Field Inspector's Report and Telephone Notes (Attachments 8 and 9).

3. The opinion that Bechtel M&QS had misinterpreted the ASME Section III weld engagement length. A review of the ASME Code requirements and Bechtel procedures implementing the requirements confirmed that Bechtel procedures comply with the ASME Code requirements. A review of a sample of WR-5 weld records verified Bechtel implementation of the requirements.
4. The concern that since a Peabody Testing Report contained "numerous spelling errors" and another documented a dye penetrant examination where a magnetic particle examination was required, therefore, the quality of the inspections performed by Peabody Testing are suspect. It is our opinion that this is not a firm allegation, however we have audits available which were conducted by Bechtel to assure the qualifications of Peabody Testing personnel were adequate and current. Notwithstanding the spelling inconsistencies, Peabody Testing Personnel have been qualified in accordance with SNT-TC-1A.

This special audit of the Bechtel Control of Welding and Nondestruction Examination substantiates the effectiveness of the program in the areas audited.

AUDIT PLAN ITEM NO. 1

Verify that the welding requirements of AWS D.1.1 regarding "End Returns" have been followed. AWS 8.8.5 and 8.8.6 address requirements for end returns as follows:

AUDIT PLAN ITEM NO. 1 (CONT)

"8.8.5 Fillet welds deposited on opposite sides of a common plane of contact between two parts shall be interrupted at a corner common to both welds.

8.8.6 Boxing (End Returns)

8.8.6.1 Side or end fillet welds terminating at ends or sides, respectively, of parts or members shall, whenever practicable, be returned continuously around the corners for a distance at least twice the nominal size of the weld except as provided in 8.8.5. This provision shall apply to side and top fillet welds connecting brackets, beam seats, and similar connections on the plane about which bending moments are computed.

8.8.6.2 End returns shall be indicated on the drawings."

Since the above code allows engineering preference on end returns "whenever practicable" and since the physical conditions inspected were in accordance with the details specified by the engineering drawings, no deficiency exists.

DOCUMENTS AUDITED

The following drawings were reviewed:

23634-Revision 7, Detail 4
23213-Revision 20, Detail 1, Cont. 3
23212-Revision 30, Section E
23215-Revision 3, Detail 5

23624-Revision 4, Detail 4
25219-Revision 7, Detail D
23213-Revision 20, Detail 1

AUDIT FINDING(S)

Each of the drawings reviewed contained examples of boxing or end return of fillet welds in accordance with the requirements of AWS D.1.1.

Attachment 4 presents the Bechtel Field Inspector's Report which documents verification of weld returns shown in drawings which are part of the attachment.

No Deficiency Noted

ITEM CLOSED

AUDIT PLAN ITEM NO. 2

Verify the Unit 2 personnel hatch inside door hinge is installed in accordance with S023-205-5-369-4, Drawing 152, Revision 4.

DOCUMENTS AUDITED

Drawing S023-205-5-369-4, Chicago Bridge and Iron, Drawing 152, Revision 4.

AUDIT FINDING(S)

The above referenced drawing was reviewed, and it was determined that no spacer is called for in the installation of the hinge supports.

Surveillance inspection of the upper hinge support on Unit 2 documented in Attachment 5 revealed an undersized filled weld with a 3/16" gap in the fit-up.

AUDIT FINDING(S) (CONT)

Bechtel and Edison Engineering were consulted to determine the adequacy of the undersized weld. These investigations/calculations are documented in Attachment 6 and 7, and summarized in the audit comments section.

No Deficiencies Noted

ITEM CLOSED

AUDIT PLAN ITEM NO. 3

Verify that Bechtel's interpretation of welding standards regarding socket weld engagement length is in accordance with the ASME Code Section III. ASME Section III, Paragraph NC 4427 addresses the requirements for socket weld engagement length as follows:

"NC 4427 Shape and Size of Fillet and Socket Welds

Fillet welds may vary from convex to concave. The size of the weld shall be determined in accordance with Figure NC 4427-1."

WELDING DETAILS FOR SOCKET WELDING FLANGES

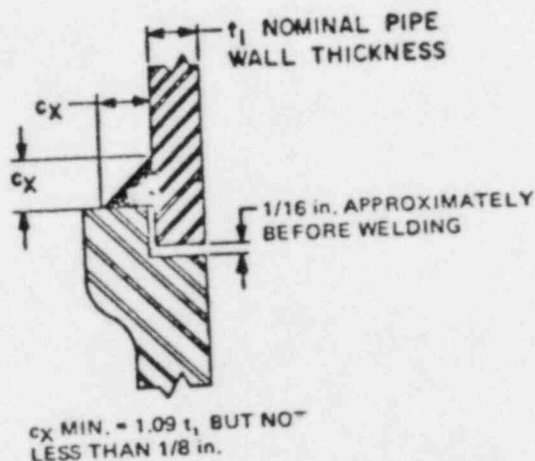


FIG. NC-4427-1 FILLET AND SOCKET-WELD DIMENSIONS

(Not permitted for socket weld connections over 2-inch nominal pipe size for components)

DOCUMENTS AUDITED

Welding Standard	Gen. Welding Standard	Reference Dimension	Drawing	Weld No.	Dimension
P8-T-Ag	GWS-SN	2-2 1/8"	S3-1201-ML-001 Sht 1	SJ	2 1/16"
P8-T-Ag	GWS-SN	2-2 1/8"	S3-1201-ML-001 Sht 1	SJ	2 1/16"
P1-A-Lh	GWS-FM	Approx. 2 1/8"	S3-1301-ML-001 Sht 2	SBK	2 1/16"
P1-T (CVN)	GWS-FM	Approx. 2 1/8"	S3-1301-ML-001 Sht 2	SBH	2 1/16"
P1-T (CVN)	GWS-FM	Approx. 2 1/8"	S3-1301-ML-001 Sht 3	SCK	2 1/16"
PT-T (CVN)	GWS-FM	Approx. 2 1/8"	S3-1301-ML-001 Sht 4	SDC	2 1/16"

AUDIT FINDING(S)

The above sample of socket welds were reviewed and each was found to be in compliance with the ASME Code, Section III, Paragraph NC 4427.

The Welding reports, procedures and standards referenced in this audit plan item comprise Attachment 10.

No Deficiencies Identified

ITEM CLOSED

Stoney info

SEP 07 1982

S.O.N.G.S. 2 & 3

MEMORANDUM FOR FILE

September 3, 1982

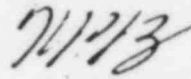
On Friday, September 3, 1982, Mr. Orlando Ortega brought to my office Mr. Earl Kent. Mr. Kent had come to see Mr. Ortega and expressed some concerns about the welding adequacy at San Onofre. Mr. Ortega referred Mr. Kent to the undersigned. Mr. Kent stated the following:

1. That he was a Senior QA Engineer for the Bechtel Corporation working at San Onofre on Units 1, 2 and 3 from the Fall of 1980 to August 1981. Mr. Kent had previously worked for Bechtel in 1978 as a Code Applications Engineer. Between 1978 and the Fall of 1980, Mr. Kent worked for Austin Engineers in Irvine, California. Subsequent to his work at San Onofre Mr. Kent worked for some period of time at Midland and Palisades, also for the Bechtel Corporation. Don Martin was Mr. Kent's boss at Bechtel for at least some portion of this time he worked at San Onofre.
2. Mr. Kent stated that he has concerns regarding the adequacy of welding at San Onofre and indicated that the welding did not conform with appropriate welding codes. He used as an example AWS D1.1. Mr. Kent indicated that the Bechtel inspectors were reading the welding fillet gauges incorrectly, that the end returns were not properly welded and that many other examples of inadequate welding could be stated.
3. Mr. Kent stated that he felt there were gross violations of the codes. He further stated, however, that he was not claiming piping hangers or supports would fail but merely that they were not constructed in accordance with the code. He also mentioned potential structural problems with the containment air lock doors. When he pointed this out to his supervisor, his supervisor supposedly told him that the containment was supplied by Chicago Bridge and Iron and that Bechtel did not have responsibility for the air lock.
4. I indicated to Mr. Kent that we wanted to fully understand any potential problems that might exist at San Onofre so that they could be satisfactorily resolved. I told him that I wanted to have SCE personnel with expertise in the area of his concerns meet with him and fully explore all of his concerns. I indicated that I would assemble the appropriate people and if convenient with him, would like to meet Tuesday, September 7. He indicated that would be convenient. I advised him that we would call him Tuesday morning. Mr. Kent's phone number is []
5. Attached to this memo is his business card that he gave Mr. Ortega which I obtained after my discussion with him. Mr. Kent did not give me a business card. I gave him one of my cards.

September 3, 1982

ATTACHMENT 1
Page 2 of 2

Subsequent to my discussion with Mr. Kent, I talked with Dwight Nunn and Don Schone. Mr. Schone will assemble an appropriate group of people and meet with Mr. Kent.



K. P. BASKIN

KPB:jaj

cc: Robert Dietch
J. M. Curran
D. E. Nunn
D. B. Schone

September 7, 1982

SUBJECT: Meeting Held at SONGS 2 & 3 QC Office on Concerns of
Mr. E. Earl Kent Regarding Welding Adequacy
San Onofre Nuclear Generating Station, Units 2 & 3

ATTENDEES:SCESELF

J. M. Curran
P. R. King
D. C. Stonecipher

E. E. Kent

cc
given to
KirschBACKGROUND

On Friday September 3, 1982, Mr. E. Earl Kent submitted an employment application at Rosemead for a position with Edison. After a routine pre-employment screening interview with Mr. R. Atkins of the Employment Division, Mr. E. Kent entered the office of Mr. O. J. Ortega and expressed his concerns over welding adequacy at San Onofre.

Mr. Ortega referred Mr. Kent to Mr. K. P. Baskin. A summary of the discussion with Mr. Baskin is outlined in a Memorandum for File dated September 3, 1982. Based on the items presented during that discussion, the Quality Assurance Organization made arrangements to meet with Mr. Kent on Tuesday, September 7, 1982 in an effort to resolve Mr. Kent's concerns.

DISCUSSION

On Tuesday, September 7, Mr. Kent was called to San Onofre and a meeting was convened at 1:30 p.m with parties in attendance as noted above. Mr. Curran stated the purpose of the meeting was to document Mr. Kent's concerns regarding welding adequacy at SONGS 2 & 3 and take corrective action as appropriate.

Mr. Kent briefly outlined his work experience during his term of Bechtel employment (November 1980 through August 1981) as a welding QC Inspector at SONGS 2 & 3. Mr. Stonecipher then asked Mr. Kent to describe his concerns. Mr. Kent stated the following:

Item 1 - He was concerned that the welding requirements of AWS D.1.1 regarding "End Returns" were not being followed on pipe hangers and electrical strut and structural steel. In addition, he stated these requirements were not shown on design/detail drawings for Units 1, 2 or 3.

Mr. Kent was asked if he had identified these concerns to his supervision when he was employed by Bechtel at SONGS. He stated he had verbally identified these concerns to Mr. D. Martin, his immediate supervisor, and Messrs. W. Lanr, D. Woodward and N. Bessich (Associate Welding Inspectors). In addition, he stated he had written internal memos to Mr. Martin stating these same concerns. Mr. Kent stated that Mr. Martin's answer was always to "inspect to the print."

September 7, 1982

ATTACHMENT 2

Page 2 of 2

Mr. Stonecipher asked Mr. Kent if he had written any Nonconformance Reports (NCRs) regarding this matter. Mr. Kent stated that he had not written any NCRs, since the welding was in accordance with the print. Mr. Kent's point was, that the print did not reflect the requirement for "End Returns". Mr. Kent was asked if he ever identified his concerns to the Bechtel Quality Assurance department and he stated he had not.

Mr. Kent further stated that he had written NCRs on other specific welding problems and believed the NCRs were dispositioned properly to resolve the problems.

- Item 2 - Mr. Kent was concerned that a spacer plate was missing on the upper inside door hinge of the Unit 2 personnel hatch. He stated that he had identified this area of concern to his supervisor, Mr. Martin. Mr. Martin replied that it had been supplied by Chicago Bridge and Iron Company (CB&I) and that Bechtel field QC was not responsible since it had previously been receipt inspected and accepted. Mr. Kent was again asked if he had written an NCR, concerning the item. Mr. Kent replied that he had not.
- Item 3 - Mr. Kent stated that, in his opinion, he felt that the Bechtel Corporation had misinterpreted the ASME Section III welding standards regarding socket weld engagement length without initiating a code case and obtaining appropriate code relief.
- Item 4 - Mr. Kent produced two Peabody Testing reports, one of which had numerous spelling errors and the other which documented the performance of a dye penetrant inspection rather than the required magnetic particle inspection. Mr. Kent stated that the quality of these inspections performed by Peabody Testing may be questionable due to the caliber of individuals performing these inspection functions, i.e., the Peabody personnel could not spell correctly.

CONCLUSION

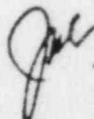
Mr. Curran thanked Mr. Kent for his concerns and stated that a comprehensive investigation/audit would be conducted into the areas and corrective action taken as appropriate.

The meeting adjourned at 2:45 p.m.

PRK: King

cc:

Robert Dietch
L. I. Papay
K. P. Baskin
J. G. Haynes
D. E. Nunn



J. M. Curran
D. B. Schone
P. R. King
D. C. Stonecipher

1271Q

D.B. Seth
September 13, 1982

Mr. R. L. Patterson, Manager
Division Quality Assurance
Bechtel Power Corporation
P. O. Box 608860, Terminal Annex
Los Angeles, California 90060

Dear Mr. Patterson:

Subject: Allegations Made by Mr. E. E. Kent on September 7, 1982
San Onofre Nuclear Generating Station, Units 2 & 3

Reference: Memorandum for File, dated September 7, 1982,
Same Subject

The enclosed Memorandum for File documents the concerns expressed by Mr. Kent relative to welding adequacy at SONGS 2 and 3. As you know, we are in the process of conducting an audit addressing these concerns and need to establish the Bechtel position.

Please provide a response to each of the four allegations formally expressing the Bechtel Corporation position. The response should address, at the very minimum, the following in each instance:

Concern #1 - "End Returns"

The AWS D.1.1 Code calls for end returns "whenever practicable." What are the ground rules utilized by Bechtel Engineering to determine when to use end returns?

Concern #2 - "Spacer Plate Missing on Unit 2 Personnel Hatch"

Our investigation, to date, has determined that no spacer is called for in the installation. However, the upper hinge support does have a weld with a fit up that leaves a 3/16" gap. We will need formal calculations to verify adequacy of this support to carry the load.

Concern #3 - "Socket Weld Engagement Length"

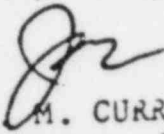
Mr. Kent produced a Bechtel telephone note regarding this subject. Does the philosophy expressed, therein, represent Bechtel policy at San Onofre? What is the Bechtel position on socket weld engagement length?

Concern #4

Mr. Kent produced two Peabody testing reports, one with numerous spelling errors, the other which documented performance of a dye penetrant inspection where a magnetic particle inspection was required. Mr. Kent stated that the quality of inspections performed by Peabody Testing were, therefore, questionable. It is our opinion that this is not a firm allegation. However, please be prepared to provide copies of audits performed to assure qualifications of Peabody testing personnel during the period and a position statement on this issue.

Due to the sensitivity of this issue, your response is requested by September 17, 1982.

Very truly yours,



J. M. CURRAN
Manager, Quality Assurance

GPVaslos

Enclosure

cc: J. H. McCarty - Bechtel

bcc: J. M. Curran

D. B. Schone

P. R. King

D. C. Stonecipher

G. P. Vaslos

Site QA File

1272Q

BECHTEL POWER CORPORATION
SAN ONOFRE NUCLEAR GENERATING STATION
UNITS 2 AND 3
FIELD INSPECTOR'S REPORT

DATE 9-10-82

DISCIPLINE Welding Quality Control SHIFT Day

WEATHER N/A SHEET 1 OF 1

GENERAL COMMENTS: Weld Returns Verifications

The following re-verifications of weld returns per drawings, details and sections were inspected and found to be acceptable as specified on the drawings:

DWG # 23634 Rev.7 Detail $\frac{4}{-}$
SEB 3 stl. framing below slab @ 8' el.
ITEMS SE-123, 124, 125, 126, & 127

DWG # 23213 Rev.20 Detail $\frac{1}{-}$ Cont. 3
Stl. framing below slab @ 45'-0 El.
ITEM W8 X 35 (Typical)

DWG # 23212 Rev. 30 Section $\frac{E}{-}$ Cont. 3
Stl. framing below slab @ 30' El.
ITEM W6 X 15.5

DWG # 25215 Rev.3 Detail $\frac{5}{1}$ Penetration 3
Stl. framing @ 50'-5" El. on step stairway

DWG # 23624 Rev.4 Detail $\frac{4}{-}$ SEB 3 @ 21'-0 $\frac{1}{2}$ " El.
on K-line wall. under El. 30'-6" slab.

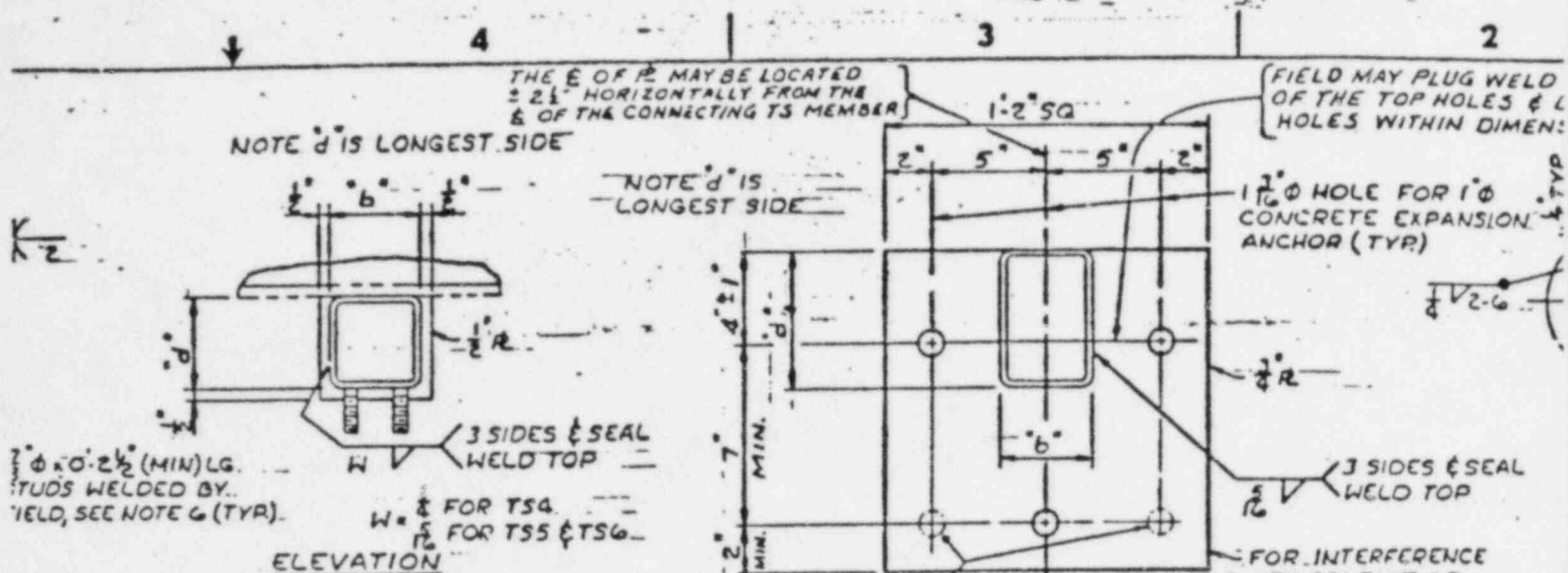
DWG # 25219 Rev.7 detail $\frac{D}{-}$ Pent. 3
Stl. framing @ bottom of El. 95' slab on S-line wall
ITEM W24 X 68

DWG # 23213 Rev.20 Detail $\frac{1}{-}$ Stl. framing below
slab @ 45'-0 El. Cont. 3
ITEM W8 X 35

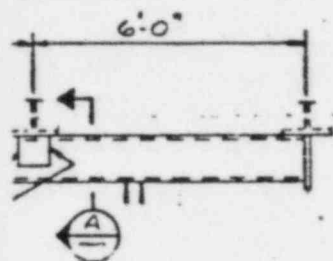
Above details and sections were verified as being on
the drawing revisions in effect during November & December, 1980

SIGNATURE

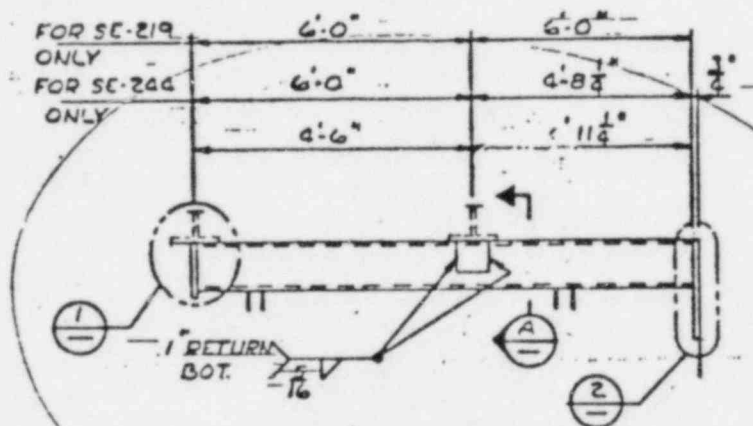
Robert S. Long WQCE 9/10/82



DETAIL 1



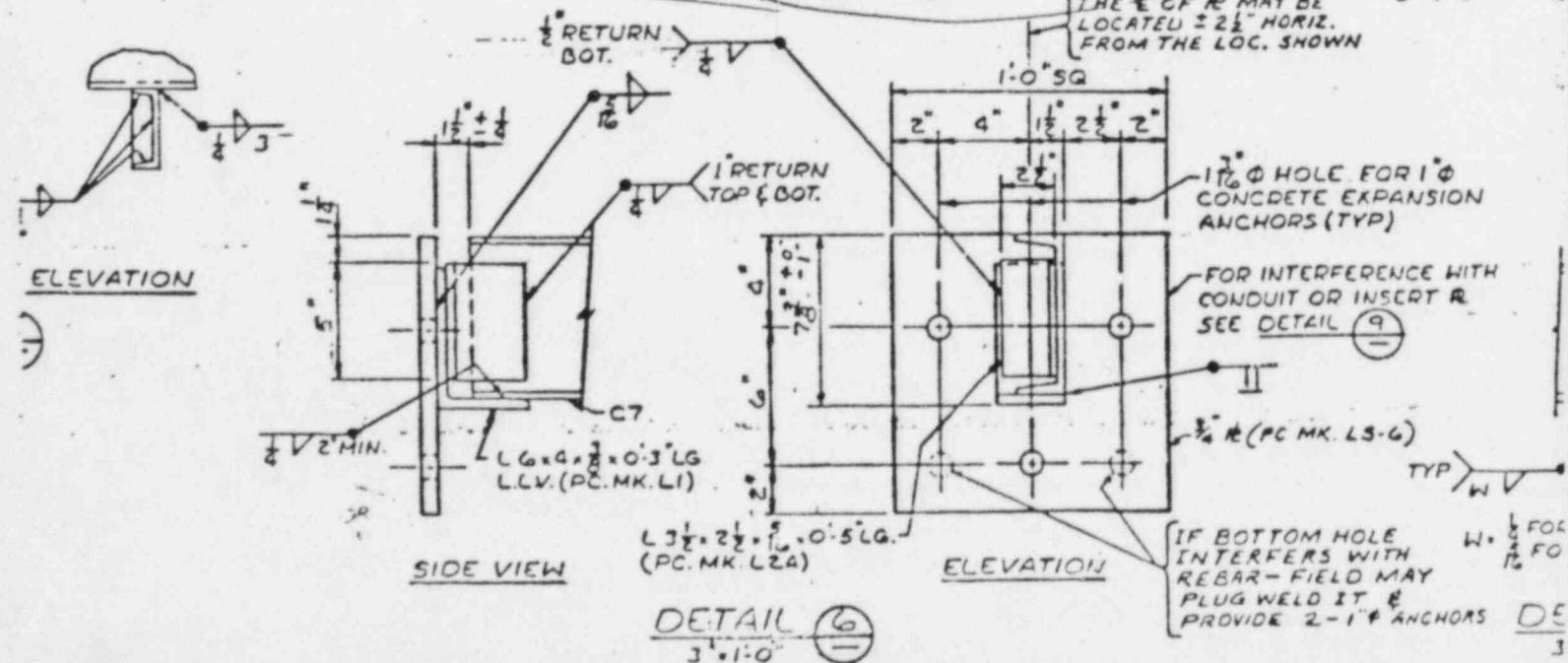
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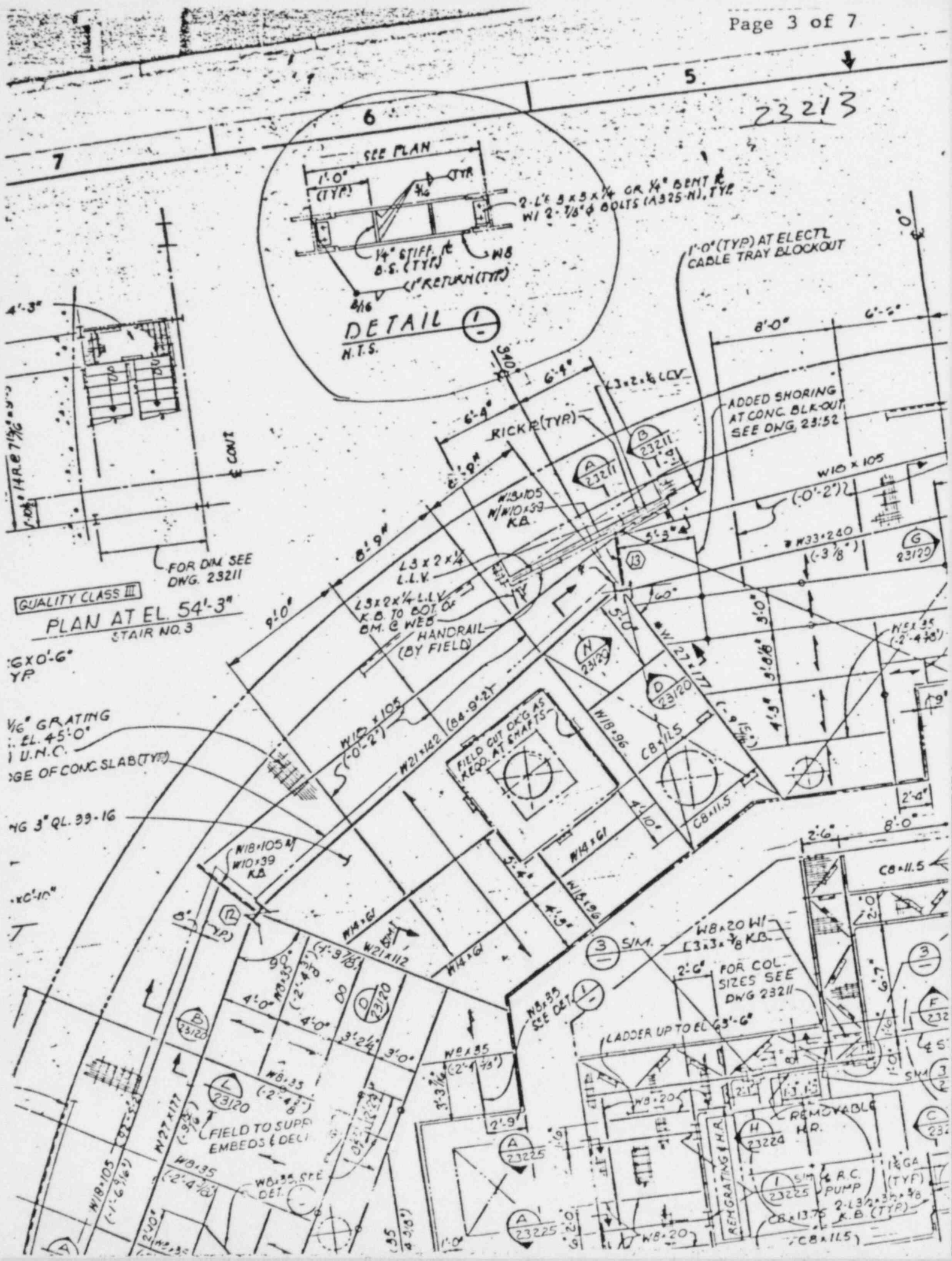


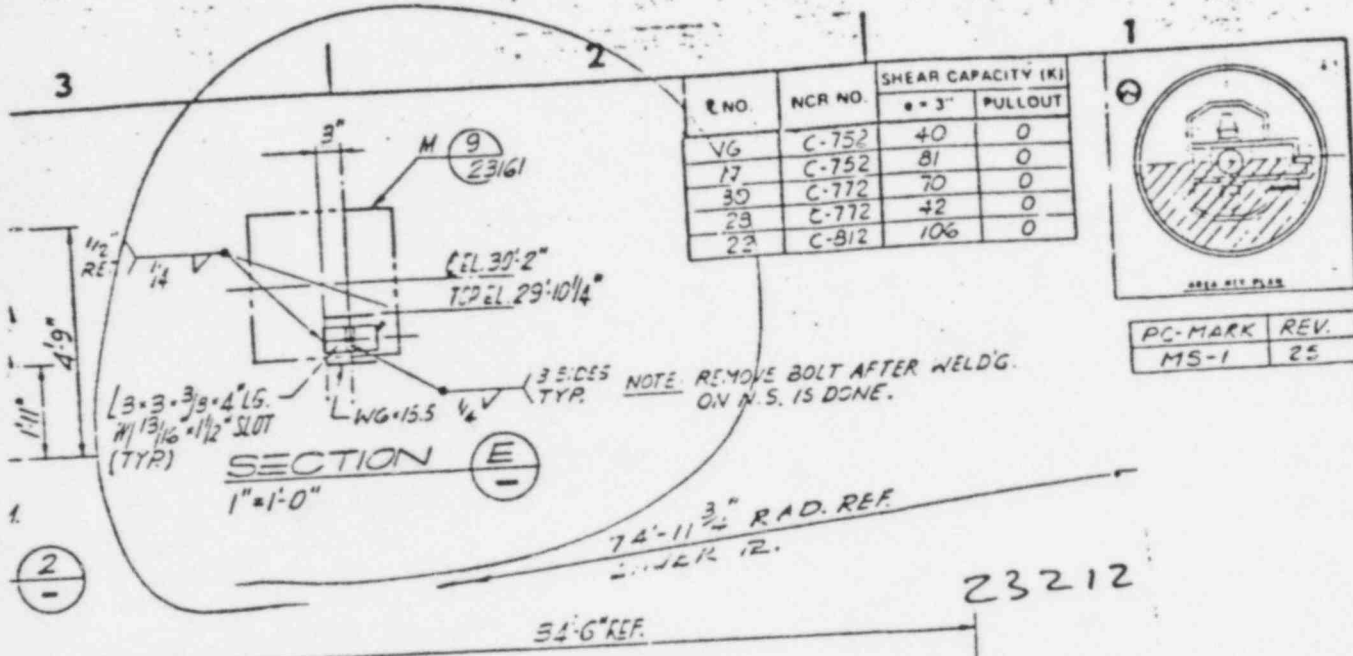
DETAIL 4

23634

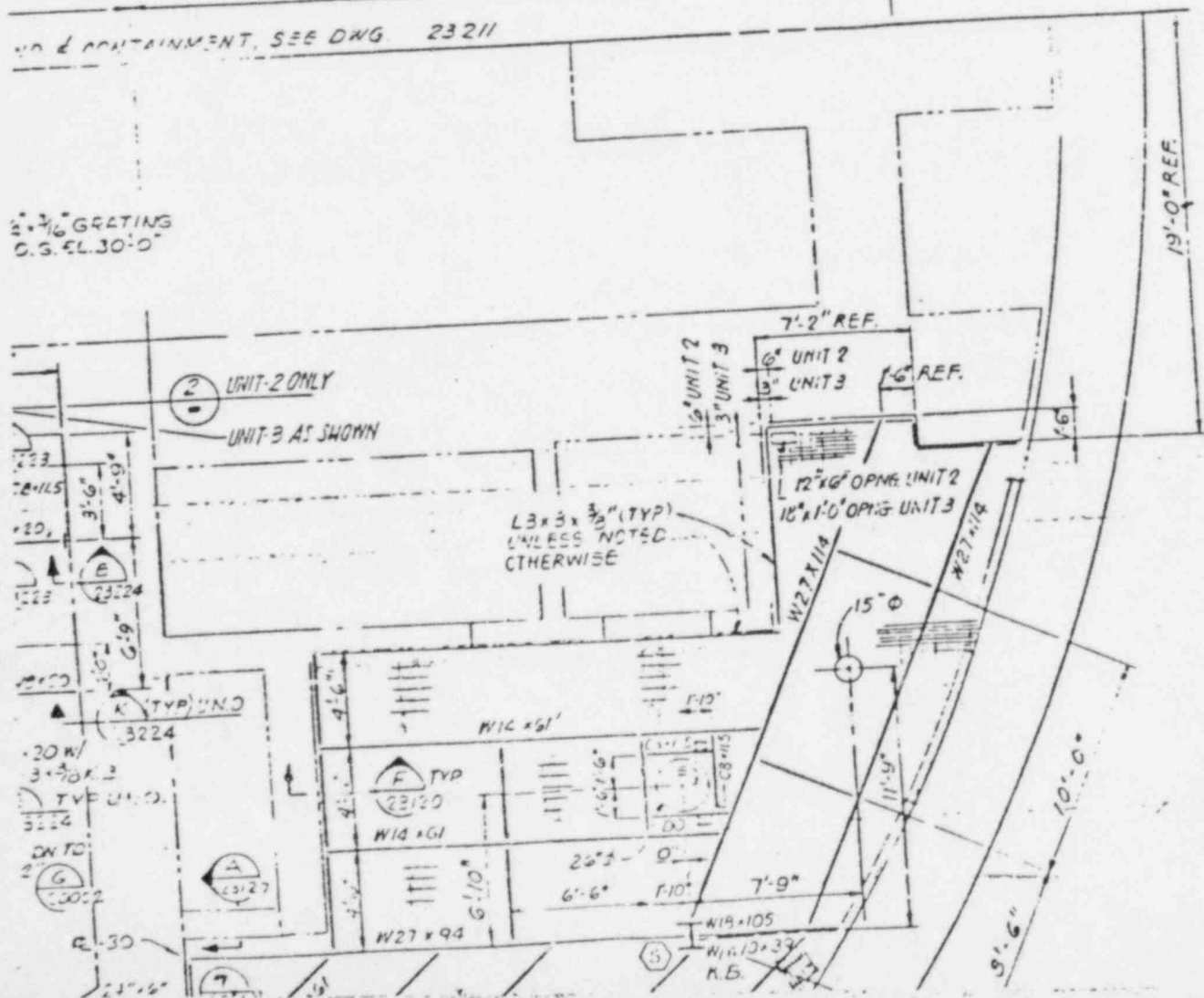
SECTION 1



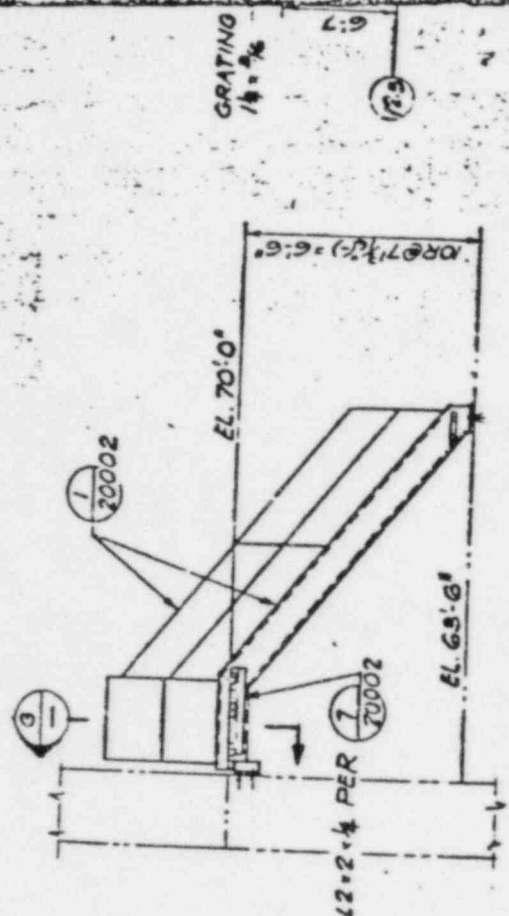




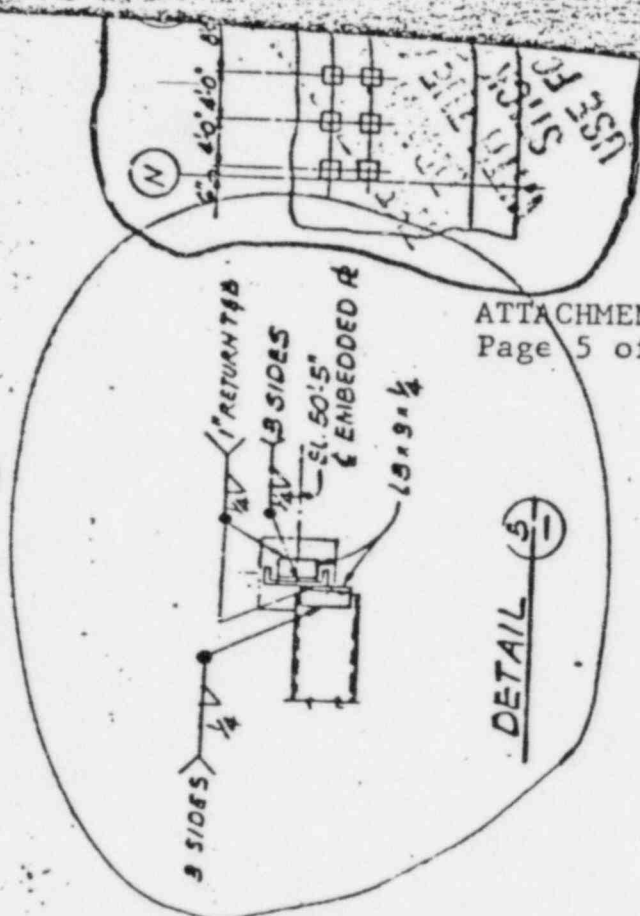
22 y 15
27 y 22
25 y 20
33 y 10
26 y 1
16 x 44



SECTION $\frac{E}{1}$
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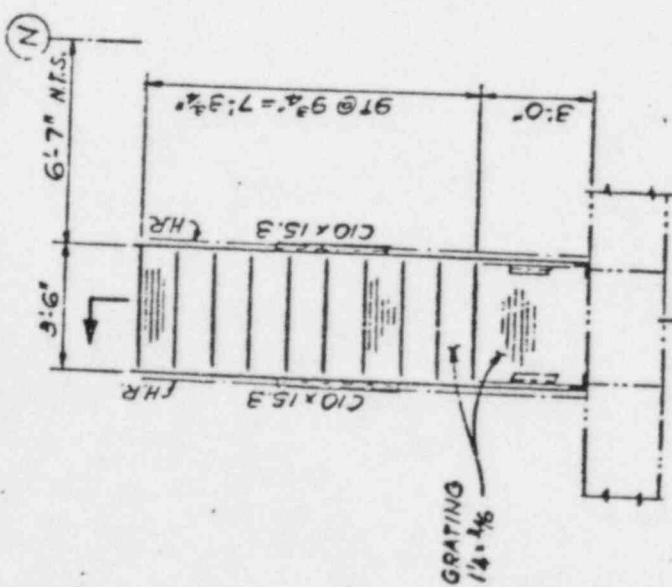
SECTION $\frac{H}{1}$
 $\frac{3}{8}" = 1'-0"$



ATTACHMENT 4
 Page 5 of 7

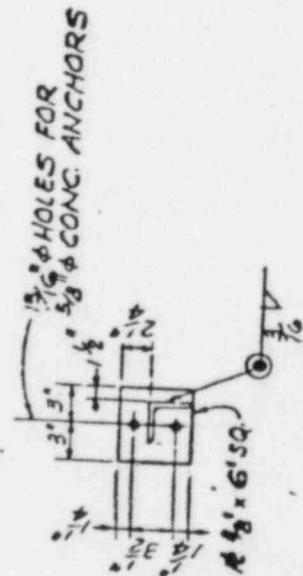
DETAIL $\frac{5}{1}$

25215

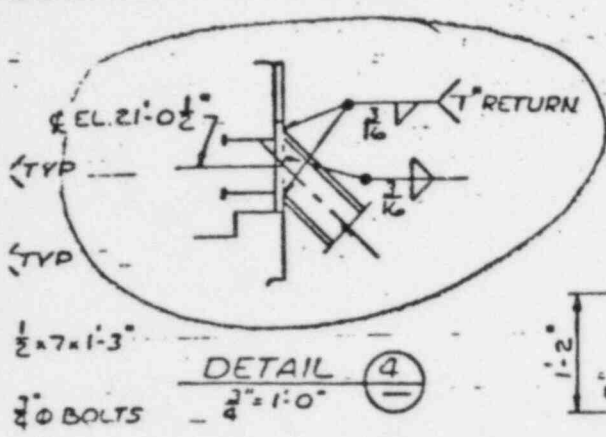


2 REQ'D (M-2)

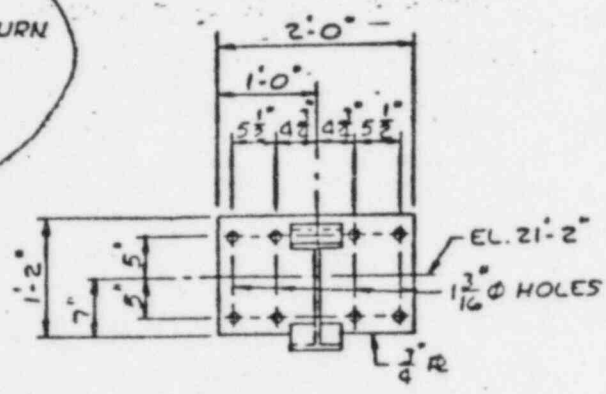
PLAN
 DETAIL $\frac{3}{1}$
 $\frac{3}{8}" = 1'-0"$



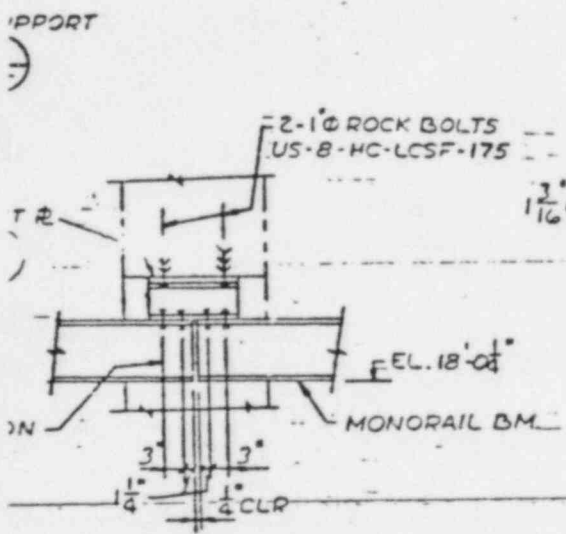
SECTION $\frac{M}{1}$
 $\frac{1}{2}" = 1'-0"$



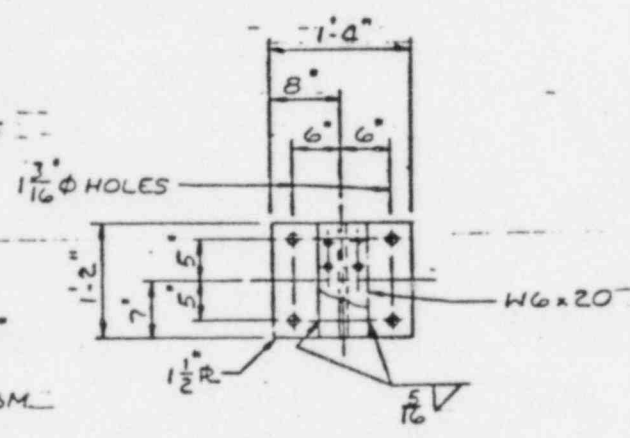
DETAIL (4)
2" = 1'-0"



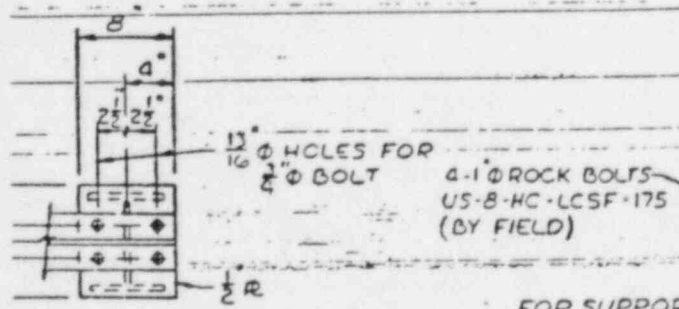
DETAIL (1)
1" = 1'-0"



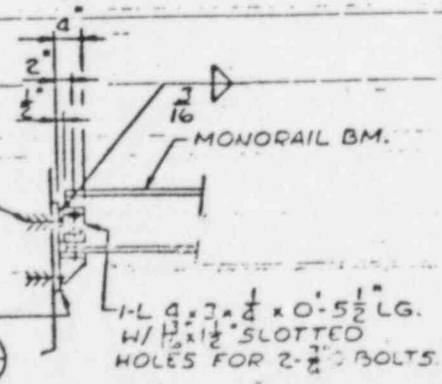
SECTION (F)
2" = 1'-0"



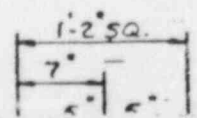
DETAIL (2)
1" = 1'-0"



SECTION (G)
1/2" = 1'-0"



SECTION (L)
2" = 1'-0"



H

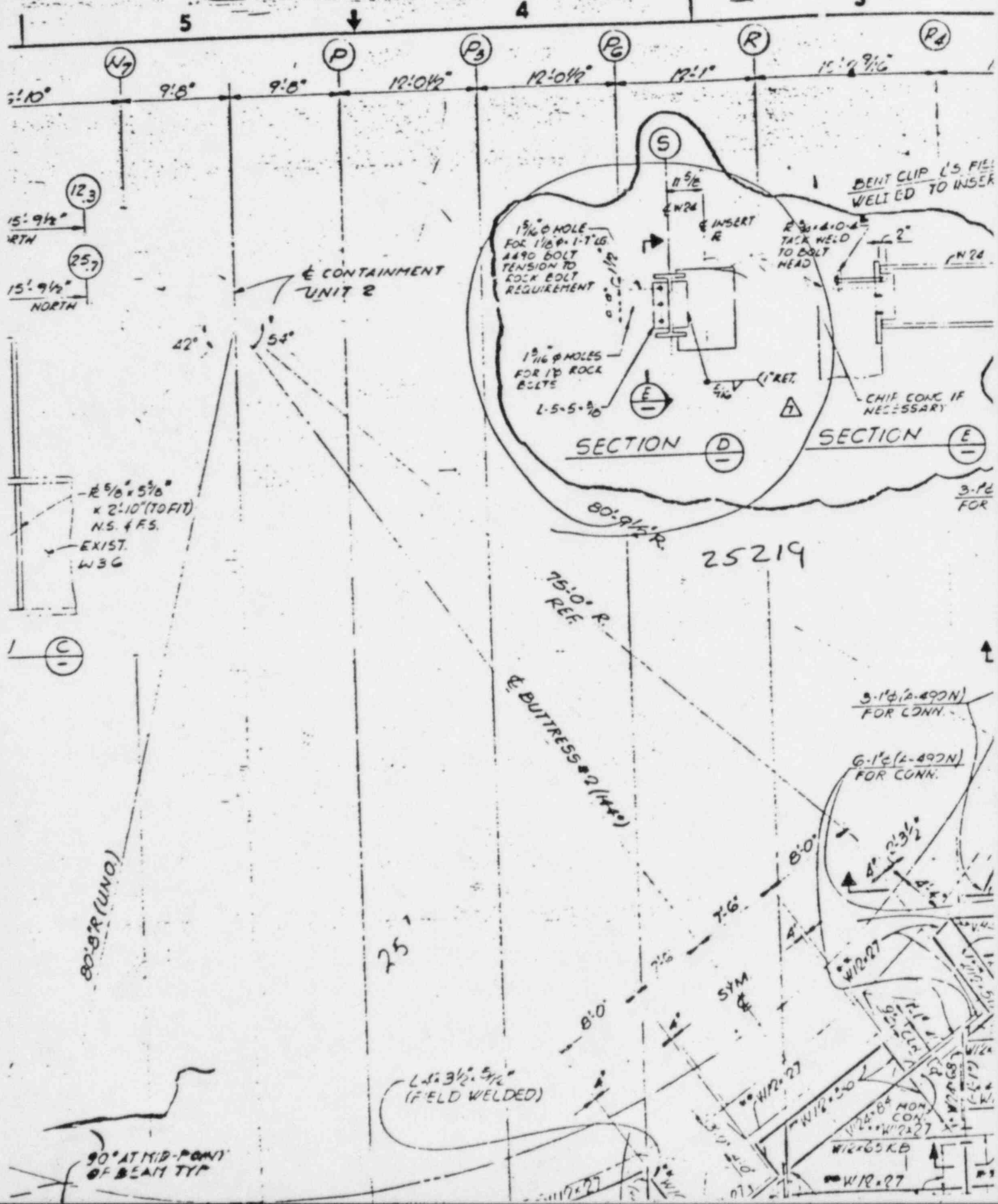
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D

23624-4
(11-5-80)



FIELD SURVEILLANCE REPORT

Contractor Chicago Bridge & Iron Co. Date 9-9-82

Area/System Unit 2 Containment 63' Elevation PB5 / Personnel Lock

Page 1 of 2

Type of Activity Surveillance of Hinge Brackets on Personnel Lock Doors

SURVEILLANCE PLAN

Standard Check List



- ① Ascertain that the hinge brackets for interior and exterior doors for the Personnel Lock are in accordance with CB&I drawings.

Vernon A. Gow

PLANNED BY

9-9-82

DATE

BM Wadsworth

QA/C SUPERVISOR

9/10/82

DATE

OBSERVATIONS

LOCATION

Unit 2 Containment 63' Elevation

- ① Ascertained that the hinge brackets for interior and exterior doors for the Personnel Lock were in accordance with CB&I drawings by the following observations:
- a.) CB&I drawing no. 152 Rev. 4 detailed drawing of Section "H-H" referenced on CB&I drawing no. 153 Rev. 3 shows three plates welded together with fillet welds to form the bracket for the hinge.

REFERENCES (DRAWINGS, SPECIFICATIONS, PROCEDURES)

Drawing no. 5023-205-5-370-3 CB&I Dwg no. 153 Rev. 3
Drawing no. 5023-205-5-369-4 CB&I Dwg no. 152 Rev. 4
Drawing no. 5023-205-5-368-3 CB&I Dwg no. 151 Rev. 3

Activity Satisfactorily Performed ☒

Corrective Action Required ☐

CAR/NCR Number(s)

NONE

Vernon A. Gow

QA ENGINEER

9-10-82

DATE

BM Wadsworth

QA/C SUPERVISOR

9/10/82

DATE

CODE = GREEN

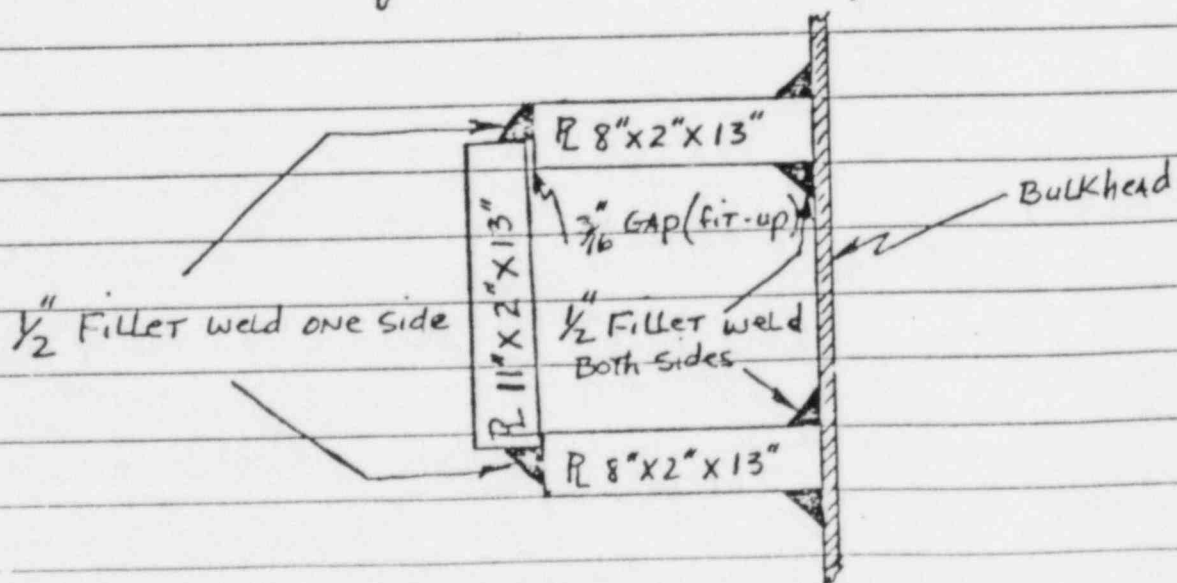
Page 2 of 2Area/System Unit 2 Containment 63' elev. / Personnel Lock Report No. W-79-82

Report Summary (Continued from previous sheet)

b.) Two (2) plates 8" x 2" x 13" are welded to the bulkhead of the Personnel Lock with $\frac{1}{2}$ " fillet welds on both sides. One (1) plate 11" x 2" x 13" is welded to the other end of the two (2), 8" x 2" x 13" plates with a single $\frac{1}{2}$ " fillet weld.

c.) The as-built condition of the hinge brackets for the Personnel Lock interior and exterior doors are in accordance with the CB & I drawings for San Onofre Nuclear Generating Station, Units 2 & 3.

NOTE: The following was noted during the surveillance; the upper hinge bracket for the interior door of the Personnel Lock for Unit 2 had a gap of about $\frac{3}{16}$ " wide where the 8" x 2" x 13" and 11" x 2" x 13" plates are welded together with a $\frac{1}{2}$ " fillet weld. (Sketch below)



Bechtel Power Corporation

Engineers - Constructors

12400 East Imperial Highway

Norwalk, California 90650

MAIL ADDRESS

P.O. BOX 60860 - TERMINAL ANNEX, LOS ANGELES, CALIFORNIA 90080

TELEPHONE (213) 864-8011



September 17, 1982

Mr. J. M. Curran
Manager, Quality Assurance
Southern California Edison Company
P.O. Box 800
2244 Walnut Grove Avenue
Rosemead, California 91770

Subject: San Onofre Nuclear Generating Station, Units 1, 2 & 3
Allegations Made by Mr. E. E. Kent on September 7, 1982

Reference: SCE-QA letter, Mr. J. M. Curran to Mr. R. L. Patterson,
same subject, dated September 11, 1982

Dear Mr. Curran:

In response to your request for Bechtel's position on the four allegations made by Mr. Kent concerning welding adequacy at SONGS 1, 2 & 3, the position of the Los Angeles Power Division of Bechtel Power Corporation is as follows:

Concern #1 - "End Returns"

Weld end returns are utilized in practice to enhance the redistribution of local stress concentrations in the design of selected welded connections. Such redistribution of local stresses comes about only when the stresses reach the yield level. In the case of the SONGS 2 & 3 Project and the modifications to Unit 1, the stresses are designed to remain at or below 90% of the yield level.

Weld end returns are recommended by the AISC and AWS Codes, whenever practicable, even though tests, upon which code provisions are based, recognize that these returns do "not necessarily increase the strength of the connection" (AWS Commentary 8.8.6), when comparisons are made on an equivalent weld strength basis. When end returns are specified by the design engineer, the AISC Code (1.14.7) permits the engineer to utilize the additional nominal load carrying capacity increase in addition to the full capacity of the orthogonal weld.

The term "whenever practicable" is interpreted by Engineering to mean that weld end returns are routinely specified as a matter of common design practice, and such practice is followed by Bechtel Engineering. The design engineer may select individual weld details which meet the specific requirements of a particular design condition. Where orthogonal weld sizes are of insufficient length to develop the required load capacity (e.g. a short clip angle), the engineer may utilize the additional weld segment to increase the design capacity consistent with the AISC Code. In addition, where the orthogonal weld produces a design capacity sufficiently in excess of the required load capacity, the design engineer may omit the weld end return if the addition of the return results in excess conservatism.

It is Bechtel Engineering's position that the San Onofre welding details meet both the provisions and intent of the AISC and AWS Codes, and that sufficient margins exist to meet all SAR and FSAR commitments.

Concern #2 - "Spacer Plate Missing on Unit 2 Personnel Hatch"

We understand your investigation has revealed this concern to be a 3/16" gap in a weld fit-up at the upper hinge support. Since the Unit 2 Reactor is critical, we also assumed this to be the case.

SONGS 2 & 3 Project Engineering has performed calculations (see Attachment 1) based on the Chicago Bridge and Iron stress report for the personnel hatch that provides verification that existing weld on the upper hinge supports even with the 3/16" gap is adequate to carry all imposed design loads.

Concern #3 - "Socket Weld Engagement Length"

The philosophy expressed in the telephone note produced by Mr. Kent does not represent Bechtel Policy at San Onofre Units 1, 2 & 3. Form 84 (Bechtel Drawing 90011) is the governing document for use of weld procedures on SONGS 2 & 3. The procedures listed in Form 84 refer to various General Welding Standards (GWS) which conform to ASME Section III Code requirements concerning socket weld engagement length. For example, on SONGS 2 & 3 GWS-SN Rev. 8 states:

The following steps should be followed for verification of the socket gap.

- 3.1 Scribe a line on the fitting O.D. equal to the distance from the face of the fitting to the bottom of the socket.
- 3.2 Scribe a line on the pipe or tube that is 2 inches, or other predetermined distance (Y), from the end of the pipe or tube.
- 3.3 After fit up, tacking and welding, verify that the scribe lines are greater than 2 inches but less than 2-1/8 inches apart or greater than Y but less than Y + 1/8, whichever is applicable

Similar procedures are in effect for Unit 1.

Page 3
Mr. J. M. Curran
September 17, 1982

Bechtel Power Corporation

ATTACHMENT 6
Page 3 of 9

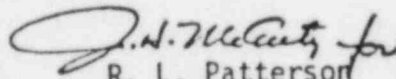
Concern #4 - "Unqualified NDE Personnel"

The qualifications of NDE subcontractor personnel are reviewed by Bechtel M & QS personnel prior to the person commencing work on the SONGS 1, 2 & 3 projects. The subcontractor's work is performed under the cognizance of a qualified Bechtel NDE person. Results of the examination are reviewed by a qualified Bechtel NDE person and, in the case of ASME work, by a qualified Authorized Nuclear Inspector. The results of the above activities are documented and available for your review.

We hope this information is of value to you in your investigation of Mr. Kent's allegations. If we can be of any further service in this matter, please feel free to contact me or the Project Quality Assurance Manager, Mr. J. H. McCarty.

Very truly yours,

BECHTEL POWER CORPORATION



R. L. Patterson
Division Quality Assurance Manager

RLP/JHM:dmb

Attachment

cc: D. B. Schone, SCE
H. F. McCluskey, BPC
W. V. Horn, BPC
J. H. McCarty, BPC
F. B. Marsh, BPC
R. J. Kosiba, BPC
L. R. Brown, BPC



CALCULATION TITLE SHEET

SHEET 1 OF 6

PROJECT SONAS 2 & 3 JOB NO 10079-003 DISCIPLINE C/S
SUBJECT PERSONNEL HATCH HINGE SUPPORT FILE NO C-257
CALC NO C-257-2-10
ORIGINATOR SIG. J. HOGAN DATE 9/10/82 QUALITY CLASSIF. II
CHECKER SIG. D. YEH DATE 9-10-82 NO LAST PAGE 6
LEVEL OF REVIEW ☒ ☒ ☒ ☒ ☒ ☒ CHECK AS REQUIRED

FE STAMP IF REQ'D



ORIGINAL ISSUE

	NAME	DATE	SIGNATURE
3 GROUP LEADER	F. LOWTHER	9/14/82	F. Lowther
4 EGS	T. BROE	9/14/82	T. Broe
5 SPECIALIST			
6 CHIEF			
OTHER			

RECORD OF REVISIONS

NO	REVISION	DATE	ENG	CKR	EGL	EGS	SPEC	CHIEF
△								
△								
△								
△								
△								
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SIGNATURE S. HOLLAN DATE 9/10/82 CHECKED D YEH DATE 9-16-82
PROJECT SONKS 2 & 3 JOB NO. 10079-003
SUBJECT PERSONNEL HATCH HINGE SUPPORT SHEET 2 OF 6 SHEETS

ATTACHMENT 6
Page 5 of 9

PURPOSE:

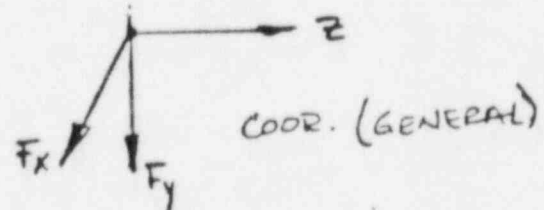
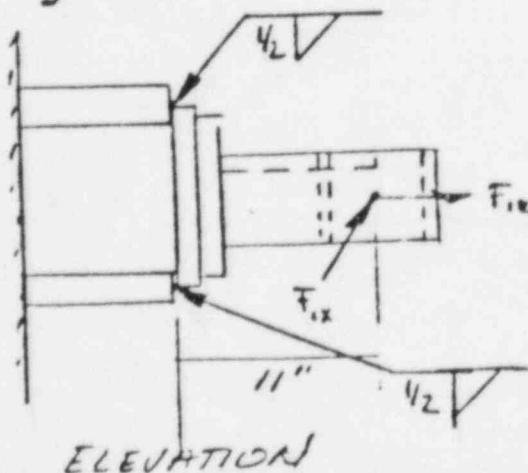
DUE TO QCE INSPECTION, A WELD ON THE UPPER HINGE OF THE PERSONNEL HATCH WAS FOUND TO HAVE AN EFFECTIVE THROAT OF 0.296" (BY FIELD INSPECTION) FOR A 3" LENGTH AT THE END OF THE WELD. SEE DIAGRAM ON PAGE 5.

REFERENCES

1. STRESS REPORT FOR EQUIPMENT HATCH, PERSONNEL AND ESCAPE LOCK
BECHTEL LOG #5023-205-5-864-2

CALCULATION

$$\left. \begin{array}{l} F_{12} = 3397 \# \\ F_{1X} = 3491 \# \\ F_Y = 0 \end{array} \right\} \text{REF 1 pg 5.36 \& 5.54.}$$

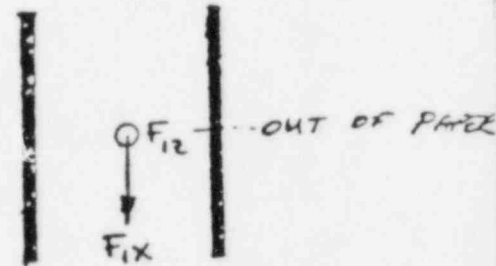
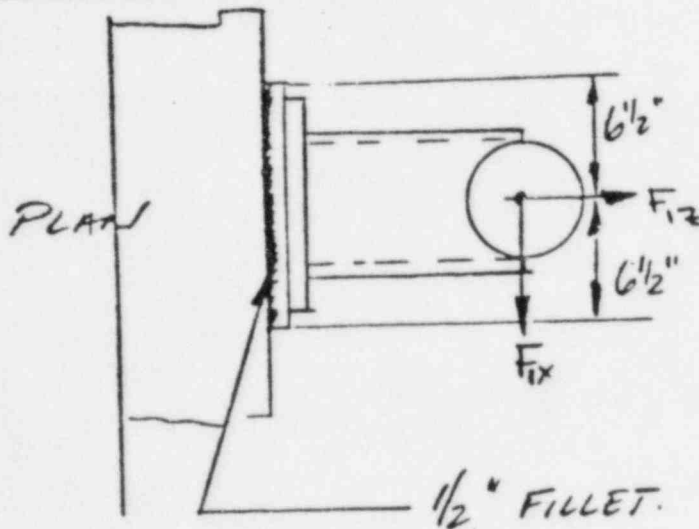




SIGNATURE S. HOGAN DATE 9/10/82
PROJECT SONGS 233
SUBJECT PERSONNEL HATCH HINGE SUPPORT

CHECKED D YEH DATE 9-10-82
JOB NO. 10079-003
SHEET 3 OF 6 SHEETS

CALCULATION CONTINUED



WELD CONFIGURATION

ASSUME 1/2" FILLET FULL LENGTH.

F_{12} CAUSES UNIFORM STRESS:

$$f_z = \frac{F_{12}}{A_w} = \frac{3,397^{\#}}{\underbrace{2 \times .707 \times 1/2}_{\text{2 OF WELDS}} \times \underbrace{13}_{\text{LENGTH OF WELD}}} = 370 \text{ psi}$$

9.19 in²

F_{1X} CAUSES A UNIFORM SHEAR STRESS & TORSIONAL MOMENT STRESS.

$$f_x = \frac{F_{1X}}{A} = \frac{3491^{\#}}{9.19 \text{ in}^2} = 380 \text{ psi}$$

$$\frac{1}{f_x} = \frac{MC}{I}$$

WHERE $M = F_{1X} \times d = 3491 \times 11" = 38,401 \text{ in-lb}$

$$C = 6 1/2"$$

$$I = 2 \frac{bh^3}{12} = 2 \times \frac{(.707 \times 1/2)(13)^3}{12} = 2 \times 64.71$$

$$= 129.4 \text{ in}^4$$

SIGNATURE S. HOGAN DATE 9/10/82CHECKED J YEH DATE 9-16-82PROJECT SONGS 233JOB NO. 10079-003SUBJECT PERSONNEL HATCH HINGE SUPPORTSHEET 4 OF 6 SHEETSCONTINUED

$$f'_x = \frac{M_c}{I} = \frac{(38,401 \text{ in}^3)(6.5)}{129.4 \text{ in}^4} = 1929 \text{ psi}$$

FIND RESULTANT STRESS f_r :

$$f_r = \sqrt{(f_2 + f'_x)^2 + f_x^2}$$

$$= \sqrt{(370 + 1929)^2 + 380^2}$$

$$f_r = 2330 \text{ psi}$$

ALLOWABLE STRESS FROM PG 5.57 OF REF 1

$$= \frac{.55}{.707} S_m = 15 \text{ ksi}$$

$$f_r = 2.3 \text{ ksi} \ll \text{ALLOWABLE} = 15 \text{ ksi}$$

CONSIDER 3" OF WELD WITH EFFECTIVE THROAT
OF 0.296 IN TO BE INEFFECTIVE AS IT IS
LESS THAN AISC 7TH EDITION REQUIRED MINIMUM
FOR 2 1/2" ϕ \therefore NEGLECT



$$I_{NP} = 2 \frac{bh^3}{12} = 2 \frac{.707(\frac{1}{4})(10)^3}{12} = 58.9 \text{ in}^4$$

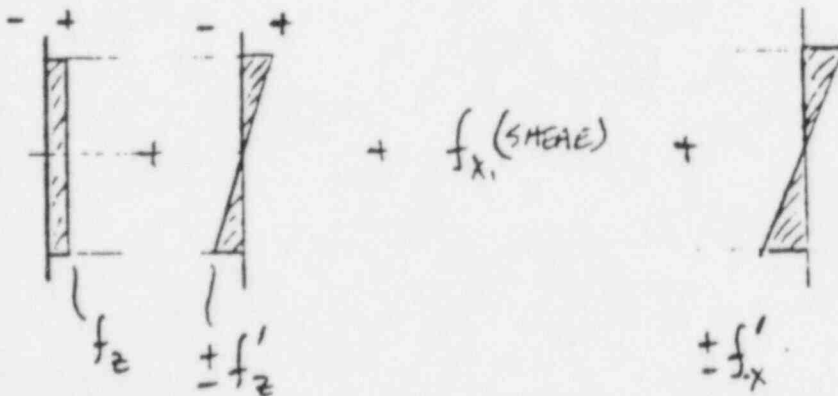
SIGNATURE S. HOGAN DATE 9/10/82CHECKED D Y2H DATE 9-10-82PROJECT SONGS 2.3.3JOB NO. 10072-003SUBJECT PERSONNEL HATCH HINGE SUPPORTSHEET 5 OF 6 SHEETSCONTINUEDSTRESSES ARE:

$$f_z = \frac{F_{12}}{A} = 370 \left(\frac{13}{10} \right) = 481 \text{ psi}$$

$$f'_z = \frac{MC}{I} = \frac{(3397 \# \times 1 \frac{1}{2} ") (5")}{58.9 \text{ in}^4} = 433 \text{ psi}$$

$$f_x = \frac{F_{1x}}{A} = 380 \left(\frac{13}{10} \right) = 494 \text{ psi}$$

$$f'_r = \frac{MC}{I} = \frac{(3491 \times 11" \times 5")}{58.9} = 3260 \text{ psi}$$



$$f_r = \sqrt{(f_z + f'_z + f'_r)^2 + f_x^2} = \sqrt{(481 + 433 + 3260)^2 + 494^2}$$

$$f_r = 4203 \text{ psi} = 4.2 \text{ ksi} < 15 \text{ ksi allowable}$$

WELD OK

SIGNATURE

S. HOGAN

DATE

9/10/82

CHECKED

D YEH

DATE

9-10-82

PROJECT

BKRS 253

JOB NO.

10079-003

SUBJECT

PERSONNEL HATCH HINGE SUPPORT

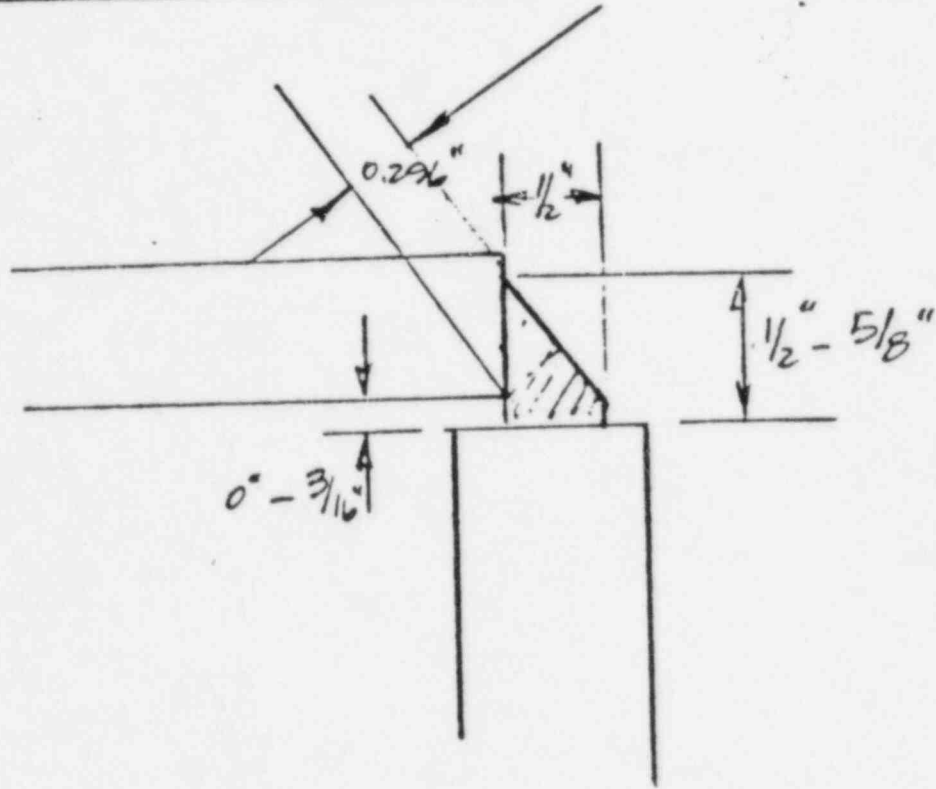
SHEET

6

OF

6

SHEETS



IN 3" LENGTH FROM END OF WELD, A GAP EXISTS, DEVELOPING FROM 0 TO 3/16" AT THE END. AT THIS POINT ONLY 0.296" OF EFFECTIVE THROAT EXISTS.

AT10AE
SONGS 2&3

*cc give to
Kirsch*

September 16, 1982

MR. D. B. SCHONE

SUBJECT: Personnel Lock Weld Deficiency, Containment Unit 2
San Onofre Nuclear Generating Station, Units 2&3

References: A. SCE Field Surveillance Report No. W-79-82

B. Bechtel Calculation No. C-257-2-10, S. Hoggan, dated
September 10, 1982

Attachment: Telephone Notes, J. W. Newbrough to R. Kane/H. Nazarian,
dated March 10, 1981

The alleged weld deficiency reported in Reference A will not impair the structural integrity or function of the Personnel Lock and is, in fact, not deficient with respect to the cited codes.

The weld deficiency was cited as an undersize weld at the upper hinge bracket. The undersize weld was the result of a fit-up gap of 0 inch to 3/16 inch over a 3 inch length (see attachment). The total length of the weld is 13 inches.

The as-built connection is adequate because:

1. The effective weld throat of .296 inch for the undersize weld is sufficient for the design loads. The required effective throat for this weld based on strength requirements is .13 inch.
2. The requirement for a 1/2 inch weld is based on the necessary welding heat input as required by the minimum weld size requirements of the AISC Specification, 7th Edition, for 2 inch thick plates. Since this weld is actually fabricated as a 1/2 inch weld, total heat input was consistent with these requirements.
3. Even if the undersize portion of weld is completely neglected, the remaining welds would be able to support the design loads (Reference B).
4. A maximum gap of 3/16 inch is permissible in the assembly of two plates to be joined by fillet welds.

-2-

In conclusion, the upper hinge bracket connection is acceptable and does not require repair.

Please call me if you require further clarification.



H. L. RICHTER

TYee:npv
Attachment

cc: R. L. Baker
W. M. Schwab
G. A. Chavez
L. L. Seyler
G. Vaslos
J. K. Yann
CDM Files

Attachment

B. Meggison

K. Habegger

D. Martin

J. Kartz

BY: J.W. Newbrough OF SOUGS CIVIL EE. PHONE 343

TO: R. Kane / H. Nazarian OF Bldg 47 Civil PHONE 379/365

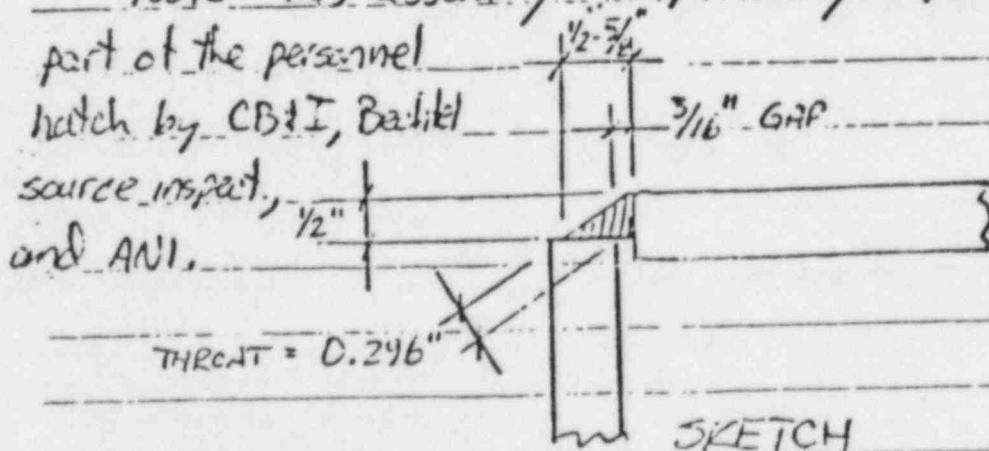
DATE 3-10-81 JOB NO. 10079 FILE

SUBJECT Undersized fillet weld on personnel hatch hinge - Dig Sp 23-205-5 365

NOTES I described to Ralph Kane and Jack Nazarian a $\frac{1}{2}$ " fillet weld which is part of the hinge support for the inner door of the personnel lock in U-2 Containment. This weld was examined by a welding GCE and found to have a throat dimension of 0.296 in. over a three in. length. The nominal throat dimension for a $\frac{1}{2}$ " fillet weld should be 0.350 in. This condition is attributed to a gap between the two welded plates of approx $\frac{3}{16}$ ". See sketch below.

Ralph and Jack investigated this condition and determined that the reduced throat over a small length of the weld was well within the tolerances of design accuracy. They both felt that the weld can be left as is with no detrimental affect on the structure.

Note: This assembly was previously inspected and accepted as part of the personnel hatch by CB&I, Baltek source inspect, and ANI.



BECHTEL POWER CORPORATION
SAN ONOFRE NUCLEAR GENERATING STATION
UNITS 2 AND 3
FIELD INSPECTOR'S REPORT

DATE 3-10-81
DISCIPLINE BCQC SHIFT 1st
WEATHER _____ SHEET 1 OF _____

GENERAL COMMENTS: On 3-9-81 I was approached by Earl Kent (BPCQC) and asked what I had done about the fillet welds he had previously brought to my attention with $\frac{3}{16}$ " to $\frac{1}{4}$ " stand-off. These welds are on the Containment 2 man way - fillet welds supporting the inner hatch hinge plates. I repeated to him what I had told him the first time: Look the item up on the drawing to determine what it should be and if he believes an NCR condition exists, to write it up, the hatch and unit were furnished by CBI and the situation could have been previously addressed and found acceptable, if he needed assistance with the drawing to see W Joly (WQCE).

SIGNATURE

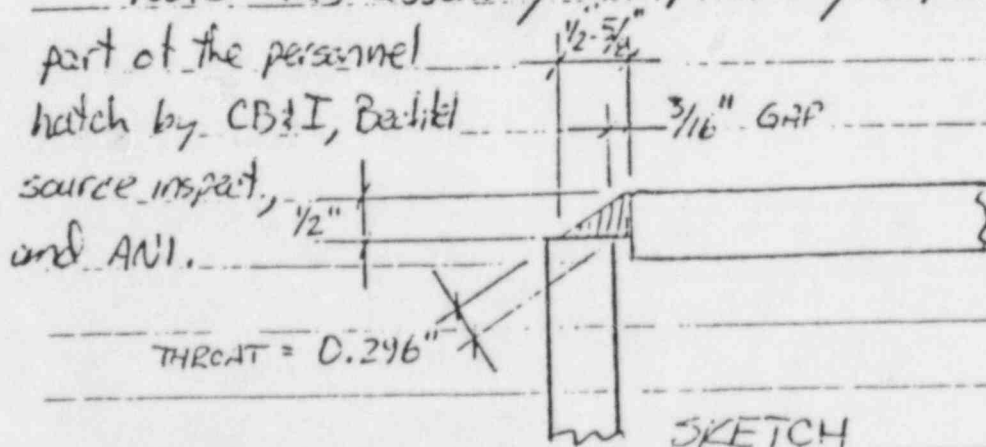
D Martin

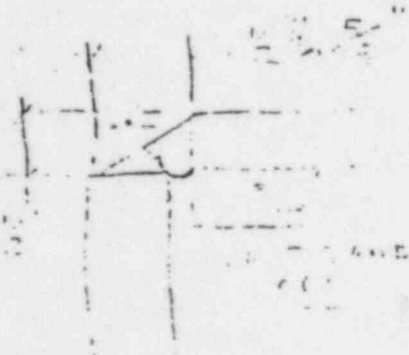
B. MeggisonK. HabeggerD. MartinBY: J.W. Newbrough of SOUGS Civil EE. PHONE 343TO: R.Kane / H. Nazarian of Bldg 47 Civil PHONE 379 / 365 J. KartzDATE 3-10-81 JOB NO. 10079 FILE _____SUBJECT Undersized fillet weld on personnel hatch hinge - Dig 5023-205-5 369

NOTES I described to Ralph Kane and Jack Nazarian
a 1/2" fillet weld which is part of the hinge support
for the inner door of the personnel lock in U-2
Containment. This weld was examined by a welding GCE
and found to have a throat dimension of 0.296 in. over
a three in. length. The nominal throat dimension for
a 1/2" fillet weld should be 0.350 in. This condition
is attributed to a gap between the two welded plates
of approx 3/16". See sketch below.

Ralph and Jack investigated this condition and
determined that the reduced throat over a small length
of the weld was well within the tolerances of design
accuracy. They both felt that the weld can be left as is
with no detrimental affect on the structure.

Note: This assembly was previously inspected and accepted as
part of the personnel
hatch by CB&I, Babil
source inspect,
and ANI.





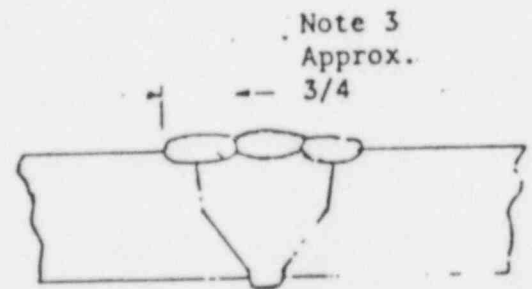
Authorized for use By <u>W.R. Smith</u> Manager of Engineering TPO	BECHTEL POWER CORPORATION WELDING STANDARD Welding Procedure Specification P1-T (CVN) (Wash) Revision 0 Date March 22, 1978	Materials and Quality Services Prepared <u>J. Buignuiste</u> Reviewed <u>W.R. Smith</u> Approved <u>W.R. Smith, Sr.</u>
---	---	---

This welding procedure specification must be used in conjunction with the General Welding Standard(s) GWS-FM

Scope: Gas tungsten-arc welding of P1 - Subgroups 1 and 2 impact tested or non-impact tested carbon steels which receive subsequent postweld heat treatment using a wash pass technique to improve surface contour.

Base Metal: Carbon Steel, P1 Group 1
or P1 Group 2
 Welded to Itself and each other
 ASME Sect. IX: P# 1 (G-1 or 2) to P# 1 (G-1 or 2)
 Welding Process: Gas Tungsten-Arc Welding (GTAW)
 Filler Material E70S-2 or E70S-3
AWS A5.18/SFA 5.18 (Note 1)
 ASME Sect. IX: F# 6 A# 1
 Position(s) Qualified: All (Note 2)
 Thickness Range Qualified (in inches)
 As-welded: min. --- max. ---
 Postweld Heat Treated: min. 3/16 max. 6.0
 Backing Material P1(G1), P1(G2) or Al weld metal
 Min. Preheat Temp. In accordance with GWS-FM
but not less than 51 F.

Typical Joint Design



RECEIVED (Note 4)

MAY 05 1978

EDM-SITE

Postweld Heat Treat: 1100 - 1250 F
 Applicable Procedure Qualification Record(s) 612, 614
 Procedure Qualified to: ASME Code, Sections III and IX

Welding Process	GTAW
Layer Number	Wash
Travel Speed (in./min.)	1.5-6.7
Amperage Range	135-300
AC/DC Polarity	DCSP
Voltage	9-10.5
Torch Gas - cfh.	18-25
Backing Gas - cfh.	None
Electrode Diameter (inch)	1/8
Tungsten Type	EWth-2
Filler Wire Diameter (inch)	3/32 or 1/8

SITE FILE COPY

#7

MAY 5 1978

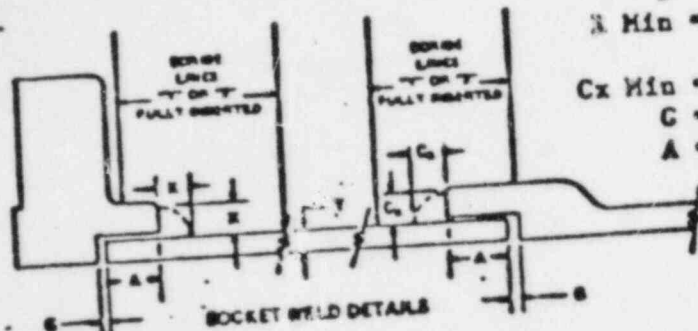
DRAWING
CONTROL

Additional Instructions

- Note 1: Other Al analysis weld metal may be consumed as necessary.
 Note 2: Both vertical up and/or vertical down welding may be used.
 Note 3: Weave width, defined as electrode traverse distance, may vary from 0 to 1/2-inch. Dwell may vary from 0 to 1 second and oscillation from 0 to 99 cpm. Weave limitations do not apply to non-impact tested materials. Final weld width is indeterminant due to varying puddle size. (Note 4): Wash passes may overlap, extending across weld face and fusion lines.

Document No.

LEGEND



T = Nominal pipe wall thickness.
 $X_{Min} = 1.4T$ or thickness of hub, whichever is smaller, but not less than 1/8 inch.
 $Cx_{Min} = 1.09T$, but not less than 1/8 inch.
 G = 1/8 inch, approximately before welding.
 A = Engagement

1. A minimum of two weld layers is required for pipe or tube over 1 inch nominal pipe size. Either Gas Tungsten Arc or manual Shielded Metal Arc process may be used.
2. For pipe or tube 1 inch and less in nominal pipe size, the Gas Tungsten Arc process should be used and a single weld layer is permitted. The Shielded Metal Arc process may be used provided a minimum of two weld layers is deposited.
3. Socket welds shall be fit-up with a gap. As a standard practice the gap used shall approximate 1/8 inch prior to welding. When gap verification systems are required and used, the socket gap shall be checked once, either prior to welding, or after welding using the method below.

- 3.1 The following steps are recommended to obtain socket disengagement (minimum gap). Other methods may be used provided they are equivalent and are approved by the Lead Field Welding Engineer.
- 3.2 Scribe a line on the fitting OD far enough back such that the line will not be eliminated by welding or grinding.
- 3.3 When feasible, insert the pipe or tube fully into the fitting socket (bottomed, maximum engagement "A").
- 3.4 Scribe a line on the pipe or tube that is 2 inches from the fitting scribe line. If the 2 inch dimension cannot be obtained, use another predetermined and documented distance "Y" for the scribed dimension. Documentation of "Y" distance should be placed on the WR-4, WR-5 or WR-5A form.
- 3.5 After scribing, withdraw the pipe or tube for a distance of approximately 1/8 inch but not removed from the socket; fit, tack and weld.
- 3.6 After welding is complete, the gap may be verified by determining that the scribe lines are greater than 2 inches or "Y" inches apart, whichever is applicable.
- 3.7 When the use of scribe lines is not practical and gap verification is required, the gap should be verified prior to welding.
- 3.8 When scribe lines are damaged or missing on completed welds and verification is required, radiography may be used to determine that a gap was present prior to welding. Radiography is not required, but if used, shall show the presence of a gap to be acceptable. The gap has no minimum or maximum dimension. The weld is outside the area of interest and may be masked off. RT shall be for gap determination only and not applied to socket weld acceptability.

FIGURE NO.	REV.	DATE
A GWS-FH-6	5	05/11/80

FIELD WELDING CHECK LIST FOR 2 INCH AND LESS SOCKET WELDED JOINTS FILLET WELDS

- STARTUP SYSTEM NO. 3 ABB
 (1) SYSTEM OR COMPONENT ST
HKL
 (2) ENGINEERING SPECIFICATION S3-1301-ML-00 Sht. 3
 (3) DRAWING NO. S3-1301-ML-00 Sht. 3
 (4) LOCATION - FAB SHOP ☐ FIELD ☒ OTHER ☐

- BECHTEL JOB NO. 10079 UNIT NO. 3
 QC. NO. 21NB
 (6) NDE REQUIREMENT L.P. ☒ M.P. ☐
 PROCEDURE NO. PT-SR-1,2 REV NO. 1

(7) WELD NUMBERS	*SCK						
(8) WELDING PROC. NO. & REV.	P1-T Rev. 0						
(9) FIT-UP DIMENSION (SW)	2 1/16"						

QUALITY CONTROL VERIFICATION

(10) WELDERS NAME & SYMBOL	ROSS-P314												
(11) FILLER MATERIAL	E 70S-2												
	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	
(12) FIT UP CHECKED	Wong 4/28/81												
(13) VISUAL INSP	Wong 4/28/81												
(14) NDE COMPLETE	L.P. <input checked="" type="checkbox"/> M.P. <input type="checkbox"/>												
	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	

- (15) REMARKS *A. I. Hold Point Item No. 13
*Cleanliness required prior to welding

HT# 12316 A Wong

4/28/81

(16) CERTIFIED CORRECT

C. W. Stanton

DATE 4-28-81

(17) REVIEWED AND ACCEPTED

LWQCE
 [Signature]

DATE 4-28-81

Authorized Inspector

Note

Authorized Inspector Mandatory Inspection
 Points Designated In Appropriate Column With: H (Hold) W (Witness) R (Review)

FIELD WELDING CHECK LIST
FOR 2 INCH AND LESS SOCKET WELDED JOINTS
FILLET WELDS

Page Of

STARTUP SYSTEM NO. 3 ARB

- ① SYSTEM OR COMPONENT ST
- ② ENGINEERING SPECIFICATION HF1
- ③ DRAWING NO. 53-1001-ML-001 Sht. 2
- ④ LOCATION: FAB SHOP ☐ FIELD ☒ OTHER ☐

- ⑤ BECHTEL JOB NO. 10079 UNIT NO. 3
- QC. NO. 21NB
- ⑥ NDE REQUIREMENT L.P. ☐ M.P. ☐
- PROCEDURE NO. PT-SR-1,2 REV NO. 1

⑦ WELD NUMBERS	<u>*SBH</u>					
⑧ WELDING PROC. NO. & REV.	<u>P1-T Rev. 0</u>					
⑨ FIT-UP DIMENSION (SW)	<u>2 1/16"</u>					

QUALITY CONTROL VERIFICATION

⑩ WELDERS NAME & SYMBOL	<u>L.A. RANA</u>											
⑪ FILLER MATERIAL	<u>E 70S-2</u>											
	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI
⑫ FIT UP CHECKED	<u>7-12-81</u>											
⑬ VISUAL INSP	<u>7-13-81</u>											
⑭ NDE L.P. <input checked="" type="checkbox"/>	<u>EX 7/14/81</u>											
COMPLETE M.P. <input type="checkbox"/>	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ

- ⑮ REMARKS *A. I. Hold Point Item No. 13 Verified clean 7/7/81 L.A.
- *Cleanliness required prior to welding

⑯ CERTIFIED CORRECT

E.W. Stanton

DATE 7-16-81

⑰ REVIEWED AND ACCEPTED

J. W. [Signature]

DATE 7/16/81

Authorized Inspector

Note

Authorized Inspector Mandatory Inspection

Points Designated In Appropriate Column With: H (Hold) W (Witness) R (Review)

R.T.
WR-5A Rev. 3
March 76

FIELD WELDING CHECK LIST
FOR 2 INCH AND LESS SOCKET WELDED JOINTS
FILLET WELDS

Page Of

STARTUP SYSTEM NO. 3 ABB

- ① SYSTEM OR COMPONENT ST
- ② ENGINEERING SPECIFICATION HK1
- ③ DRAWING NO. S3-1301-ML-001 Sht. 4
- ④ LOCATION - FAB SHOP ☐ FIELD ☒ OTHER ☐

- ⑤ BECTEL JOB NO. 10079 UNIT NO. 3
- QC. NO. 21NB
- ⑥ NDE REQUIREMENT L.P. ☐ M.P. ☐
- PROCEDURE NO. PT-SR-1,2 REV NO. 1

⑦ WELD NUMBERS	*SDC					
⑧ WELDING PROC. NO. & REV.	P1-T Rev. 0					
⑨ FIT-UP DIMENSION (SW)	2 1/16"					

QUALITY CONTROL VERIFICATION

⑩ WELDERS NAME & SYMBOL	BISKUP: P.463													
⑪ FILLER MATERIAL	E. 70S-2													
	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI
⑫ FIT UP CHECKED	12-12-81													
⑬ VISUAL INSP	12-12-81													
⑭ NDE L.P. <input checked="" type="checkbox"/>	1-11-81													
COMPLETE M.P. <input type="checkbox"/>	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ

- ⑮ REMARKS *A. I. Hold Point Item No. 13
- *Cleanliness required prior to welding CLEAN CHECKED 12/12/80 12:50 PM DTD 90° ELI - P147

⑯ CERTIFIED CORRECT

M. P. Biskup

DATE 1-16-81

⑰ REVIEWED AND ACCEPTED

W. J. H. H. H. H. H.

DATE 1/14/81

Authorized Inspector

Note

Authorized Inspector Mandatory Inspection

Points Designated In Appropriate Column With: H (Hold) W (Witness) R (Review)

R.T.
 WR-5A Rev. 3
 March 76



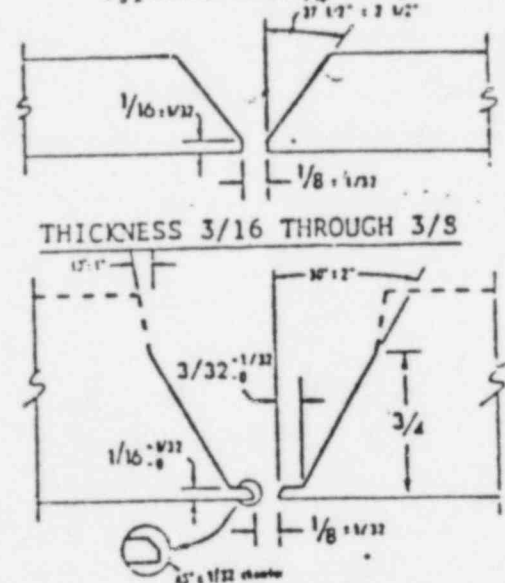
Authorized for use By <u>BLH</u> Manager of Engineering TPO	BECHTEL POWER CORPORATION WELDING STANDARD Welding Procedure Specification PB-T-Ag Revision 2 Date Dec. 2, 1976	Materials and Quality Services Prepared <u>J. B. Smith</u> Reviewed <u>B. M. MacLachlan</u> Approved <u>W. R. Smith, Sr.</u>
--	---	--

This welding procedure specification must be used in conjunction with the General Welding Standard(s) GWS-SN

Scope: Manual gas tungsten-arc welding of austenitic stainless-steel piping with an internal argon purge. BECHTEL

Base Metal:	Austenitic stainless steel
Welded to:	Austenitic stainless steel
ASME Sect. IX: P#	8 to P# 8
Welding Process:	Gas Tungsten-Arc (GTA)
Filler Material:	Refer to GWS-SN
ASME Sect. IX: F#	6 A# 8
Position(s) Qualified:	All positions
Thickness Range Qualified (in inches)	
As-welded:	min. <u>1/16</u> max. <u>0.964</u>
Postweld Heat Treated:	min. --- max. ---
Backing Material:	None
Min. Preheat Temp.	600F
Max. Interpass Temperature shall be	3500F

Typical Joint Design



THICKNESS 3/16 THROUGH 3/8

THICKNESS GREATER THAN 3/8

Postweld Heat Treat: None (Procedure qualified in the as-welded condition only)

Applicable Procedure Qualification Record(s) PQR 53 and 54

Procedure Qualified to: ASME Section IX

Welding Process	GTA	GTA	GTA	
Layer Number	1	2	3 & Rem.	
Travel Speed (in./min.)	2-10	2-10	2-10	
Amperage Range	40-140A	40-140A	40-140A	
AC/DC Polarity	DCSP	DCSP	DCSP	
Voltage	8-13	8-13	8-13	
Torch Gas - cfh.	Argon 18-25	Argon 18-25	Argon 18-25	
Backing Gas - cfh.	Argon 10-15	Argon 10-15	----	
Electrode Diameter (inch)	1/16, 3/32 or 1/8			
Tungsten Type (Thor.)	1 or 2A	1 or 2A	1 or 2A	
Filler Wire Diameter (inch)	1/16, 3/32 or 1/8			

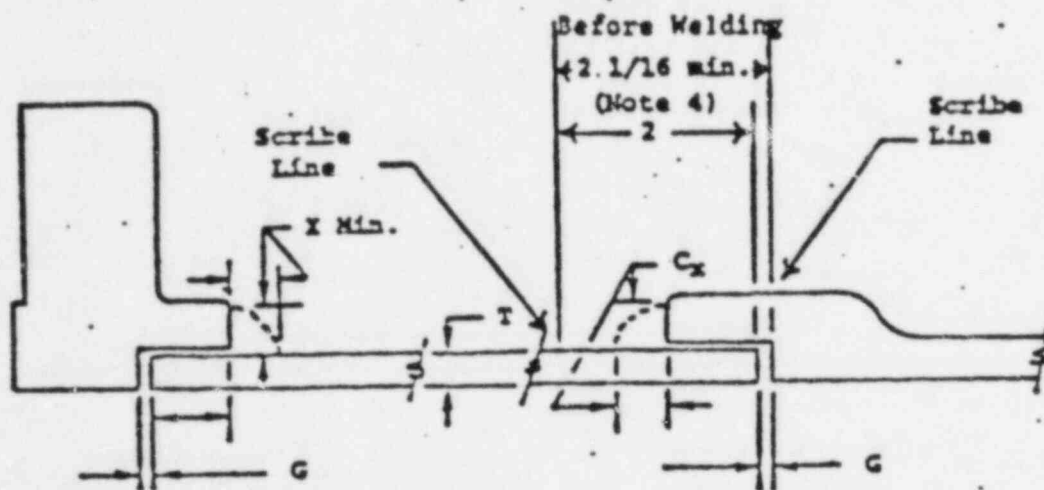
Additional Instructions

CONTROL

EDM SONGS 2 & 3

RECEIVED
JUL 18 1977
EDM-SITE

SOCKET WELD DETAILS



- T = Nominal pipe wall thickness.
- X Min = $1.4T$ or thickness of hub, whichever is smaller, but not less than $1/8$ inch.
- Cx Min = $1.09T$, but not less than $1/8$ inch.
- G = $1/16$ inch approximately before welding.

1. A minimum of two weld layers is required for pipe or tube over 2 inches nominal pipe size. Either Gas Tungsten-Arc or manual Shielded Metal-Arc process may be used.
2. For pipe or tube 2 inches and less in nominal pipe size, the Gas Tungsten-Arc process should be used and a single weld layer is permitted. The Shielded Metal-Arc process may be used provided a minimum of two weld layers is deposited.
3. The following steps should be followed for verification of the socket gap.
 - 3.1 Scribe a line on the fitting O.D. equal to the distance from the face of the fitting to the bottom of the socket.
 - 3.2 Scribe a line on the pipe or tube that is 2 inches, or other predetermined distance (Y), from the end of the pipe or tube.
 - 3.3 After fit up, tacking and welding, verify that the scribe lines are greater than 2 inches but less than $2-1/8$ inches apart or greater than Y but less than $Y + 1/8$, whichever is applicable.

FIGURE NO.	REV.	DATE
GWS-SN-8	3	01/02/80

FIELD WELDING CHECK LIST
FOR 2 INCH AND LESS SOCKET WELDED JOINTS
FILLET WELDS

Page Of

- ① SYSTEM OR COMPONENT RC
- ② ENGINEERING SPECIFICATION CE-2
- ③ DRAWING NO. S3-1201-ML-001 Jht. 1
- ④ LOCATION - FAB SHOP ☐ FIELD ☒ OTHER ☐

- ⑤ BECHTEL JOB NO. 10070 UNIT NO. 3
- QC. NO. 11NA
- ⑥ NDE REQUIREMENT L.P. ☐ M.P. ☐
- PROCEDURE NO. PT-SR-1, 2 REV NO. 1

⑦ WELD NUMBERS	*SH						
⑧ WELDING PROC. NO. & REV.	P8-T-Ag Rev. 2						
⑨ FIT-UP DIMENSION (SW)	2 1/16"						

QUALITY CONTROL VERIFICATION

⑩ WELDERS NAME & SYMBOL	Kuss T 514											
⑪ FILLER MATERIAL	ER 308L											
	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI
⑫ FIT UP CHECKED	WQCE 5/15/81											
⑬ VISUAL INSP	WQCE 5/15/81 * 9/2/81											
⑭ NDE L P <input checked="" type="checkbox"/>	5-22-81											
COMPLETE M P <input type="checkbox"/>	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ

- ⑮ REMARKS *A. I Hold Point Item No. 13
- 11/27 462 148 5/15/81 *Cleanliness required prior to welding intermass check 4/81
- cleanliness verified 4/81 5/15/81

- ⑯ CERTIFIED CORRECT M. P. Beach DATE 5-22-81
- ⑰ REVIEWED AND ACCEPTED LWQCE DATE 5/21/81
- 9/2/81 Authorized Inspector

Note

Authorized Inspector Mandatory Inspection
 Points Designated In Appropriate Column With: H (Hold) W (Witness) R (Review)

WR-5A Rev. 3
 March 76

COPY 1-WHITE

COPY 2-YELLOW

COPY 3-BLUE

COPY 4-PINK

ATTACHMENT 10
 Page 8 of 12

FIELD WELDING CHECK LIST
FOR 2 INCH AND LESS SOCKET WELDED JOINTS
FILLER WELDS

Page Of

- ① SYSTEM OR COMPONENT RC ⑤ BECHTEL JOB NO. 10079 UNIT NO. 3
 ② ENGINEERING SPECIFICATION CE-2 QC. NO. 118A
 ③ DRAWING NO. S3-1201-MJ-001 Sht. 1 ⑥ NDE REQUIREMENT L.P. ☒ M.P. ☐
 ④ LOCATION - FAB SHOP ☐ FIELD ☒ OTHER ☐ PROCEDURE NO. PT-SR-1, 2 REV NO. 1

⑦ WELD NUMBERS	*SJ					
⑧ WELDING PROC. NO. & REV.	P8-T-Ag Rev. 2					
⑨ FIT-UP DIMENSION (SW)	2 1/16"					

QUALITY CONTROL VERIFICATION

⑩ WELDERS NAME & SYMBOL	ROSS P-314												
⑪ FILLER MATERIAL	ER 308L												
	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	
⑫ FIT UP CHECKED	11/25/81												
⑬ VISUAL INSP	11/25/81												
⑭ NDL L P <input checked="" type="checkbox"/>	(11/25/81)												
COMPLETE M P <input type="checkbox"/>	ACC REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ

- ⑮ REMARKS *A. I Hold Point Item No. 13
*Cleanliness required prior to welding
11/25/81

- ⑯ CERTIFIED CORRECT DATE 11/25/81
 ⑰ REVIEWED AND ACCEPTED DATE 11/25/81
 Authorized Inspector

Note

Authorized Inspector Mandatory Inspection
 Points Designated In Appropriate Column With: H (Hold) W (Witness) R (Review)

WR-5A Rev. 3
 March 76

COPY 1-WHITE

COPY 2-YELLOW

COPY 3-BLUE

COPY 4-PINK

ATTACHMENT 10
 Page 9 of 12

By

J. M. Mendenhall
Vice President of
Engineering

BECHTEL POWER CORPORATION WELDING STANDARD

Welding Procedure Specification

Pl-A-1h

Revision 1 Date 11/8/74

Materials, Fabrication &

Quality Control Services

Prepared *R. H. Smith*Reviewed *B. M. Mendenhall*Approved *W. R. Smith*

W. R. Smith, S.

Authorized for use only when signed by the Vice President of Engineering.

This welding procedure specification must be used in conjunction with the General Welding Standard(s) GWS-FM.

Scope: Manual shielded metal-arc welding of carbon steel plate or piping materials using the open butt technique or with backing material.

Base Metal: Carbon steel

Welded to Carbon steel

ASME Sect. IX: P# 1 to P# 1

Welding Process: Manual shielded metal-arc (SMA) all passes

Filler Material SFA-5.1/AWS A5.1. Classification E7016 or E7018 (NOTE 1)

ASME Sect. IX: F# 4 A# 1

Position(s) Qualified: All positions

Thickness Range Qualified:

As-welded:

min. 1/16" max. 3"

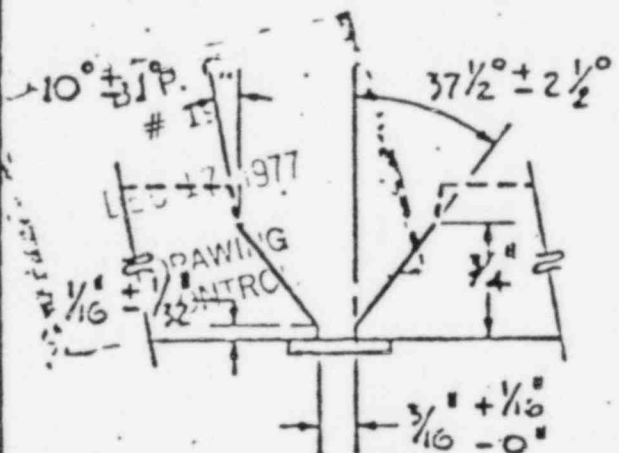
Postweld Heat Treated:

min. 3/16" max. 4"

Backing Material When required, carbon steel

Min. Preheat Temp. In accordance with GWS-FM but not less than 510°F

Typical Joint Design



Note 2

SITE FILE COPY

Postweld Heat Treat: When required, 1 hr/inch at 1175°F ± 75°F.

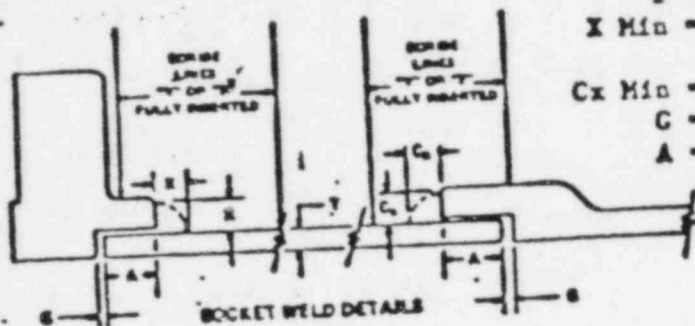
Applicable Procedure Qualification Record(s) PQR-8, PQR-9, PQR-10

Procedure Qualified to: ASME Code, Section IX

Welding Process	SMA	SMA	SMA	SMA
Layer Number	1, 2 & Rem.	1, 2 & Rem.	1, 2 & Rem.	Remaining
Travel Speed (in. /min.)	---	---	---	---
Amperage Range	Note 3	Note 3	Note 3	Note 3
AC/DC Polarity	DCRP	DCRP	DCRP	DCRP
Voltage	---	---	---	---
Torch Gas - cfh.	---	---	---	---
Backing Gas - cfh.	---	---	---	---
Electrode Diameter	3/32"	1/8"	5/32"	3/16"
Tungsten Type	---	---	---	---
Filler Wire Diameter	---	---	---	---

Additional Instructions

Note 1: AWS A5.1 may be used when it is identical to ASME SFA-5.1.



- T = Nominal pipe wall thickness.
 X Min = $1.4T$ or thickness of hub, whichever is smaller, but not less than $1/8$ inch.
 Cx Min = $1.09T$, but not less than $1/8$ inch.
 G = $1/8$ inch, approximately before welding.
 A = Engagement

1. A minimum of two weld layers is required for pipe or tube over 1 inch nominal pipe size. Either Gas Tungsten Arc or manual Shielded Metal Arc process may be used.
2. For pipe or tube 1 inch and less in nominal pipe size, the Gas Tungsten Arc process should be used and a single weld layer is permitted. The Shielded Metal Arc process may be used provided a minimum of two weld layers is deposited.
3. Socket welds shall be fit-up with a gap. As a standard practice the gap used shall approximate $1/8$ inch prior to welding. When gap verification systems are required and used, the socket gap shall be checked once, either prior to welding, or after welding using the method below.
 - 3.1 The following steps are recommended to obtain socket disengagement (minimum gap). Other methods may be used provided they are equivalent and are approved by the Lead Field Welding Engineer.
 - 3.2 Scribe a line on the fitting OD far enough back such that the line will not be eliminated by welding or grinding.
 - 3.3 When feasible, insert the pipe or tube fully into the fitting socket (bottomed, maximum engagement "A").
 - 3.4 Scribe a line on the pipe or tube that is 2 inches from the fitting scribe line. If the 2 inch dimension cannot be obtained, use another predetermined and documented distance "Y" for the scribed dimension. Documentation of "Y" distance should be placed on the WR-4, WR-5 or WR-5A form.
 - 3.5 After scribing, withdraw the pipe or tube for a distance of approximately $1/8$ inch but not removed from the socket; fit, tack and weld.
 - 3.6 After welding is complete, the gap may be verified by determining that the scribe lines are greater than 2 inches or "Y" inches apart, whichever is applicable.
 - 3.7 When the use of scribe lines is not practical and gap verification is required, the gap should be verified prior to welding.
 - 3.8 When scribe lines are damaged or missing on completed welds and verification is required, radiography may be used to determine that a gap was present prior to welding. Radiography is not required, but if used, shall show the presence of a gap to be acceptable. The gap has no minimum or maximum dimension. The weld is outside the area of interest and may be masked off. RT shall be for gap determination only and not applied to socket weld acceptability.

FIGURE NO.	REV.	DATE
A GWS-FM-6	5	05/11/80



Bechtel Power Corporation

FIELD WELDING CHECK LIST
FOR 2 INCH AND LESS SOCKET WELDED JOINTS
BOLLET WELDS

Page ____ Of ____

3 AUG

- ① SYSTEM OR COMPONENT ST ⑤ BECHTEL JOB NO. 10079 UNIT NO. 3
 ② ENGINEERING SPECIFICATION PK1 QC. NO. 21NB
 ③ DRAWING NO. S3-1301-ML-001 Sht. 2 ⑥ NDE REQUIREMENT L.P. ☒ M.P. ☐
 ④ LOCATION - FAB SHOP ☐ FIELD ☒ OTHER ☐ PROCEDURE NO. PT-SR-1,2 REV NO. 1

⑦ WELD NUMBERS	*SPK REF: NCR-P-1902				
⑧ WELDING PROC. NO. & REV.	P1-A-Ih Rev1				
⑨ FIT-UP DIMENSION (SW)	2-1/16"				

QUALITY CONTROL VERIFICATION

⑩ WELDERS NAME & SYMBOL	NAME: <u>P. J. J.</u>											
⑪ FILLER MATERIAL	E 7018											
	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI	WQCE	AI
⑫ FIT UP CHECKED												
⑬ VISUAL INSP		*										
⑭ NDE L.P. <input checked="" type="checkbox"/>	H-H-V-R											
COMPLETE M.P. <input type="checkbox"/>	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ	ACC	REJ

⑮ REMARKS *A.I. Hold Point Item No. 13*Cleanliness required prior to weldingVERIFIED CLEAN 9-23-80⑯ CERTIFIED CORRECT M. J. J.DATE 11-6-80⑰ REVIEWED AND ACCEPTED J. J. J.DATE 11/11/80

Authorized Inspector

Note

Authorized Inspector Mandatory Inspection

Points Designated In Appropriate Column With: H (Hold) W (Witness) R (Review)

WR-5A Rev. 3
March 76ATTACHMENT 10
Page 12 of 12

Jim: John Odell, LA Times () call re: E. Earl
Kent. Kent has gone to Times about welding at San Onofre
and told Times about welding at Midland. Odell wants to
talk to you about Kent and Midland.

Weil

1:20pm, 10/6/82

E. EARL KENT

4/2/82

E. KENT

4:46 B. GARDE

E. KENT

expanded affidavit on receipt of tapes
going to have transcribed

10/29/82 statement will be changed & notarized
considers as preliminary

Sanders is in Maryland now...
()

"another batch" on Midland

GAP was asked in on Berry case - not
sure if will take.

end 6:00 p.m.

called E. Gilbert 11/3/82 @ 10:10
To advise of Sanders' contact + whereabouts.
KF.

~~11-14~~

I-14

F.

Glen Ellyn, Ill
September 7, 1983

I, James E. Foster, hereby make the following statement to Charles H. Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

I am presently employed as a Compliance Specialist with the Region III office of the Nuclear Regulatory Commission. Prior to my assignment as a Compliance Specialist, I was an Investigator with the Region III (RIII) Enforcement and Investigation Staff, and subsequently an Investigator with the RIII Field Office of the Office of Investigations.

I have reviewed the memos which I generated following contacts with Mr. E. Earl Kent, including three memos dated March 5, 1982. These memos include telephone contacts made on March 2, in the morning and that evening.

To the best of my recollection, I discussed the possibility of filing a case with the Department of Labor (on the basis of his claim of wrongful firing) during my telephone contact with Mr. Kent on the evening of March 2, 1982. I recall Mr. Kent indicating that he wished to maintain his confidentiality, and that he did not wish to press a case. He indicated that he was leaving the Midland area, and would be seeking employment on the West coast.

I have read the foregoing statement consisting of one page. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on September 7, 1983 at 10:10 a.m..

James E. Foster
James E. Foster

Subscribed and sworn to before me
this seventh day of September,
1983 at Glen Ellyn, Ill.

Charles H. Weil
Charles H. Weil, Investigator
U.S.N.R.C. Office of Investigations

MEMORANDUM
OF CALL

Previous editions usable

TO:

g6K

☒ YOU WERE CALLED BY-

☐ YOU WERE VISITED BY-

Earl

Kent

OF (Organization)

Cypress, CA

☒ PLEASE PHONE

☐ FTS

☐ AUTOVON

☐ WILL CALL AGAIN

☐ IS WAITING TO SEE YOU

☐ RETURNED YOUR CALL

☐ WISHES AN APPOINTMENT

MESSAGE

RECEIVED BY

[Signature]

DATE

9/13

TIME

1:00

63-110 NSN 7540-00-634-4018

STANDARD FORM 63 (Rev. 8-81)

U.S. G.P.O. 1982-361-529/157

Prescribed by GSA
FPMR (41 CFR) 101-11.6

~~1-18~~
I-16

E. EARL KENT

RESUME

9809 Spruce Court
Cypress, California 90630

Telephone: (714) 828-8064

California Contractor's License issued November 21, 1956 - Welding

MOST RECENT PUBLICATIONS:

"Welding Structural Steels" (ISBN 0-918782-01-5) 1977

"Structural Steels" (ISBN 0-918782-02-3) 1977

EXPERIENCE:

Fluor Engineers & Constructors, Inc.

4-80 to Present

.. Welding Technical Supervisor; Welding Engineer

Supervise welding operations at Amuay Refinery in Venezuela, South America;
Welding Engineer in Fluor's Consulting Section in Irvine, California;
correlated ASME and ANSI Codes.

Boyle Engineering Corporation

5-79 to 3-80

.. Welding Inspector, Field

Inspected welding on Diemer Intertie Pipeline. Investigated and resolved
welding problems to ASME Code.

The Austin Company

6-78 to 3-79

.. Structural Job Captain

Supervised preparation of structural engineering drawings. Reviewed and
revised vendor blueprints, and checked for accuracy, to AWS and UBC Codes.

Western Precipitation Division of
Joy Manufacturing Company

6-71 to 6-78

.. Quality Control Engineer

Developed detailed welding procedures, inspection instructions, investigated
reports of quality problems related to design, fabrication and assembly of W.P.
products, recommended resolution to quality problems and verified satisfactory
implementation of proposed corrective actions. Performed source inspections
of procured material, systems and/or assemblies in many cities and numerous
states.

.. Designer

Prepared general arrangement drawings to AWS D1.1 Code, assembly drawings and
design detail drawings for process equipment and required auxiliaries.

#17
I-17

Litton Industries

10-69 to 5-71

Litton is involved in many facets of manufacturing and I was involved in five combatant vessels for the U.S. Navy, to military codes and specifications.

.. Senior Welding Engineer

Prepared welding charts, tables, examples, etc., for optimum engineering and design. Resolved complicated welding problems for the Landing Helicopter Assault Ships, including sequence welding. Determined maximum levels of weld stress allowed by code, plotted many original graphs and prepared many original tables. Provided consultation service to engineers and designers, on any welding problem they wanted solved. Prepared reports on welding design problems, etc., for top management as required.

Riverside Steel Construction

9-68 to 10-69

.. Structural Steel Detailer

Calculated dimensions and weights for tapered steel girders, plate beams, girders, columns, etc. Resolved design and fabrication problems with engineers, designers and contractors. Checked detail drawings for structural integrity and accuracy to AWS, AISC and UBC Codes.

Daniel, Mann, Johnson & Mendenhall

8-65 to 9-68

.. Structural Drawing Checker

Correlated architectural, structural, civil, mechanical drawings and calcs for structural integrity and accuracy. Worked for D.M.J.M. at Cape Kennedy, Florida, on Titan III launch tower for several months on structural design and modifications. Resolved conflicting design problems with groups involved, including contractors, to AWS and AISC Codes.

North American Aviation (Day)

2-62 to 8-65

Cerritos College (evening and night)

.. Associate, Construction Engineering

.. Instructor, Welding

Central facilities design of civil and structural aspects of facilities. Prepared construction drawings, job orders, bill of materials and calculations, including field investigations and measurements. Received N.A.A. Suggestion Award for "Cryogenic and High Pressure Gas Data."

.. Welding Instructor (evening and night) at Cerritos College in Norwalk, California

Yuba Consolidated Industries

1-61 to 2-62

.. Detailer - Structural Rebar

Prepared reinforcing bar sheets for fabricating shop and from many A&E engineering drawings. Work included sketches and instructions for placement in sequence and assembly to UBC Code.

Holmes and Narver, Inc.

5-60 to 1-61

.. Senior Structural Draftsman

Prepared structural layouts and drawings for construction trades. Some structural design and stress diagrams. Outlined reinforcing bar layouts and drawings for large structures to AISC Code.

Albert C. Martin & Associates

3-60 to 5-60

.. Senior Structural Draftsman

Prepared structural layouts and drawings for construction trades. Some structural design and revision of designers' engineering drawings for large structures to AISC and AWS Codes.

Cryogenics, Victor Equipment Co.

5-57 to 3-60

(California Oxygen Company)

.. Assistant to the Chief Engineer

Responsible for all structural engineering, all structural design, all drafting and some cryogenic vessel design. Supervised field construction of cryogenic and high pressure gas installations for manufacturing plants and distributors. Also responsible for all research in high pressure gases and high pressure gas mixtures and all publications of charts and data. Obtained all building and fire department permits from the City of Los Angeles for cryogenic and high pressure hydrogen installations. Liaison work with outside contractors. Many original data charts and tables published in my name since I was the author.

Aerojet General Corporation, A&E Division

6-56 to 5-57

.. Engineering Design Draftsman - Structural

Layout of civil and structural drawings for missile test stands, including reinforcing bars and piping. Worked for licensed structural engineers and designers on test stand layout for missiles at various sites. Some structural and welding design on major structures to AISC, AWS and UBC Codes.

Southwestern Engineering Company

8-55 to 6-56

.. Structural Design Draftsman

Prepared structural layouts and drawings for construction trades. Some structural design and piping. Coordination of jobber drawings for heavy equipment and large structures at new industrial facilities to ASME Code.

University of Southern California

5-52 to 8-55

.. Engineering Aide; Wind Tunnel Technician

Controlled missile models during testing in Supersonic Wind Tunnels. Supervised the plotting and correlation of thousands of sheets of test data, performed analysis of data and test records.

U.S. Navy Construction Battalion Center

3-46 to 5-52

.. Instructor of Welding and Combination Welder

Instructed Electric and Oxy-Acetylene welding at the "Technical Training Schools" for Navy Sea Bees. Worked for 'Research and Evaluation' and 'Public Works' division as Combination Welder. Two of my inventions were accepted by U.S. Navy and awards paid me. For the second invention used at other U.S. Navy bases, I was paid an additional award and a full page described it in the "Bureau of Yards and Docks Technical Digest."

U.S. Navy, Central Pacific

7-43 to 3-46

.. Ship Fitter in Construction Battalion

Houston Shipbuilding Corp.

6-42 to 7-43

.. Electric Welder in Shipyard

EDUCATION:

Diploma, Structural Engineering, I.C.S.
Diploma, Modern Supervision, I.C.S.
Diploma, La Grange High School, Lake Charles, Louisiana
Certificate, Blueprint Reading; A.P.I.
Certificate, Industrial Plastics; A.P.I.
Certificate, Physics; Ventura Evening College
Certificate, Psychology; Ventura Evening College
Certificate, Teaching; California State Board of Education

PERSONAL:

Military Service: U.S. Navy Sea Bees, 7-43 to 3-46 (Central Pacific).

Numerous copyrights and publications, several inventions.

1. This is a true and correct copy of the original record as maintained by the Bureau of Naval Personnel, Department of the Navy, and is not to be used for any other purpose.

EXPERIENCE RECORD

DATE 12-23-61

NAME E. EARL KEAT

SAL. CONTRACTED (PERIODS) 6-66

CLASSIFICATION EE.O.E. ENGINEER REGISTRATION: State (u) ILLINOIS 11-1-57 DATE OF BIRTH 1-1-25-1925

EDUCATION: High School (Yrs) 12 College (Yrs) 2 (B.S.) Degree ENGINEERING DATE OF DEGREE 1955

Name of Project and Job Number	Type of Project Steam, Industrial Nuclear, Maritime, etc.	Acting Title and/or Position	Duties Performed	Apprentice Assignment Start Date Completion Date	No. Month
<u>SONGS 2 AND 3</u> <u>10079</u>	<u>NUCLEAR ELECTRIC GENERATING STATIONS</u>	<u>SENIOR QUALITY CONTROL ENGINEER</u>	<u>EE.O.E. ENGINEER & P.E.T. DUTIES IN Q.C. WELDING SECTION, SONGS 2 & 3.</u>	<u>1960</u> <u>1 SEPT. 1961</u>	<u>11</u>
			<u>ALSO, WORKED AT JAPANESE SHIPS (PROBABLY FIELD WELDING DATA)</u>		

7

EARL KENT

WELDING CONSULTANT

9809 SPRUCE COURT
CYPRESS, CALIFORNIA 90630

(714) 828-8064

OVER



E. E. KENT
QUALITY ENGINEER

WESTERN PRECIPITATION
DIVISION
JOY MANUFACTURING CO.

4585 COLORADO BOULEVARD
LOS ANGELES, CALIF. 90039
(213) 240-2300

RESUME

Mr. E. Earl Kent
9809 Spruce Court
Cypress, Cal. 90630

(714) 828 - 8064

Title : Senior Quality Control Engineer (Nuclear Welding)

Summary :

17 years : In Engineering (Welding , Quality , Construction)
11 years : In Welding (Instructor , Inspector , Welder)
11 years : In A & S offices (Job Captain , Designer , Checker , etc.)

Experience :

Sr. Q.C. Engineer , Bechtel Power Corp. , six nuclear power units .
Welding Technical Supervisor , Fluor Caribbean , Amuay Refinery , Venezuela, S
Welding Engineer , Fluor Engineers & Constructors , Irvine , Calif.
Code Applications Engineer , Bechtel Power Corp. , Los Angeles Power Division
Sr. Welding Engineer , Litton Industries AMTD , Culver City , Calif.
Welding Engineer , Litton Industries LAMP , Pascagoula , Miss.
Quality Control Engineer , W. P. Div. , Joy Mfg. Co. , Los Angeles , Calif.
Quality Assurance Engineer , W. P. Div. , Joy Mfg. Co. , L. A. , Calif.
Field Welding Inspector , Boyle Engineering Corp. , Diemer Intertie Pipeline .
Welding Author , since 1961 . Most recent books :
" Welding Structural Steels " , I S B N 0-918782-01-5
" Structural Steels " , I S B N 0-918782- 02-3

Professional Affiliations : American Society for Quality Control

Education :

Nuclear Quality Control O. J. T. , Bechtel Power Corp.
Quality Engineering course , Calif. State University , Northridge , Calif.
Structural Engineering course , I. C. S. , Scranton , Pa.
Modern Supervision course , I. C. S. , Scranton , Pa.
Techniques of Teaching course , Calif. State Board of Education
Physical Sciences course , Ventura Evening College , Ventura , Calif.
Psychology & Life course , Ventura Evening College , Ventura , Calif.
Blueprint Reading course , Armed Forces Institute , Honolulu , Hawaii
Industrial Plastics course , A. F. I. , Honolulu , Hawaii
Electric Welding course , N. Y. A. , Houston , Texas

RESUME

6-23-41

E. EARL KENT

.11(2):

High School diploma from LA Grange High, Lake Charles, LA
National Youth Administration, South Houston, Texas
"Electric Welding" Course - 1942

Armed Forces Institute, Honolulu, Hawaii
"Blueprint Reading" Course - 1944
"Industrial Plastics" Course - 1945

Ventura Evening College, Ventura, CA
"Physical Sciences" Course - 1953
"Psychology & Life" Course - 1955

International Correspondence Schools, Scranton, PA
"Structural Engineering" Course - 1953
"Modern Supervision" Course - 1962

CA State Board of Education
"Techniques of Teaching" Course - 1963
(Welding Instructor at Cerritos College, Norwalk, CA)

CA State University, Northridge, CA
"Quality Engineering" Course - 1978

ORGANIZATION	LAST NAME	FIRST NAME	DATE	EMPLOYEE NO.
Bechtel Quality Control	Kent	E. Earl	3/6/82	504721

EDUCATION

SCHOOL	NAME	CITY	STATE	MAJOR	YEARS ATT.	DEGREE & DATE
HIGH	LaGrange High	Lake Charles	LA			
COLLEGE	International Correspondence Schools	Scranton, PA		Structural Engineering Course	1953	Diploma
OTHER	International Correspondence Schools	Scranton, PA		Modern Supervision Course	1962	Diploma
OTHER	CA State University	Northridge, CA		Quality Engineering Course	1978	Cert.

JOB HISTORY

	MO/YR		COMPANY / ADDRESS	YOUR TITLE	DUTIES
	FROM	TO			
2 MO.	12/81	2/82	Bechtel Power Corp. Midland, MI Project #7220	Senior QC Engineer	In training for certification in piping and pipe welding inspection.
3 MO.	9/81	12/81	Bechtel Power Corp. Palisades Nuc. Plant Covert, MI	Senior QC Engineer	Weld inspection.
11 MO.	10/80	9/81	Bechtel Power Corp. Songs #2&3 Nuclear Plant Project #10079 San Onfre, CA	Senior QC Engineer	Welding inspection, documentation review and preparation of N-5 forms.
6 MO.	4/80	10/80	Fluor Engineering Irvine, CA	Welding Engineer	Welding Technical Supervisor in Venezuela, South America. Welding Engineer in CA.
10 MO.	5/79	3/80	Boyle Eng. Corp. (on Diemer Intestie Pipeline)	Field Welding Inspector	Weld inspection.
8 MO.	6/78	2/79	The Austin Co. Irvine, CA	Structural Job Captain	Review of structural engineering Dwgs. and Blueprints.

E. Earl Kent

JOB HISTORY

7yr

MO/YR		COMPANY / ADDRESS	YOUR TITLE	DUTIES
FROM	TO			
6/71	6/78	WP Div. of Joy Mfg. Co.	Designer	Prepared design and installation dwgs for equipment per AWS D1.1.
		—	QC Engineer	Wrote welding procedures & inspection instructions, performed procurement source inspections & investigated product quality problems.
10/69	5/71	Litton Industries Culver City, CA	Senior Welding Engineer	Prepared welding charts, tables and examples. Investigation and resolution of welding problems.
9/68	10/69	Riverside Steel Construction Sante Fe Springs, CA	Structural Steel Detailer	Structural steel detailing, and drawing review per AWS, AISC, and UBC Codes.
8/65	9/68	Daniel, Mann, Johnson & Mendenhall Los Angeles, CA	Structural Dwg. Checker	Correlated architectural, structural, civil, and mechanical dwgs. for accuracy, conflicts, and structural integrity.
2/62	8/65	North American Aviation, Norwalk, CA	Ass. Construction Engineer	Prepared drawing, job orders bill of materials, etc.
		Cerritos College Norwalk, CA	Welding Instructor	Taught evening instruction in welding.
5/52	2/62	1. Yuba Consolidated 2. Holmes & Narver, Inc 3. Albert C. Martin 4. Cryogenics, Vicktor Equip. Co.	Various Drafting and Engineering positions	Structural, design, detailing and drafting. Plotting and evaluation of test data.
		5. Aerojet Gen. Corp 6. Southwest Eng. Co. 7. Univ. of South CA		



JOE HISTORY

[illegible]

WELDING

January 31, 1980

RECEIVED
TMC

QUALITY CLASS	FORM	CODE	FORM USAGE
I, II	WR-6 & WR-5	ASME SECT. III CODE CLASS 1,2, & 3	PIPING - Butt Welds CIVIL - Full Penetration Butt Welds that require Radiography
I, II	WR-6 & WR-5	ANSI B31.1	PIPING Butt Welds
I, II	WR-6	ANSI B31.1	PIPING - Socket Welds, 2 inch and less.
	& WR-5A	ASME SECT. III CODE CLASS 1,2 & 3	PIPING - Socket welds, 2 inch and less.
	WR-6 & SDR	BECHTEL SPEC.	CIVIL - Liner Plates
	WR-7	AWS D1.1 	ELECTRICAL - Raceway Supports, Containment Penetration, Equipment (Switchgear, Load Centers, Motor Controls) CIVIL - Structural Steel, Equipment (Turbine transfer Crane, Containment Polar Crane, Fuel Transfer Tube), Misc. Metal.
III & IV	WR-99	AWS D1.1 	ELECTRICAL - Raceway supports, Equipment (Switchgear, Load Centers, Motor Control Centers.) CIVIL - Structural Steel, Equipment (Turbine Gantry Crane, Containment Polar Crane, Fuel Transfer Tube, Etc.), Misc. Metal. PIPING - Each pipe support or group of pipe support. Pressure & non-pressure boundary.
		ANSI B31.1	PIPING - Socket and Butt welds. Prepare one WR-99 for each piping line number.
III & IV	PF-1999 & WR-99	ANSI B31.1	PIPING - Butt welds that require PWHT and/or NDE. One PF-1999 & WR-99 for each weld.

NOTE: WR 5, 5A & 6, PF-1999 Good until completion of welding.

WR 7 & 99 Good for one calendar week for filler metal withdrawal.

REPAIR: WR-5 and/or WR-5A forms that reference or include NCR's, SDR's or attachments must go to the ANI for assignment of hold points before issuance to the field.

G/1

WELD FORM PREPARATION

QUALITY CLASS	WELD LOCATION	WELD TYPE	WELD FORMS				WELD IDENTIFIERS	NDE	ANI HOLD POINTS
			WR5	WR5A	WR6	WR7			
ASME III CLASS 1 11NA 21NA	NF	FILLET		X	X		HA, HB, ETC	PT-SR-1,2 OR MT-Y-1,2	NONE
		FULL PEN BUTT	X		X		HA, HB, ETC	RT-XG-2	NONE
		FULL PEN NOZZLE		X	X		HA, HB, ETC	PT-SR-1,2 OR MT-Y-1,2	NONE
	PRESSURE BOUNDARY	ALL		X	X		(1) SA, SB, ETC	PT-SR-1,2 OR MT-Y-1,2	(4) 12 & 13
ASME III CLASS 2 21NB 22NB 31NB 32NB	NF	ALL		X	X		(2) NONE	VE-BPC-2	NONE
	PRESSURE BOUNDARY	ALL		X	X		SA, SB, ETC	PT-SR-1,2 OR MT-Y-1,2	(4) 13
ASME III CLASS 3 21NC 31NC 32NC	NF	ALL		X	X		(2) NONE	VE-BPC-2	NONE
	PRESSURE BOUNDARY	ALL		X	X		SA, SB, ETC	VE-BPC-2	(4) 13
NON-ASME 21C*	NON PRESSURE BOUNDARY	ALL				X	(2) NONE	VE-BPC-1	NONE
	PRESSURE BOUNDARY	ALL		X	X		(2) NONE	VE-BPC-1	NONE
CLASS I&II AWS D1.1 STRUCTURAL	STRUCTURAL	ALL				X	(3) NONE		NONE

- (1) DOUBLE IDENTIFIERS ARE USED ON FULL PEN. NOZZLE WELDS WHEN AN I.D. FILLET IS REQUIRED ie. SA(1st) + SA(2nd) or SA+SB
- (2) USE PLANT TAG NUMBER
- (3) USE PIPING PLAN DRAWING NUMBERS (SEE ATTACHED)
- (4) REQUIRES ANI REVIEW OF THE COMPLETED WELD FORM AND PIPE SUPPORT DRAWING
- (5) REPAIR WR-5 and/or WR-5A forms that reference or include NCR's, SDR's or attachments must go to the ANI for assignment of hold points before issuance to the field.

C&D BATTERIES DIVISION
Industrial Batteries and Chargers
3043 WALTON ROAD PLYMOUTH MEETING PENNSYLVANIA 19462
TELEPHONE 215 828 9000 • TELETYPE 610 880 8436



December 2, 1991

Re: Customer P. O. #8856-E-119-KC
C&D Invoice # 7-35540; 7-35545
Battery Model - LX-25; LX-25
Rack Model - RD-937; RD-937

Bechtel Power Corp.
P. O. Box 3965
San Francisco, CA 94119

Attn: Project Engineer
Job No. 8856

Dear Sir:

This communication is to advise you of a possible condition associated with a specific battery rack as supplied by C&D Batteries. The circumstances causing us to call your attention to this matter involve a rack of similar design recently in the process of installation at a new nuclear generating plant. However, in this particular case, the installers chose to relocate the mounting holes for bolting the rack to the floor, and in some cases used metal shims only on one side of the anchor bolts to level the frames of the rack. This procedure introduced forces to the welds uncommon to normal installation procedures. The result of this modified technique was to cause fractures in several welds, thereby reducing the structural integrity of the battery rack.

Since we cannot be certain that the weld fractures are directly attributable to the modified mounting of this particular rack or to deficient welds, we recommend that you inspect your rack(s) frame members in the specific areas described on the attached drawing.

Please advise us of any deficiencies which you may find so that we may take immediate corrective action.

We wish to thank you in advance for your cooperation in this matter, and apologize for any inconveniences which we may have caused you.

Please contact the writer by letter following your inspection or, if you require immediate assistance, call us at telephone number (215) 828-9000 extension 345 or Mr. David Emery on extension 321.

Very truly yours,

T. P. Davis, P. E.
Director Quality Assurance

BECHTEL

QUAL CONTROL INSPECTION RECORD
PQCI NO. 7220/P W-1.00 REV. 3

WELDING HEAT TREATMENT AND NDE

Page 1 of 2

QC File No. FSK-11160-55-3
Log No. 149252
QCIR No. FSK-11160-58-291

GENERAL INFORMATION

1. Unit No. _____
Location Unit
Weld Type () FPG () Socket () Attachment
Engineering Specification No. See Reference Criteria Sheet
3. ISO or Drawing No. FSK-11160-58-2
4. Weld No. 71
5. Original ✓ Repair No. NA
6. System or Component 1HBC58
7. Pipe Diameter 2"
8. Joint Thickness NA
9. Socket Welds: _____
Wall Thickness/Weld Size 2 1/8" 1/4"
10. Scribe Dimension 2 1/8" 1-28-82
SA/ASTM Material Type and Grade SA106 GRB
Welded To SA105
11. Welding Procedure and Revision No. P1-T6 Rev 1
12. Filler Mat'l Type E70S2
Insert Mat'l Type NA
13. Backing Rings Required NA
Inserts Required NA
14. Purge required NA Gas Type NA
Flow Rate NA
15. Preheat Temp. 50 °F Minimum
Interpass Temp. NA °F
16. PWHT Temp. NA °F
Holding Time NA Hrs.
17. RT Spec. No. NA Rev. NA
18. PT Spec. No. NA Rev. NA
19. MT Spec. No. NA Rev. NA
20. Other NDE Spec. No. UT ASSE Rev. 0
21. E. J. Smith Date 1/26/82
Prepared by (FWE) (CQCE)
22. ABOVE REQUIREMENTS CERTIFIED CORRECT
K. O. DeWitt Date 1-27-82
CQCE Level II
23. Authorized Nuclear Inspector Hold Points
Act(s) No. NA 1-27-82

ACT NO.	DESCRIPTION	ITEM ACCEPTANCE			
		C	E	COCE	Date
1.0	PREREQUISITES				
1.1	Reference Criteria Reviewed and Understood	R		OK	4/28/91
1.2	ANI Requirements	R		LL	11
2.0	IN-PROCESS INSPECTION				
2.1	Materials Free of Damage	I		OK	1/28/82
2.2	Internal Cleanliness	I		OK	1/28/82
2.3	Weld Preheat Therm No. <u>NA</u> Cal Due _____	I		NA	1/28/82
2.4	Fit-Up <u>FWE</u> Date <u>1-28-82</u>	R		OK	1-28-82
2.5	Material Requirements <u>small Puy</u> Welded to: <u>C326 Tee</u>	I		OK	1-28-82
2.6	Verified Closure	R		OK	1-29-82
2.7	Postweld Heat Treatment Recorder S/N _____ Calibration Due _____	I		NA	
3.0	FINAL INSPECTION				
3.1	Configuration and Orientation			OK	1-29-82
3.2	Completed Weld	I		OK	1-29-82
3.3	Welder Qualification Symbol(s): <u>P-176</u>	R		OK	1-29-82
3.4	NDE ACC. REJ.				
a. RT		I			
b. UT		I/R			
c. BT		I			
d. MT		I/R			
e. PT		I/R			
3.5	Postweld Heat Treatment	R		NA	
3.6	PIN No. <u>NA</u>	R		OK	1-29-82
4.0	SUPPLEMENTARY RECORDS				
4.1	Postweld Heat Treat Chart	R		NA	
4.2	RT Reports and Film	R			
4.3	UT Test Reports	R			
4.4	BT Test Reports	R			
4.5	MT Test Reports	R			
4.6	PT Test Reports	R			
4.7	Temp. Attachment Record	R		OK	1-29-82
5.0	EXCEPTIONS				
5.1	No Exceptions	R		OK	1-29-82
5.2	Indicated exceptions described in Remarks	R			

Remarks NA 1" Scribe line 1-28-82

UNCONTROLLED

G/3

5. Hold Points reviewed and Accepted (ANI) W. J. Morgan Date 1-2-82
6. Above Results Certified Correct (CQCE Level II) Green Date 2/8/82



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QUALITY CONTROL INSPECTION RECORD
PQCI NO. 7220/P W-1.00 REV. 3

Page 1 of 2

QC File No. 14BC-58-2
Log No. 149253
QCIR No. 14BC-58-290

WELDING HEAT TREATMENT AND NDE

ES FORM 19017 REV. 881

GENERAL INFORMATION		ACT NO.	DESCRIPTION	ITEM ACCEPTANCE					
				C	E	COQE	Date	ANI	Date
1.	Unit No. _____	1.0	PREREQUISITES			PJS	12982		
	Location <u>Deck</u>	1.1	Reference Criteria Reviewed and Understood	R		1	1		
	Weld Type () FPG () Socket () Attachment	1.2	ANI Requirements	R					
2.	Engineering Specification No. <u>See Reference Criteria Sheet</u>	2.0	IN-PROCESS INSPECTION			PJS	12982		
3.	ISO or Drawing No. <u>ISA-114BC-58-2</u>	2.1	Materials Free of Damage	I		PJS	12982		
4.	Weld No. <u>90</u>	2.2	Internal Cleanliness	I		PJS	12982		
5.	Original _____ Repair No. <u>NA</u>	2.3	Weld Preheat Therm No. _____ Cal Due _____	I		PJS	12982		
6.	System or Component <u>14BC 58</u>	2.4	Fit-Up <u>PYE-2204 S2</u>	R		PJS	2282		
7.	Pipe Diameter <u>2"</u>	2.5	Material Requirements <u>TFE 877</u> Welded to <u>362560</u>	I		PJS	2282		
8.	Joint Thickness <u>NA</u>	2.6	Verified Closure	R		PJS	2282		
9.	Socket Welds: _____		Postweld Heat Treatment	I		NA			
	Wall Thickness/Weld Size <u>218 1/4"</u>		Recorder S/N _____ Calibration Due _____						
	Scribe Dimension <u>2"</u>	3.0	FINAL INSPECTION						
10.	SA/ASTM Material <u>S4106 GRB</u>	3.1	Configuration and Orientation	I		PJS	2282		
	Type and Grade <u>S4105</u>	3.2	Completed Weld	I		PJS	2282		
11.	Welding Procedure and Revision No. <u>P1-T6 Rev 1</u>	3.3	Welder Qualification Symbol(s) <u>P176</u>			PJS	2282		
12.	Filler Mat'l Type <u>E7052</u>	3.4	NDE ACC. REJ.			NA			
	Insert Mat'l Type <u>NA</u>	3.5	a. RT _____	I					
13.	Backing Rings Required <u>NA</u>	3.6	b. UT _____	I/R					
	Inserts Required <u>NA</u>	3.7	c. BT _____	I					
14.	Purge required <u>NA</u> Gas Type <u>NA</u>	3.8	d. MT _____	I/R					
	Flow Rate <u>NA</u>	3.9	e. PT _____	I/R					
15.	Preheat Temp <u>55</u> °F Minimum	3.10	Postweld Heat Treatment	R		NA			
	Interpass Temp <u>NA</u> °F	3.11	IPIN No. <u>NA</u>	R		PJS	2282		
16.	Welding Time <u>NA</u> Hrs.	4.0	SUPPLEMENTARY RECORDS						
17.	RT Spec. No. <u>NA</u> Rev. <u>NA</u>	4.1	Postweld Heat Treat Chart	R					
18.	PT Spec. No. <u>NA</u> Rev. <u>NA</u>	4.2	RT Reports and Film _____	R					
19.	MT Spec. No. <u>NA</u> Rev. <u>NA</u>	4.3	UT Test Reports _____	R					
20.	Other NDE Spec. No. <u>UT/ASTE</u> Rev. <u>0</u>	4.4	BT Test Reports _____	R					
		4.5	MT Test Reports _____	R					
		4.6	PT Test Reports _____	R					
		4.7	Temp. Attachment Record _____	R		PJS	2282		
		5.0	EXCEPTIONS						
		5.1	No Exceptions	R		PJS	2282		
		5.2	Indicated exceptions described in Remarks	R					

Remarks

UNCONTROLLED

5. Hold Points reviewed and Accepted (ANI) 1-27-82 Date 1-3-82
6. Above Results Certified Correct (COQE Level II) 1-27-82 Date 2-3-82



RECORD COPY *RD*

QUALITY CONTROL INSPECTION RECORD
PQCI NO. 7220/P W-1.00 REV. 3

QC File No. 1HBC-38-2
Log No. 149257
QCIR No. 1HBC-58-2(87)

WELDING HEAT TREATMENT AND NDE

GENERAL INFORMATION		ACT NO.	DESCRIPTION	ITEM ACCEPTANCE					
1.	Unit No. <u>1</u>			C	E	COCE	Date	ANI	Date
1.	Location <u>Any</u>	1.0	PREREQUISITES			PSS	1-29-82		
	Weld Type () FPG () Socket () Attachment	1.1	Reference Criteria Reviewed	R					
	See Reference Criteria Sheet	1.2	and Understood	R					
2.	Engineering Specification No. <u>1HBC 58-2</u>	2.0	IN-PROCESS INSPECTION						
3.	ISO or Drawing No. <u>1HBC 58-2</u>	2.1	Materials Free of Damage	I		PSS	1-29-82		
4.	Weld No. <u>29</u>	2.2	Internal Cleanliness	I		PSS	1-29-82		
5.	Original <u>✓</u> Repair No. <u>NA</u>	2.3	Weld Preheat	I		PSS	1-29-82		
6.	System or Component <u>1HBC 58</u>		Therm No. <u>FW</u> Cal Due <u>7-29-82</u>						
7.	Pipe Diameter <u>2"</u>	2.4	Fit-Up	R		PSS	2-28-82		
8.	Joint Thickness <u>NA</u>	2.5	Material Requirements						
9.	Socket Welds:		<u>TEE MS77</u>	I		PSS	2-28-82		
	Wall Thickness/Weld Size <u>.218 1/4"</u>		Welded to: <u>302560</u>						
	Scribe Dimension <u>2</u>		Verified Closure	R		PSS	2-28-82		
10.	SA/ASTM Material <u>SA106 GRB</u>		Postweld Heat Treatment	I					
	Type and Grade <u>SA105</u>		Recorder S/N <u>NA</u> Calibration Due <u>NA</u>						
11.	Welding Procedure and Revision No. <u>P1-T6 Rev 1</u>		FINAL INSPECTION						
12.	Filler Mat'l Type <u>E7022</u>		Configuration and Orientation	I		PSS	2-28-82		
	Insert Mat'l Type <u>NA</u>		Completed Weld	I		PSS	2-28-82		
13.	Backing Rings Required <u>NA</u>		Welder Qualification Symbols: <u>D-176</u>	R		PSS	2-28-82		
	Inserts Required <u>NA</u>		NDE ACC REJ						
14.	Purge required <u>NA</u> Gas Type <u>NA</u>		a. RT	I					
	Flow Rate <u>NA</u>		b. UT	I/R					
15.	Preheat Temp. <u>50</u> °F Minimum		c. BT	I					
	Interpass Temp. <u>NA</u> °F		d. MT	I/R					
16.	PWHT Temp. <u>NA</u> °F		e. PT	I/R					
	Holding Time <u>NA</u> Hrs		3.5 Postweld Heat Treatment	R					
17.	RT Spec. No. <u>NA</u> Rev <u>NA</u>		3.6 IPIN No. <u>NA</u>	R		PSS	2-28-82		
18.	PT Spec. No. <u>NA</u> Rev <u>NA</u>		4.0 SUPPLEMENTARY RECORDS						
19.	MT Spec. No. <u>NA</u> Rev <u>NA</u>		4.1 Postweld Heat Treat Chart	R					
20.	Other NDE Spec. No. <u>UT AHE</u> Rev <u>0</u>		4.2 RT Reports and Film	R					
			4.3 UT Test Reports	R					
21.	<u>P. Lavin</u> Date <u>1/26/82</u>		4.4 BT Test Reports	R					
	Prepared by (FWE) (COCE)		4.5 MT Test Reports	R					
22.	ABOVE REQUIREMENTS CERTIFIED CORRECT		4.6 PT Test Reports	R					
	<u>Ron D. Ditt</u> Date <u>1-26-82</u>		4.7 Temp. Attachment Record	R		PSS	2-28-82		
	COCE Level II		5.0 EXCEPTIONS	R		PSS	2-28-82		
23.	Authorized Nuclear Inspector Hold Points		5.1 No Exceptions						
	Act(s) No. <u>NA</u> <u>1-27-82</u>		or Indicated exceptions described in Remarks	R					

PSS = Paul S. Shultz had the key with him

Remarks

UNCONTROLLED

3/10/82
2:16p.

Jorgensen - Palisades

E. E. KENT

MON 8/31/81 - FRI 11/20/81 at Palisades. (81 days)
≈ 2.7 mo

only ^{did} weld INSP. at plant no other duties..

2 jobs - aux. feedwater modification

QUALIFICATIONS $\left\{ \begin{array}{l} \text{visual level I} \\ \text{dye penetrant level II} \end{array} \right.$

Jack Huron - his supervisor - says was OK
qualifications, PER, ECT. ON FILE...
no complaints...

My note: Aux feedwater is "9" piping,
Sisani class I, ASME III, all welds
would be radiographed - NO socket
welds.

SAN ONOFRE
?

PALISADES
8/31 - 11/20/81

MIDLAND
? - 3/25/82 (3/1/81)
THUR MON

CALIFORNIA
?

G/4

~~PER~~ COOK
3/11/82

1ST TEST
↓

2/9/82 -

2/25/ (2 DAYS)
↓
26/82

2ND TEST
↓

↳ TOLD FIRED

8/16/82

Call from E. Kent

Reinforcement - excessive reinforcement

$\frac{1}{3}$

Bechtel Ref. ^{sheet} WQ-2 sheet 20
(WELDER QUALIFICATION)

Note 1 - shall not exceed $\frac{1}{3}$ of
an inch...

(should be $\frac{1}{8}$,
per Kent).

have many other notes

groove welds - high crowns
wanted to "clean up welding at Midland"

end: 3:04

G/6

Bechtel Power Corporation

Engineers - Constructors

12400 East Imperial Highway

Norwalk, California 90650

MAIL ADDRESS

P.O. BOX 50860 - TERMINAL ANNEX LOS ANGELES CALIFORNIA 90080

TELEPHONE (213) 864-8211



September 17, 1982

Mr. J. M. Curran
Manager, Quality Assurance
Southern California Edison Company
P.O. Box 800
2244 Walnut Grove Avenue
Rosemead, California 91770

Subject: San Onofre Nuclear Generating Station, Units 1, 2 & 3
Allegations Made by Mr. E. E. Kent on September 7, 1982

Reference: SCE-QA letter, Mr. J. M. Curran to Mr. R. L. Patterson,
same subject, dated September 11, 1982

Dear Mr. Curran:

In response to your request for Bechtel's position on the four allegations made by Mr. Kent concerning welding adequacy at SONGS 1, 2 & 3, the position of the Los Angeles Power Division of Bechtel Power Corporation is as follows:

Concern #1 - "End Returns"

Weld end returns are utilized in practice to enhance the redistribution of local stress concentrations in the design of selected welded connections. Such redistribution of local stresses comes about only when the stresses reach the yield level. In the case of the SONGS 2 & 3 Project and the modifications to Unit 1, the stresses are designed to remain at or below 90% of the yield level.

Weld end returns are recommended by the AISC and AWS Codes, whenever practicable, even though tests, upon which code provisions are based, recognize that these returns do "not necessarily, increase the strength of the connection" (AWS Commentary 8.8.6), when comparisons are made on an equivalent weld strength basis. When end returns are specified by the design engineer, the AISC Code (1.14.7) permits the engineer to utilize the additional nominal load carrying capacity increase in addition to the full capacity of the orthogonal weld.

G/7

The term "whenever practicable" is interpreted by Engineering to mean that weld end returns are routinely specified as a matter of common design practice, and such practice is followed by Bechtel Engineering. The design engineer may select individual weld details which meet the specific requirements of a particular design condition. Where orthogonal weld sizes are of insufficient length to develop the required load capacity (e.g. a short clip angle), the engineer may utilize the additional weld segment to increase the design capacity consistent with the AISC Code. In addition, where the orthogonal weld produces a design capacity sufficiently in excess of the required load capacity, the design engineer may omit the weld end return if the addition of the return results in excess conservatism.

It is Bechtel Engineering's position that the San Onofre welding details meet both the provisions and intent of the AISC and AWS Codes, and that sufficient margins exist to meet all SAR and FSAR commitments.

Concern #2 - "Spacer Plate Missing on Unit 2 Personnel Hatch"

We understand your investigation has revealed this concern to be a 3/16" gap in a weld fit-up at the upper hinge support. Since the Unit 2 Reactor is critical, we also assumed this to be the case.

SONGS 2 & 3 Project Engineering has performed calculations (see Attachment 1) based on the Chicago Bridge and Iron stress report for the personnel hatch that provides verification that existing weld on the upper hinge supports with the 3/16" gap is adequate to carry all imposed design loads.

Concern #3 - "Socket Weld Engagement Length"

The philosophy expressed in the telephone note produced by Mr. Kent does not represent Bechtel Policy at San Onofre Units 1, 2 & 3. Form 84 (Bechtel Drawing 90011) is the governing document for use of weld procedures on SONGS 2 & 3. The procedures listed in Form 84 refer to various General Welding Standards (GWS) which conform to ASME Section III Code requirements concerning socket weld engagement length. For example, on SONGS 2 & 3 GWS-SW Rev. 8 states:

The following steps should be followed for verification of the socket gap.

- 3.1 Scribe a line on the fitting O.D. equal to the distance from the face of the fitting to the bottom of the socket.
- 3.2 Scribe a line on the pipe or tube that is 2 inches, or other predetermined distance (Y), from the end of the pipe or tube.
- 3.3 After fit up, tacking and welding, verify that the scribe lines are greater than 2 inches but less than 2-1/8 inches apart or greater than Y but less than $Y + 1/8$, whichever is applicable.

Similar procedures are in effect for Unit 1.

Mr. J. M. Curran
September 17, 1982

ATTACHMENT 6
Page 3 of 9

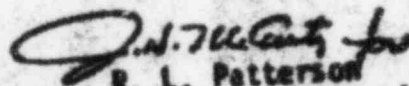
Concern #4 - "Unqualified NDE Personnel"

The qualifications of NDE subcontractor personnel are reviewed by Bechtel N & QS personnel prior to the person commencing work on the SONGS 1, 2 & 3 projects. The subcontractor's work is performed under the cognizance of a qualified Bechtel NDE person. Results of the examination are reviewed by a qualified Bechtel NDE person and, in the case of ASME work, by a qualified Authorized Nuclear Inspector. The results of the above activities are documented and available for your review.

We hope this information is of value to you in your investigation of Mr. Kent's allegations. If we can be of any further service in this matter, please feel free to contact me or the Project Quality Assurance Manager, Mr. J. H. McCarty.

Very truly yours,

BECHTEL POWER CORPORATION



R. L. Patterson
Division Quality Assurance Manager

KLP/JMG:dmb

Attachment

cc: D. B. Schone, SCE
H. F. McCluskey, BPC
W. V. Horn, BPC
J. H. McCarty, BPC
F. B. Marsh, BPC
R. J. Kosiba, BPC
L. R. Brown, BPC

RE: E. EARL KENT

1

10/7/82

O'dell. has checked Kents background - 2 weeks
looks good

Not too concerned over Midland - not an operating plant
San Onofre

★ spent two weeks determining whether
or not to write anything
several interviews w E/Kent

Conclusion: may have something
has called:

ASME - SECTION III

AWS - NON-Safety

J. Collins - NRC

Moss Davis - AWS

JOHN MILLMAN - ASME III

KIRSH - RV -

E.6.1

VISUAL EXAMINATION

ACCEPTANCE CRITERIA

ASME SECTION III

SUBSECTION NF

PIPE SUPPORTS

Bechtel + San Onofre

1980 Bechtel Constitution

NF Component Supports

R7. 4/18/80
pg 13-14, 18.

"out of whack" with code

item 5.6
Components

MOSS DAVIS - APPALLED AT THIS

ARC STRIKES ACCEPTABLE

depth to ---

if no visible cracks

Unfilled groove weld craters acceptable

B. 3.1.1. drawings - full pen. + fillet covers. G/8
may be welded as fillet welds

E. EARL KENT
Went to J.C. Edison

Re: San Onofre - They met w/ Bentsel
they felt concerns groundless
checked door - no plate specified
not missing, not needed
KIKSH - Wanted phone #...

JOHN O'DELL

~~10~~ LA TIMES

1375 SUNFLOWER AVE.

COSTA MESA, CALIF. 92626

I advised had open investigation,
but Inq. report was public document
MISC on Kent...

10/12/82 1:15 (T)

John O'dell - LA TIMES

Q Regional stories on Kent?

A Not to my knowledge

his story to run tomorrow?

Requested a copy

LEA for SAH Infos - failed file support
lacked end return fields

I advised IMSP report on unity -

transfer attempt to streams...

10/18/82
COPY OF E. KENT'S INTERVIEW

1

LeGoff: In his three-month probe of the Midland Nuclear Power Plant, Channel 7 Investigative Reporter, Steve Handelsman, discovered evidence of serious welding problems in the Plant's vital water piping. Steve is here now with part two of his special report. Steve.

Handelsman: Thanks a lot, Jack. There's a system of checks and rechecks at any nuclear power plant. One worker does a job, then that work is inspected, the inspection is inspected and so on. But a former top nuclear welding official who worked at the Midland Nuclear Power Plant says that system checks and balances broke down at Midland in the area of critical welding. Here's part two of my Target 7 report.

Like a human body, the Midland Nuclear Power Plant has a circulatory system. The Plant's lifeblood is high-pressure steam and water. Its veins and arteries are steel pipes and, unfortunately, like the human circulatory system, Midland's system can have flaws - flaws that could cause the nuclear equivalent of a heart attack. The reactor is cooled by one set of pipes. That loop is cooled by a second system. The heat from that system produces steam in a third loop, cooled by a fourth loop, backed up by a fifth loop and so on. And all of the piping here is welded together.

Earl Kent lives in California. He calls himself a welding expert and has the credentials to back up that claim. He has written two books on welding and numerous technical papers. Kent has

been a Senior Quality Control Engineer at the San Onofre Nuclear Plant in California and at the Palisades Nuclear Plant here in Michigan. In December of 1981, Kent came to work for Bechtel at Midland. Earl Kent says when he came to Midland's Nuclear Plant he was shocked by what he's convinced were many poor-quality welds, many incompetent welders and many poorly trained welding inspectors.

Kent: Basically, anyone with a high school diploma, just a general high school diploma, could be a candidate to be a welding inspector. When you bring people in off the street and give them, say, two or three weeks' training, you can't really expect them to be very knowledgeable and very adept in inspecting welds if they haven't had the real exposure to working as a journeyman for many years in this field. There were some people that really shouldn't have been welding at all and, consequently, many, many welds were torn out, joints were rebeveled and welded again. And I have seen a case, for instance, where one particular joint was welded four times which is, in my opinion, inexcusable.

Handelsman: What's worse, I would think, is that they're making bad welds and nobody notices. Did that happen?

Kent: Yes, very definitely. What occurs, many of the welds that were passed for many years as being adequate were proven to be inadequate and undersized, yet they were documented as being adequate.

Handelsman: Who proved them to be inadequate and undersized? _

Kent: The welding engineers and the welding inspectors basically had the burden of accepting or rejecting. Very often they didn't understand simple things in measurement like fillet weld gauges, how to check welds to make sure they were full sized. Many, many, many welds were undersized and were documented as being full sized.

Handelsman: These are welds that you saw to be undersized?

Kent: Yes, I saw numerous welds undersized, yes.

Handelsman: Let me play the devil's advocate for a second. A lot of people say, okay, so they weren't up to code. Isn't it possible that they're plenty strong enough to last for a hundred years even done the way they were done?

Kent: No.

Handelsman: Fifty years?

Kent: No.

Handelsman: Ten years?

Kent: Some of them will survive ten years, undoubtedly. There have been welds that have lasted for weeks, months and then failed. There have been welds that have lasted for years and then failed. There have been welds that lasted for decades and then failed.

Handelsman: So you're saying it's not just that I'm angry that they didn't conform to a certain rule and regulation? You're saying the welds aren't strong enough?

Kent: Basically, the welds leave a lot to be desired. Basically, a lot of the welds are inadequate.

Vassar: He sounds sincere. But we had those welds that he was concerned about checked out. And one group, you know, were already written up on the Nonconformance Report by another inspector. The system had caught them and, you know, we agreed that they need to be reworked. He was subsequently asked to go look at - bring up anything else he knew was of concern and he took the inspectors out and they looked at an additional eight welds out in the field. Kent agreed that five of the welds were good and he didn't like three of them. Our people said, "They are good." The Consumers people checked and said they are good. The NRC came in and checked them and then checked, you know, not only them. They said, "Well, while we're here, we're going to do some more checking," and they checked another 30 welds or so. And we think we have a very good program.

Handelsman: So what you're saying about Earl Kent, all told, bottom line, is that he's wrong and we're right?

Vassar: That's correct.

Handelsman: James Cook of Consumers Power is ultimately responsible for the welding at Midland. He too believes Kent's charges are groundless.

Cook: In terms of the specific overview that my quality staff does of all of the Bechtel X rays of our welding done here onsite, I have no reason to believe that our welding doesn't meet all of the requirements that it's supposed to meet.

Kent: My experience with Consumers Power is that they are not to be trusted.

Handelsman: You're convinced that what you're describing could cause a problem in the operation of the Plant?

Kent: Absolutely.

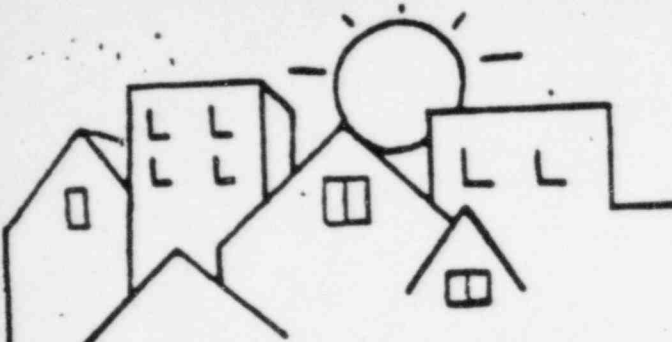
Handelsman: Would you feel safe living in the City of Midland, for example?

Kent: No, I would not. No way.

Handelsman: Like the charges of cable substitutions detailed in my report yesterday, Earl Kent's serious charges that welding at Midland is suspect will be investigated by a special team of the Nuclear Regulatory Commission. That's good. What's bad is that the NRC has known about Kent's charges now for three months and, so far, the NRC has not begun its promised investigation. Tomorrow, problems with the ventilation system at Midland. Doris.

10/13/82

rp1062-0655a-96



Community Energy Action Network
275-1162

October 18, 1982

Dear Senator Cranston,

Community Energy Action Network (CEAN) and the Southern California Alliance for Survival urgently request you to support us in our appeal to the House Interior Committee and oversight subcommittee to investigate the concerns of E. Earl Kent, former Senior Quality Control Engineer with the Bechtel Corporation.

In addition, we also request that these committees begin immediate public hearings on the matter of faulty, missing, incomplete and substandard welding in the nation's nuclear power plants.

We hope that you and your colleagues will convince the NRC to order a thorough and truly independent audit of this situation. And we insist that any independent analysis be reported directly to the committees as well as to the NRC. In our opinion, the NRC and its staff have little public credibility, and any investigation of this situation would be useless unless the findings and results of an independent review were reported complete and unedited directly to the peoples' representatives in Congress! Because of the inherent pro-nuclear bias of the NRC and its staff, we insist that the agency should not be in charge of an investigation, and that there be an independent analysis of the concerns of Mr. Kent.

Mr. Kent was unable to get the attention of Bechtel, the Edison Company or the NRC on his charges regarding thousands of faulty welds at the San Onofre nuclear facility (all three units).

According to the Los Angeles Times exclusive story (enclosed), released Wednesday, October 13, "...event reports (Edison) filed in the last 30 months with the NRC. . .show that Edison inspections of Unit 1 have revealed at least one cracked weld on a pressurized steam pipe, inadequate welds on several cooling water pipes inside the reactor containment dome and the failure of welds on four cooling water pipe support structures." It was also confirmed that the welds in question were not the reinforced welds that Kent says he believes are necessary in nuclear power plants.

Only an independent review and public hearings will get to the bottom of the specific problems at San Onofre's three reactors, the Midlands plant and as to why the NRC does not require the reinforced welds in nuclear plants which meet the American Welding Society Code.

We look forward to your timely response to our request for public Congressional hearings and an independent investigation of Mr. Kent's concerns!

Jim Jacobson
Jim Jacobson, CEAN

Sincerely,

Ellie Cohen

G/11

JJ/mg

Ellie Cohen, Alliance for Survival

PO Box 33686 San Diego, California 92103