UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CALIFORNIA 94596

APR 19 1984

DESIGNATED ORIGINAL
Certified By Dot Noack

J. O. Schuyler, Vice President
Nuclear Power Generation
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94106

Dear Sir:

Title

SSER 22 identifies 31 allegations or concerns to be turned over to PG&E for evaluation, investigation, and response. The SSER 22 concerns are: 123, 129, 136, 137, 139, 140, 141, 143, 144, 145, 148, 149, 150, 151, 152, 153, 155, 168, 169, 170, 175, 188, 189, 191, 192, 193, 194, 195, 198, 200, 201.

The above mentioned allegations and concerns are identified within the enclosed attachments which include the applicable background information compiled by this office.

For each specific allegation or concern forwarded by this letter, the NRC must be apprised, in writing, of the results of the PG&E investigation, the necessary corrective action, and the expected completion date. We request that your responses be titled with the appropriate allegation or concern number. Your responses will be evaluated by the staff for clarity, comprehensiveness, and substance. You will be advised of the staff's position upon completion of the staff's evaluation. Your written response is required within 30 days of receipt of this letter.

We will be happy to answer any questions you may have regarding this matter.

Sincerely,

/s/ D. F. Kirsch

for T. W. Bishop, Director
Division of Reactor Safety & Projects

For Release to PDR

FILE H005

84-397

05/01/84-19

Attachments: A: #129
B: #136
C: #137, #140
D: #139
E: #143
F: #149
G: #150
H: #155
I: #175
J: #188
K: #189, #191, #192, #194, #195
L: #198
M: #200, #201
N: #123
O: #141
P: #144
Q: #145
R: #148
S: #151
T: #152
U: #153
V: #168
W: #169
X: #170

cc: w/o attachments
D. Kirsch
H. Canter
J. Martin

ATTACHMENT A

Concern #129

Task: Allegation or Concern No. 129

ATS No.: RV-83A-081 BN No.:

Characterization

Improper activities related to Pullman Welding.

Staff Position

The staff made a face value assessment of the several specific concerns identified by the alleger and made the judgement that several of these had already been dealt with during the evaluation of other allegations. The staff considered that there was a low potential that these concerns would identify any new management or significant quality performance issues. (Refer to Allegations 103 to 119 and 214 to 217).

Action Required

These specific allegations will be turned over to the licensee for response. The licensee will be required to provide written response of their findings and necessary corrective actions.

2

#129

#1 ALLEGATION (PHONE CONVERSATION)

Steve indicated: that in mid-Sept. 1983, he was reading PG&E / Pullman contracts 87-11 (pipe hangers) and 88-33-XR (rupture restraints) which defined the work Pullman was to do for PG&E. The contracts indicated that gas tungsten arc welding equipment was to have rheostat control and be of high frequency so that no base metal/electrode contact is necessary to initiate welding (which causes inclusions). This type of equipment has not been in use at Diablo for the last 5 years. The rheostat control permits the current to be turned off + on and adjusted. Without the rheostat control drawing and arc to begin welding and separating the electrode from the work to stop welding causes defects. PG+E indicated to Steve that they would change the contracts.

ALLEGATION

Steve indicated: that Pullman welding procedures 7/8 for rupture restraints were qualified on ~~flat plate~~ pipe in accordance with the ASME Code. Using the same qualification information obtained by ASME methods, Pullman qualified the procedure to AWS standards. It is not correct to qualify the procedure to AWS standards using ASME methods, since joint design is "essential" to AWS standard qualification, where as joint design is "not essential" to qualification in accordance with the ASME Code. The Procedure Qualification record (PQR) was based upon qualification using only one joint design. At Diablo, 8 or 9 joint designs are routinely being used. Steve wrote a memo to ___?___ indicating that they would be getting into trouble with new joint designs as the AWS standard does not allow this to be done. During 11/83, Pullman welding engineers told Harold Karner, the Pullman Q.A Manager, that the welding procedures are OK. However, during 12/83, Steve noted that the welding procedures were being revised.

ALLEGATION

Steve indicated: that while doing a receiving inspection on A-490 bolts, he noted that the bolts had cracks and forging laps on their heads. Steve consulted Pullman's inspection criteria [Engineering Specification- Diablo (ESD)] for receipt of bolts, ~~which~~ and the ESD did not contain bolt imperfection acceptance or rejection criteria. Accordingly, Steve was reviewing the AISC manual, ASTM standards and the ANSI B 18 standard for guidance. Russ Nolle, the Pullman QC Supervisor, said that Steve was to only use the ESD, and not look into codes and standards. Russ said "Any condition outside the ESD would be considered acceptable. Steve said he would not abide by this, and if the ESD did not provide direction, he would look elsewhere for it.

ALLEGATION

Steve Indicated: that on 12/8/83 he noticed no QC participation in Pullman's welder qualification process. On 12/7/83, the QC Inspector, normally assigned that job quit. On 12/8/83, Steve walked through the welder qualification area several times and noticed that no QC inspector was in that area. Welder qualification was in progress. Steve talked with Art Savinic?, the Pullman Production Foreman, who indicated that welders were being qualified without the presence of a QC inspector. Pullman's QA manual KFP-15 document (para. 15.2 ?) "Welder Qualification" specifies that the QA Manager shall assign a QC inspector to the welder qualification process. On 12/9/83 Steve again noted that no QC inspector was assigned to the welder qualification area. Steve wrote a memo to Pat Watson the Pullman QC "Lead Man" (Supvr. in charge of welder qualification), expressing Steve's concerns on this matter. Steve informed Pat (in the memo) of the ASME Section 3 and KFP-15 requirements. Steve also indicated that 10 CFR 50, Appendix B indicates that production people are not to oversee the quality of work performed by other production people; that is, a QC person should oversee the quality of work of production people. Pat Watson refused to accept the memo and left the area, only to later return and accept the memo. By 12/13/83 Steve had not heard from Pat. Steve wondered if the memo was sufficient to get the necessary corrective action, and accordingly initiated a Deficient Condition Notice (DCN). The DCN required a field engineer's signature, ~~which~~ however the field engineer permanently assigned to the "Area 10 fab. shop" (Mike ?) would not sign the DCN since "A hold point was not passed" and Steve didn't have sufficient documentation. On ~~12~~ 12/14/83 Steve went to the fab. shop and asked the Production Foreman, Art Savinic?, for the 12/7/83 → 12/9/83 Q.C. Inspector records on welder qualifications. Art refused to show the records to Steve, and believes they don't exist. Art should not have refused to permit a QC inspector to see these records. These qualification records contain such things as

check

1) fit-up of weld joint (root gap, face and angle)
2) verification of correct electrode + weld process
3) correct base material
4) current and voltage
5) root pass

6) final visual
7) welder position (overhead, ...) .

The QC inspector verifies that the above things were correctly done by the welder under going qualification.

Exhibit 1
(34 pages)

1842 Johnson Avenue
San Luis Obispo, CA 93401

January 2, 1984

Mr. Mark Padovan
Resident USNRC
P. O. Box 369
Avila Beach, CA 93424

Dear Mr. Padovan:

This letter is the information we discussed in my Dec. 23 phone conversation with you. I was a quality control inspector for Pullman Power Products, Diablo Canyon from July 25 to Dec. 15 of 1983. During this time I worked in the rupture restraint and piping support programs performing visual, dimentional, and welding inspections in unit 1 and unit 2.

Dates mentioned in this report before Dec. are approximate because all paperwork including personal notes, inspection logs and memos were confiscated by Pullman. Information copies of the documents that I needed to properly make this report were flatly denied by Pullman. However, should you find that this report has no legal standing without that data: could the NRC make those papers available to me so that I may assemble a legal report?

The allegations in this report have serious consequences. The incidents are presented in a chronology to show how Pullman provided for evaluation of deviations presented by myself and others.

Sept 20

1. Deviation from the requirements of contract specification 8711
2. Failure to notify purchaser (PG&E) of past and present deviations.
3. Failure to notify the Commission as required by 10 CFR 21.21 b)

Addressed memo to Harold Karner, Pullman's QA manager, regarding PG&E's contract specification 8711, Sec. 1, Para 7, 10.1. The contract stated that all GTAW shall be performed with a power supply equiped with 1) High frequency for arc initiation, 2) Rheostat for stepless control of current.

Research indicated that in the 1977 revision of weld procedures Pullman had failed to include this requirement in their updated Weld Procedure Specifications, WPSs. Further, PG&E approved of the Pullman changes to the weld procedures and in affect ceased to enforce PG&E's own procurement document.

In verbal discussion with Harold Karner I informed him that none of Pullman's GTAW machines could presently meet the specifications of 8711. Harolds reply was " if PG&E doesn't enforce the contract Pullman doesn't intend to." I then informed Harold that in lieu of the high frequency the welders were scratch starting each time the arc had to be initiated thus contaminating the weld with tungsten. I also told him of the defects I was seeing as a result of no current control devices and no off/on switch on the power supplies Pullman was using. The defects occur at the end of the weld cycle when the welder tries to extinguish the arc by pulling the tungsten electrode directly out of the area over the weld pool. The weld pool is kept molten as the arc elongates but then starts to freeze as the arc and magnetic field collapse, oscillating the still liquid pool, and creating a hole at the center point of the weld pool.

PG&E's contract writers were aware of these types of defects typical to GTAW when they wrote 8711 specifying the type of equipment to be used. Certainly a higher level of quality is obtained when using the proper equipment and if this higher level of quality was thought to be obtained when documents such as the FSAR were written: then a problem has occured.

No reply to my memo has been recorded as of my termination date 12/15/83.

Sept 22

1. Failure to impliment the quality assurance program as specified in 10 CFR 50, appendix B, criteria II & X.

A welder was going to start welding when I asked him to attach an argon flow meter near the torch in his GTAW process. The welder refused to cooperate saying that as long as there wasn't a holdpoint on the process sheet for it the inspector didn't have to check it. The welder's foreman and my QC supervisor were called in to mediate. The QC supervisor, Merle Edgerton, said he thought my inspection was a bit excessive. I reminded Merle that a 20 CFH flow rate was specified by the WPS and that if I was not allowed to check it, when I thought it necessary, then he could get someone else to do the job.

I was requested to perform inspections elsewhere and left.

Sept 26

1. Failure to issue and maintain adequate document control as required in 10 CFR 50, appendix B, criteria VI.

I requested a copy of Pullman's welding procedures at least five times from my superiors Gary Sawer, Jim Cunningham, Russ Nole, Pat Watson, and Harold Karner. Mr. Karner's response was that too many copies of the weld procedures had already been issued and that the logistics of controling them had become unmanagable.

Oct. 4

1. Failure to provide adaquate control over inspection and process monituring as required in 10 CFR 50, appendix B, criteria X.

I was requested to inspect a full penetration weld attaching a stanchion to a pipe. Upon arriving I found the craft had welded the cover plate on the free end of the stanchion. I didn't accept the work because I was not given an opportunity to evaluate the profile of the back side of the weld. QC supervisor, Russ Nolle, instructed me to accept the work. I protested that the cover should be removed by breaking the tack welds and the back side of the weld inspected. Russ would not permit the cover to be removed saying that the visual inspector had limitations that sometimes did not allow the inspector to view the back side of full penetration welds.

Started to notice that the welding machines were not calibrated on a regular basis and that tong type portable amp meters were not issued and were rarely seen in the field.

Oct 6

1. Over-extention of weld procedure to situation outside scope of original qualification limits. Violation of 10 CFR 50, appendix B, criteria IX.

I was asked to inspect the fit-up of a threaded stud being welded to the containment liner. After looking at the weld procedure being used I determined that welding small diameter studs was not included in the scope of the procedure. I called Harold Karner and pointed out that there was almost no similarity between the original procedure qualified on pipe and the present application.

Harold a[illegible]ured me that the 7/8 procedure was qualified for the situation and that they had welded thousands of the studs using that procedure. I replied to Harold that if Pullman had intended welding thousands of them perhaps a procedure should have been qualified which specifically included the solutions to problems unique to welded studs. It was decided that since I had such deep reservations about the procedure being used another inspector was asked to perform the inspection.

Later, QC supervisor Russ Nolle came out to explain how WPS 7/8 was used to weld studs. Russ told me that the backing strip could be deleted provided a back grind was used. I countered Russ by pointing out that if back grinding was intended then the procedure would have included direction as to what the requirements of the back grind would be.

Further research on this subject has shown that the stud material most often being used by Pullman is a bolt material, A 307. The stud is made by taking an A 307 bolt and cutting off the head, then the bolt is cut with a chisel point and subsequently called a stud. The problem is that A 307 is not a P1 material and can not be used in the present Pullman welding procedure 7/8. (See attachments 1 & 2 for information copy of part of WPS 7/8.)

Further, bolting material A 307 was never intended as a welded stud because the only chemical limitations on the product are phosphorus and sulfur contents. Lastly, the material can not be traced because individual heats of steel are not identified in the finished product. (See attachments 3,4,&5)

Oct. 10

1. Work performed without instructions, procedures, or drawing control in violation of 10 CFR 50, appendex B, criterias V & VI.

I had noted that in the rupture restraint work in unit two fillet welds originally performed by American Bridge had enchroached on the areas around bolt holes that resulted in many bolts not seating properly. As a solution the fillet welds were ground back. However, I asked the RR engineer if measures were being taken to revise the weld sizes in the area of the bolts on the weld sheets. RR engineer, Dale Warren, replied that to his knowledge the drawings were not being revised.

Oct 12

1. Failure to update procedures to current criteria as required in procurement document 8833-XR, violation of 10 CFR 50, appendix B, criteria VI.

Upon rejection of out of tolerance washers to criteria set forth in ESD 243 pertaining to hardened steel washers, Dale Warren, the unit two RR engineer found that the information presented in the ESD was out of date. I relayed the information to Harold Karner, the QA manager, who then failed to notify other inspectors that the ESD was out of date and that new criteria was in effect. As of Dec. 15 ESD 243 had still not been revised and the other inspectors still did not know of the new criteria.

Oct. 17

1. Failure to provide for inspector evaluation of defects found in items verses the requirments of the procurement documents.
2. Misdirection to inspector by QC supervisor, denial to procurement documents, and itimidation for performing inspection activities as described in 10 CFR 50, appendix B, criteria I.

I had found defects in A-490 bolts sent to the field for installation in Rupture Restraint work being performed in unit two. The bolts had forging laps visable on the head and I had occasionally seen longitudnal quench cracks on the shaft. I consulted the procedures, ESD 243, and found that the ESD had no rejection criteria for the bolts.

I rejected the bolts and then proceeded to search for the procurements referenced in the ESD to find the proper status of the items in question. While making copies of an ASTM standard in the office Russ Nolle asked me outside for a discussion. Russ said that I would no longer be allowed to look at or make copies of: the AISC Construction Manual, the ANSI or ASTM Standards, or the ASME Codes. By seeking information in those documents you are beyond your scope as an inspector, "you have your ESDs."

I replied that ESD 243 did not address inspection criteria for A-490 bolts. Russ said to me "any conditions found outside of the scope of the ESDs shall be accepted." I told Russ that I would not be able to abide by that and if the ESDs did not cover the situation, then, I would seek inspection criteria elsewhere. Russ got pissed and said that he and Harold Karner have "had it up to here," pointing to his neck. "You got one foot out the door, Mr. Lockert, one more wrong move and you're gone."

11

Oct 20

1. Deviation from the technical requirements included in the procurement documents 8833-XR and AWS D1.0-69.
2. Failure of both PG&E and Pullman to regularly review the status and adequacy of the QA program in violation of 10 CFR 50, appendix B, criteria II.

I had reviewed Pullman's ESD 202, Welding Electrode Control, verses my own copy of AWS D1.1-83, Structural Welding Code. In the area of storage of low-hydrogen electrodes I had found a discrepency in that Pullman's requirements were below those specified in the code.

I sent a memo to Frank Lyautey, assistant QA manager, telling him what I had found and asking him to check his copy of AWS D1.0-69, the document referenced in 8833-XR, to see if we really had a problem. Pullman's ESD stated that the minimum required storage temperature for low-hydrogen electrodes was 225° F while I had noticed that AWS required 250° F.

Some time later I was contacted by Frank and informed that I was correct in that the 69 version of the code also required the higher temperature. Frank went on to assure me that he had personaly checked the logs and that no violations had occured and that he was issuing a memo immediately to notify all other concerned parties.

Oct. 24

1. Over-extension of welding procedures outside the scope of original qualification limits. Misuse of prequalified procedures per AWS in violation of 10 CFR 50, appendix B, criteria IX.

I examined the procedure qualification requirements of AWS D1.1 and compared them to Pullman's Rupture Restraint welding program. It appeared to me that Pullman had taken a WPS qualified under the ASME Sec. IX criteria and transfered the qualification to the AWS criteria. To my knowledge this is permissible in that the mechanical requirements of the PQR (tension and bend tests) are transferable to both codes.

However, one of the main points in the application of the WPS to field welding is that joint design is an essential variable in the AWS D1.1 code while in ASME it is not. I started to look at the process sheets coming out to the field and noticed that

Pullman was welding a variety of seven different joint designs and calling it all out as one WPS 7/8.

A closer examination of Pullman's RR welding program revealed that they were working with two documents: WPS 7/8 and a Welding Technique Specification called AWS 1.1 (see attachments 6 thru 11 and 12 thru 14.) The welding procedure 7/8 when applied to AWS welding only qualifies the original joint design used in the PQR because joint design is an essential variable. The Welding Technique Specification AWS 1.1 has been used as some kind of prequalified procedure not able to stand on its own but in some way attached to WPS 7/8.

A close look at AWS 1.1 will show how the nature of this document changes:

1. The title of the document says "Welding Technique Specification" but notice that it also called a WPS on pages 2 & 3 (upper right corner).

2. Note that the supporting PQRs are prequalified. Why would a technique specification require any qualification record? A technique specification has no legal bearing under any code but a WPS surely would.

3. The permissible base metals listed include A-515 and A-588. The former is not listed under the steel specification requirements of AWS D1.1, Table 4.1.1 and the latter requires special welding procedures for impact loading or weathering applications (see note 6 of Table 4.1.1.)

In order for Pullman to use prequalified joint designs for its use in rupture restraints all mandatory code requirments must be met as shown in AWS D1.1, Table E1, not to mention the least of which is a written WPS. Pullman can not use prequalified joint designs because "Welding Technique Specification AWS 1.1" is not a WPS nor does WPS 7/8 extend into the realm of prequalified procedures because it does not incorporate all aspects of D1.1 either.

My first comments on the apparent discrepency were with Russ Nolle. Russ said not to get excited because someone had already caught it in an audit. (Could Russ be refering to audit # 35 performed by Harold Hudson back in March of 83?)

Oct. 25

1. Attempt to decieve Pullman QC inspector of PG&E's violation of its own procurement documents.
2. Failure to notify the Commission of deviation from procurement document 8711, violation of 10 CFR 21.21

I was still concerned that work was being performed outside the scope of 8711, PG&E's contract with Pullman for piping and pipe supports. Recently, I had heard of 200 welds in schedule 10 stainless steel pipe that had failed to meet radiographic standards. I researched the problem by asking the reader of the radiographs, Pullman's Level III NDT Mike Mckray, what types of defects he was seeing. Mike told me that many of the defects appeared to be grouped either at the start or end of weld passes and that because of the thickness of the pipe defects (porosity mostly) larger than the head of a pin had to be rejected.

Thinking that the lack of dated GTAW equipment might be contributing to the problem I called PG&E's NPC Welding Engineer Dave Stupi. Dave had asked for several days to research the 8711 contract himself so that this was my second contact with him. Dave told me that 8711 was a very old document written at least ten years ago and that I had probebly stumbled on an old copy that had never been updated. Dave refered me to another PG&E engineer and said I was not to include him in any more discussions on the matter.

Nov 2

Presented Harold Karner, Pullman QA Manager, written notification of my finding with regards to rupture restraint welding with the WPS 7/8 & AWS 1.1 combination.

Nov. 8

1. Failure to recognize a significant condition adverse to quality, failure to take corrective action, violation of 10 CFR 50, appendix B, criteria XVI.

I performed an inspection directly underneath the unit two pressurizer in which I observed old work that would be absolutely unacceptable under any code. Welds were on Rupture Restraints originally built by another contractor, American Bridge, with the manual SAW or, possibly, FCAW process. I brought my concerns to Russ Nolle but he said no, nothing can be done about it because it was another contractor and already accepted.

Nov. 16

1. Failure to take corrective action to preclude repetition of significant condition adverse to quality in violation of 10 CFR 50, appendix B, criteria XVI.
2. Failure to provide evaluation in a timely manner and coercion to perform inspections to procedures shown to reasonably questionable, violation of 10 CFR 50, appendix B, criteria II.

Two weeks before I had informed Harold Karner the problems I was having justifying the welding being performed on rupture restraints. Now I was being asked to inspect again to procedures I had shown were questionable.

I told my leadman, Jim Cunningham, what I had found and that I had not received a proper response from Mr. Karner. Untill I get one I don't feel I should go inspect. Jim told Russ Nolle and Russ acompanied me to Harold's office.

I explained to Harold my situation. Harold said I was entitled to my opinion but that PG&E had already approved the present procedures. Further, he said I had a choise: I could go out and inspect or I could look for a new job. I informed Harold that I had done everything in my power to get a quality problem corrected and that if he was going to threaten me with my job then I had no real choise but to go and inspect.

Dec. 8

Temporarily assigned to the area 10 fab shop. The area 10 fab shop also houses the welder qualification test bay so that I had the opportunity to witness some of the welders as they performed their tests. After some questions I had directed at the the welders, I noticed that there were perhaps six or seven welders proceding through the activities of the test with no QC interaction.

Later on, in the afternoon, after observing more testing with no QC participation I walked into the small office area and struck up a conversation with the production foreman, Art Savacou. I asked Art where the QC inspector was at. Art replied they didn't have one at the moment but that he and Pat Watson had "an understanding." I thought that was pretty interesting so I asked Art if he was qualified as an inspector. Art replied no.

Dec. 9

1. Failure to provide for assurance that all prerequisites for testing have been met, violation of 10 CFR 50, appendix B, criteria XI.

I learned this morning that the QC normally assigned to the welder qualification tests had quit on Dec. 7 at 09:00. After further observance of tests being performed with no QC interaction, I checked the requirements of Pullman's Quality Assurance Manual and reviewed the statements in ASME, Sec III.

Wrote memo to Pat Watson, the area 10 leadman/welding qualification supervisor, noting that Bill Bailey was gone and that I had observed an apparent lack of QC participation in the testing. I reminded Pat that the QA Manual's paragraph KFP 15.2 specifically stated that a field inspector shall be assigned to the test shop and that ASME, Sec III, paragraph NA 3764.1 d would not allow a production foreman to determine the quality of production welders.

When Pat came on his walk through the fab shop I handed him the memo. Pat after reading the memo would not accept it and walked off. Sometime later Pat returned and finally accepted the memo.

At approximately 14:00, Frank Lyautey and Chris Neary appeared and wanted to know what was going on. Frank is the assistant QA manager and Chris is Pullman's welding engineer from Williamsport, PA. I related the story and told Frank that I had notified the proper person in the chain of command about the apparent discrepency. Frank explained that Bill Bailey had quit and that a new inspector was scheduled to start in the welder qualifications on the 12th. In the absence of either inspector, Pat Watson was performing duties as field inspector in the test shop.

I admitted to Frank that I had seen Pat Watson in the test bay twice on Thursday, the 8th, but that for the majority of the time I had noted no QC at all. Frank assured me there

16

was no problem and then Pat Watson joined us and he assured me the inspections had been performed. I asked Pat what his intensions were regarding the welders I had seen qualifying with no QC around. Pat said he had no requalification tests in mind because there was no quality problem. Frank then asked me to join Chris Neary and add any comments I had to Chris' revision of Pullman's rupture restraint welding.

My discussion with Chris covered his intensions to:

1. Restrict application of WPS 7/8 to the original joint design shown in the PQR. (Note that there is no joint shown in the PQR but only a reference to sheet 2 of 10 ?)

2. Use of prequalified procedures for all other applications.

After examination of Chris' notes I brought up the point that he intended to use the same eight or nine prequalified joint designs they had been using before but that he was still grouping them all under one procedure number, AWS 1.1. I said this could be confusing and that it did not appear to satisfy the requirement of a written procedure for each procedure. For instance, how can a single bevel corner joint have the same written procedure and number as a double V butt weld that requires back grinding and welder access from both sides?

I reminded Chris that under AWS joint design is considered an essential variable. Chris did not see that this was a problem.

Dec. 12

I reviewed the events leading up to the confrontation on the 9th and determined that there still existed some doubt as to wether the qualification tests had been performed properly. Frank Lyautey and Pat Watson had personally assured me that there was no problem, yet, they had not willingly showed me evidence of the inspection records. In my own mind several questions remained to be answered:

1. Why had I observed the qualification tests being performed with no QC including Pat Watson present?

2. Why did Art Savacou the production foreman who had appeared to be running the show refer to an "understanding" with Pat Watson.

3. Did Harold Karner know of the problems I had witnessed in the test shop.

I refered to the QA Manual and found instructions that said the QA manager was to be informed of problems affecting quality. I initiated DCN 1/1640-021 that told of what I had observed and that it appeared Pullman was performing work outside the scope of its own QA Manual. The Deficient Condition Notice required an engineers signature to be submitted so I asked Mike, the area 10 engineer, to cosign the DCN.

Mike declined to sign the DCN because it showed no hard evidence of a hold point being passed. Mike did say, however, that if I did provide evidence then he would sign the DCN.

Dec.13

1. Failure to provide inspector access to records showing that a function pertaining to quality was adequately performed, in violation of 10 CFR 50, appendix B, criteria I.

After informing RR engineer Dale Warren that I would not accept their previous performance of a stich weld observed on the construction of square beams, I decided that I would inspect the records of the test shop during the time of Bill Bailey's absence.

I went to the test bay and explained to Art Savacou that I had reason to doubt that the welder qualification test surviellance inspections i.e. materials, process, position, fitup, rootpass, WPS parameter verification, final visual, bend tests had been performed.

Art refused me access to the records saying that only his direct supervision could look at the records. I informed Art that by doing so he was denying a QC inspector the right to inspect records. Art's reply was "what are they going to do - put me in jail?"

I left the test bay and contacted Pat Watson asking to see his records for Dec. 7,8,&9 concerning welder qualifications. After some discussion Pat showed me what he had, the records showed a summary of the welders who had qualified, who passed, who failed. I told Pat that this was just a summary and that the records did not show wether the required inspections had been performed. Upon leaving, I reminded Pat that I was still waiting for a written response to the memo.

Dec 14

1. Failure to notify authorized personnel of changes in Quality Assurance Program in violation of 10 CFR 50, appendix B, criteria VI.

For the events of the morning supposedly causing my termination see Pullman's Termination Notice to Payroll Dept., pages 1 and 2 and my grievance addressed to Mr. Stieger, pages 1-5. (Attachments 15 through 21)

In the afternoon after checking a portable rod oven that had yielded repeated violations of the minimum temperature allowable for low-hydrogen electrode storage, I asked the welder to get another rod can because this one appeared defective. The QA rod room attendent came over after checking the can and asked what the problem was. I replied that it was below the 250 F min. required by AWS D1.1.

He said that the ESD only required 225 F. I replied that ESD 202 had been changed back in October. The QA rod room attendant didn't believe me because he had n't recieved a memo on the subject. I showed him my copy of D1.1 and he agreed that was what the code read but that he couldn't change the rod oven temperatures until he recieved word from his supervisor.

Dec. 15

See page four of grievance (attachment number 21.)

The events I have presented have been shown to be in disregard of procurement documents, codes and standards, and Federal Regulations. Of course, only the Commission has the right to interpretation of the Federal Regulations but that does not mean that each person involved in the nuclear industry is denied their own inference.

I have provided what documentation I could and I ask that the NRC provide me access to the records on site so that I may provide you with the necessary hanger and rupture restraint numbers for your own investigation. All events and conversations are true and accurate to the best of my knowledge.

Respectfully,

M. W. KELLOGG COMPANY
Division of Pullman Incorporated
ing Fabrication
lliamsport, Pa. 17701

Weld Procedure Code No. 7/8
Spec. No. P1-8R-F4-SMAW-2G-5G
Date 11/25/69
Rev. Dates: 11/20/70 6/11/71
Retyped 6/18/73 Retyped 11/28/73
Rev. 10/13/76 9-31-77

CEDURE SPECIFICATION FOR: Carbon Steel
g. and plate with backing ring on bar butt
fillet welds. SMAW

E METAL: The base metal shall conform to
pecifications for ASME, Section IX, P-1
ials.

LLER METAL: The filler metal shall con-
to ASME Filler Metal Specification Number
5.1 for ferrous filler metal in Group Num-
F-4.

e chemical composition of the weld deposit
l fall within the limits of weld metal
ysis, Number A-1.

S FOR TORCH SHIELD: None

S FOR BACK-UP PURGE: None

CK WELDS FOR SET-UP: Same as for weld (see
2).

SITION: The welding may be done in all
tions.

EHEAT & INTERPASS: 50° F minimum. 175° F
imum for material that has a carbon content
excess of 0.30% and 1" thickness. (See ESD
for AWS Welding).

OST HEAT TREATMENT: 1100°-1200° F, 1 hour
inch minimum (see Job specifications for
le and thicknesses requiring post heat
atment).

ACKING STRIP: The welded joints shall util-
a backing strip.

RAVEL SPEED: SMAW — 1" - 8" per minute.

ELDING PROCESS: The welding shall be done
the SMAW process with a backing strip, us-
manual equipment.

A. BASE METAL THICKNESS: This procedure is qualified to allow welding of unlimited thickness on structural members under AWS requirements. When welding to ASME requirements the maximum qualified thickness shall be 7.18". For PWHT, the applicable code standard shall govern maximum thickness in the as welded condition.

PREPARATION OF BASE MATERIAL: The edges or surfaces of the parts to be joined by welding shall be prepared by flame cutting, plasma arc, grinding, machining, or any combination of methods to essentially form the geometry of the weld shown on Page 2 as detailed on the attached sketches and shall be cleaned of all oil or grease and excessive amounts of scale or rust.

ELECTRICAL CHARACTERISTICS: The current used shall be DC SMAW — Reverse Polarity

JOINT WELDING PROCEDURE: The welding technique, such as electrode sizes, and voltages and currents for each electrode, size of the welding tip and filler rods, shall be substantially as shown on Page 2.

APPEARANCE OF WELDING LAYERS: The welding current and manner of depositing the weld metal shall be such that there shall be practically no undercutting on the side walls of the welding groove or the adjoining base material. See job specifications for specific undercutting limitations.

CLEANING: All slag or flux remaining on any bead of welding shall be removed before laying down the next successive bead of welding.

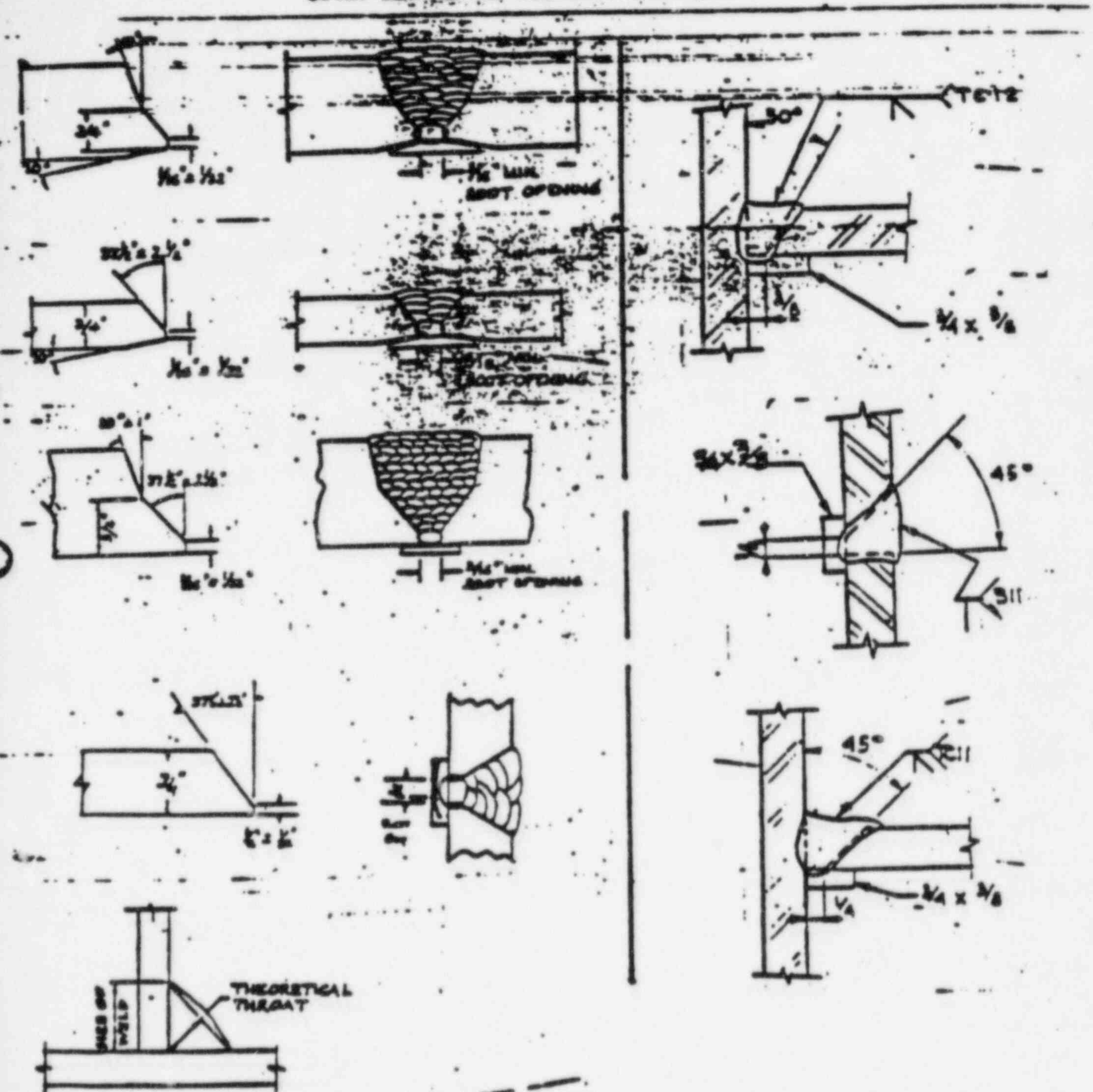
DEFECTS: Any cracks or blow holes that appear on the surface of any bead of welding shall be removed by chipping, grinding, or gouging before depositing the next successive bead of welding.

This procedure is a rewrite of and combines
CODE NO. 7, P1-8R-F4-SMAW-12-2G
CODE NO. 8, P1-8R-F4-SMAW-12-5G
[illegible]

ATTACH 1

Weld Procedure Code No. 7/8
Spec. No. PT-BR-F4-SMAW-2G-5G
Date 11/25/69
Revision Dates: 11/20/70 6/11/71
6/19/73 1/25/74
8-31-77

JOINT DETAILS AND WELDING TECHNIQUES



PASS NO. AND PROCESS	FILLER METAL TYPE OPTIONAL	FILLER METAL SIZE	AMPS	VOLT RANGE	POLARITY	TORCH SHIELD & FLO RATE (MIN.)	TUNGSTEN SIZE AND POLARITY
All SMAW	E7015, 16, or 18	3/32 1/8 5/32 3/16	65-110 90-165 140-180 180-275	24-34	Reverse	—	—

Attach. 2

SPECIFICATION FOR LOW-CARBON STEEL EXTERNALLY AND INTERNALLY THREADED STANDARD FASTENERS

SA-307

(Identical with ASTM Specification A 307-74 except that Grade A Bolts and Nuts have been deleted)

Scope

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

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

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

Materials and Manufacture

2. (a) Steel for bolts shall be made by the open-hearth, basic-oxygen, or electric-furnace process.

(b) Steel for nuts shall be made by the open-hearth, basic-oxygen, electric furnace, or bessemer process.

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

(d) Bolt threads may be rolled or cut.

(e) Nuts may be produced by hot pressing, cold punching, cold forging, or machining from bar stock.

Chemical Requirements

3. (a) Steel for bolts and nuts shall conform to the following chemical requirements:

	Grade B	
	Bolts	Nuts
Phosphorus, max, per cent	0.04	0.12
Sulfur, max, per cent	0.05	0.15

(b) Resulfurized material is not subject to rejection based on check analysis for sulfur.

(c) Bolts and nuts are customarily furnished from stock, in which case individual heats of steel cannot be identified.

Mechanical Requirements

4. (a) Bolts shall meet the hardness requirements specified in Table I. This shall be the only requirement for bolts which are too short or which have insufficient threads for tension testing or which have drilled or undersize heads that are weaker than the threaded section of the bolt.

TABLE I.—HARDNESS REQUIREMENTS FOR BOLTS

Bolt Size, in.	Grade	Hardness			
		Brinell		Rockwell B	
		Min	Max	Min	Max
All	B	121	[illegible]	[illegible]	95

Attach. 3

22

(b) Bolts, other than those excepted in Paragraph (a), shall be subject to a tension test as specified in Section 6. Where both hardness and tension tests are performed, acceptance on the basis of the tensile requirements shall take precedence where the minimum requirements are the subject of controversy.

(c) Bolts 1 1/4 in. and under in diameter when tested in full size shall meet the requirements for tensile strength specified in Table II.

(d) Bolts 1 1/2 to 3 in. in diameter, inclusive, shall be tested preferably in full size and shall meet the requirements for tensile strength specified in Table II. But when equipment of sufficient capacity for such tests is not available, they shall meet the following requirements on machined specimen tension tests:

TABLE II.—TENSILE REQUIREMENTS FOR FULL SIZE BOLTS.

Bolt Size, in.	Threads per inch	Stress Area, sq in.[a]	Tensile Strength, lb: Grade A min[b]	Grade B max[c]
1/4	20	0.0318	1 900	3 180
5/16	18	0.0524	3 100	5 240
3/8	16	0.0775	4 650	7 750
7/16	14	0.1063	6 350	10 620
1/2	13	0.1419	8 500	14 190
9/16	12	0.182	11 000	18 200
5/8	11	0.226	13 550	22 600
3/4	10	0.334	20 050	33 400
7/8	9	0.462	27 700	46 200
1	8	0.606	36 350	60 600
1 1/8	7	0.763	45 800	76 300
1 1/4	7	0.969	58 150	96 900
1 3/8	6	1.185	69 300	115 300
1 1/2	6	1.405	84 300	140 500
1 3/4	5	1.90	114 000	190 000
2	4 1/2	2.50	150 000	250 000
2 1/4	4 1/2	3.25	195 000	325 000
2 1/2	4	4.00	240 000	400 000
2 3/4	4	4.93	295 800	493 000
3	4	5.97	358 200	597 000
3 1/4	4	7.10	426 000	710 000
3 1/2	4	8.33	499 800	833 000
3 3/4	4	9.66	579 600	966 000
4	4	11.08	664 800	1 108 000

[a] Area calculated from the formula:

$$A_s = 0.7854\left(D - \frac{0.9743}{n}\right)^2$$

where:

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

[b] Based on 60 000 psi.
[c] Based on 100 000 psi.

	Tensile Strength, psi	Elongation in 2 in., per cent
Grade B bolts	60 000 min	18 min
	100 000 max	...

(e) Nuts shall meet the hardness requirement specified in Table III. Hardness shall be the only requirement for jam, slotted and castle nuts and for nuts larger than 1 1/2 in. in size.

(f) Nuts 1 1/4 in. and under in size shall meet the proof loads specified in Table III.

(g) Nuts 1 3/8 to 1 1/2 in., inclusive, in size shall preferably meet the requirements for proof load specified in Table III, but when equipment of sufficient capacity for such tests is not available they shall meet the hardness requirements specified in Table III.

Dimensions

5. (a) Unless otherwise specified, threads shall be the Coarse Thread Series as specified in the latest issue of the USA Standard for Unified Screw Threads (USAS B1.1), having a class 2A tolerance for bolts and class 2B tolerance for nuts.

(b) Unless otherwise specified, Grade B bolts shall be Heavy Hex Bolts with dimensions as given in the latest issue of USA Standard B18.2.1.

TABLE III.—HARDNESS AND PROOF LOAD REQUIREMENTS FOR NUTS.

Nut Size, in.	Threads per inch	Proof Load, lb[a]	Brinell Hardness, min
1/4	20	2 850	...
5/16	18	4 700	...
3/8	16	7 000	...
7/16	14	9 550	...
1/2	13	12 750	...
9/16	12	16 400	...
5/8	11	20 350	...
3/4	10	30 050	...
7/8	9	41 600	...
1	8	54 550	...
1 1/8	7	68 850	...
1 1/4	7	87 700	104
1 3/8	6	103 950	104
1 1/2	6	126 450	104
1 5/8 to 4, incl. ...	...	...	104

[a] Based on 90,000 psi mandrel stress for nut sizes 1/4 to 2 3/4 in., inclusive; 77,000 psi for 3 in.; and 67,000 psi for 3 1/4 to 4 in., inclusive.

(c) Unless otherwise specified, nuts for Grade B bolts shall be Heavy Hex Nuts

Attach. 4

23

with dimensions as given in the latest issue of USA Standard for Square and Hex Nuts (USAS B18.2.2).

Methods of Test

6. (*a*) The material shall be tested in accordance with Supplement III of the Methods and Definitions for Mechanical Testing of Steel Products, (ASTM Designation: A 370).

(*b*) Standard square and hexagon bolts only shall be tested by the wedge tension method. Fracture shall be in the body or threads of the bolt without any fracture at the junction of the head and body. Other headed bolts shall be tested by the axial tension method.

(*c*) Nuts shall be tested by the axial proof load method.

(*d*) Speed of testing as determined with a free running crosshead shall be a maximum of 1 in. per min for the tensile strength tests of bolts and the proof load determination on nuts.

Number of Tests and Retests

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

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

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

(*1*) One type of item, that is, bolts or nuts,

(*2*) One nominal size, and

(*3*) One nominal length of bolts.

(*d*) From each lot, the number of tests for each requirement shall be as follows:

Number of Pieces in Lot	Number of Samples
800 and under	1
801 to 8 000	2
8 001 to 22 000	3
Over 22 000	5

(*e*) If any machined test specimen shows defective machining it may be discarded and another specimen substituted.

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

Marking

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

Inspection

9. (*a*) If the inspection described in Paragraph (*b*) is required by the purchaser it shall be specified in the inquiry, order, or contract.

(*b*) The inspector representing the purchaser shall have free entry, at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works that concern the manufacture of the material ordered. The manufacturer shall afford the inspector all reasonable facilities, without charge, to satisfy him that the material is being furnished in accordance with these specifications. All tests (except check analysis) and inspection shall be made at the place of manufacture prior to shipment, unless otherwise specified, and shall be so conducted as not to interfere unnecessarily with the operation of the works.

Rejection

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

By publication of this standard no position is taken with respect to the validity of any patent rights in connection therewith, and The American Society of Mechanical Engineers does not undertake to insure anyone utilizing the standard against liability for infringement of any Letters Patent nor assume any such liability.

Attach. 5

24

HE M. W. KELLOGG COMPANY
Division of Pullman Incorporated
iping Fabrication
illiamsport, Pa. 17701

Weld Procedure Code No. 7/8
Spec. No. P1-BR-F4-SMAW-2G-5G
Date 11/25/69
Revision Dates: 11/20/70 6/11/71
Retyped 6/19/73 Retyped 11/28/73
Rev 10/15/76 9-31-77

ROCEDURE SPECIFICATION FOR: Carbon Steel ing. and plate, with backing ring on bar butt, fillet welds. SMAW

ASE METAL: The base metal shall conform to specifications for ASME, Section IX, P-1 terials.

FILLER METAL: The filler metal shall con- rm to ASME Filler Metal Specification Number -5.1 for ferrous filler metal in Group Num- F-4.

The chemcial composition of the weld deposit all fall within the limits of weld metal alysis, Number A-1.

GAS FOR TORCH SHIELD: None

S FOR BACK-UP PURGE: None

TACK WELDS FOR SET-UP: Same as for weld (see ge 2).

POSITION: The welding may be done in all sitions.

PREHEAT & INTERPASS: 50° F minimum. 175° F nimum for material that has a carbon content excess of 0.30% and 1" thickness. (See ESD 3 for AWS Welding).

POST HEAT TREATMENT: 1100°-1200° F, 1 hour r inch minimum (see Job specifications for cle and thicknesses requiring post heat reatment).

BACKING STRIP: The welded joints shall util- e a backing strip.

RAVEL SPEED: SMAW — 1" - 8" per minute.

WELDING PROCESS: The welding shall be done the SMAW process with a backing strip, us- g manual equipment.

A BASE METAL THICKNESS: This procedure is qualified to allow welding of unlimited thickness on structural members under AWS requirements. When welding to ASME requirements the maximum qualified thickness shall be 3.18". For PWHT, the applicable code standard shall govern maximum thickness in the as welded condition.

PREPARATION OF BASE MATERIAL: The edges or surfaces of the parts to be joined by welding shall be prepared by flame cutting, plasma arc, grinding, machining, or any combination of methods to essentially form the geometry of the weld shown on Page 2 as detailed on the attached sketches and shall be cleaned of all oil or grease and excessive amounts of scale or rust.

ELECTRICAL CHARACTERISTICS: The current used shall be DC SMAW — Reverse Polarity

JOINT WELDING PROCEDURE: The welding technique, such as electrode sizes, and voltages and currents for each electrode, size of the welding tip and filler rods, shall be substantially as shown on Page 2.

APPEARANCE OF WELDING LAYERS: The welding current and manner of depositing the weld metal shall be such that there shall be practically no undercutting on the side walls of the welding groove or the adjoining base material. See job specifications for specific undercutting limitations.

CLEANING: All slag or flux remaining on any bead of welding shall be removed before laying down the next successive bead of welding.

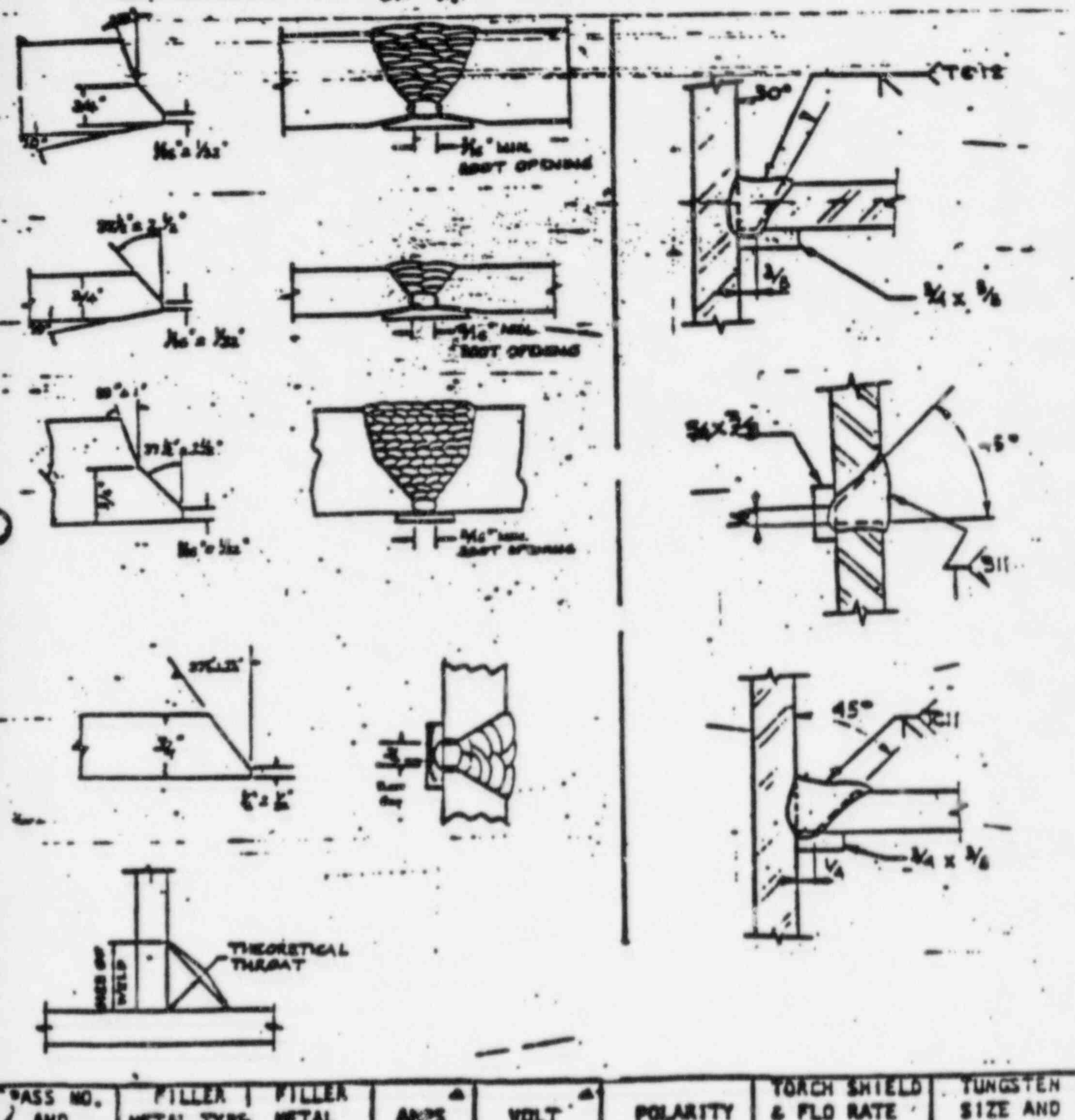
DEFECTS: Any cracks or blow holes that appear on the surface of any bead of welding shall be removed by chipping, grinding, or gouging before depositing the next successive bead of welding.

This procedure is a rewrite of and combines:
CODE NO. 7, P1-BR-F4-SMAW-12-2G
CODE NO. 8, P1-BR-F4-SMAW-12-5G

THE M.W. KELLOGG COMPANY
A Division of Pullman Incorporated
Piping Fabrication
Williamsport, Pa. 17701

Page 2 of 6
Weld Procedure Code No. 7/8
Spec. No. P1-BR-F4-SMAW-2G-5G
Date 11/25/69
Revision Dates: 11/20/70 6/11/71 6/19/73 1/25/74 8-31-77

JOINT DETAIL AND WELDING TECHNIQUES



PASS NO. AND PROCESS	FILLER METAL TYPE OPTIONAL	FILLER METAL SIZE	AMPS	VOLT RANGE	POLARITY	TORCH SHIELD & FLO RATE (MIN.)	TUNGSTEN SIZE AND POLARITY
All SMAW	E7015, 16, or 18	3/32 1/8 5/32 3/16	65-110 90-165 140-180 180-275	24-34	Reverse	—	—

RECOMMENDED FORM Q-1 MANUFACTURER'S RECORD OF WELDING PROCEDURE QUALIFICATION TESTS

AS WELDED

8/31/77

Specification No. P1-8R-Ph-SMAW-2G
Date 11/25/69, Revised 6/11/71
Welding Process SMAW
Manual or Machine Manual
Material Specification A-106-B to A-106-B
of P-No. 1 to P-No. 1
Thickness (if pipe, diameter and wall thickness) 6" Sch. 160 (.718)
Thickness Range this test qualifies 3/16" thru .50"
Filler Metal Group No. F- 4
Weld Metal Analysis No. A- 1
Describe Filler Metal if not included in Table Q-11.2 or QN-11.2
For oxyacetylene welding—State if Filler Metal is rimmed or aluminum killed.

FLUX OR ATMOSPHERE

Flux Trade Name or Composition —
Inert Gas Composition —
Trade Name — Flow Rate —
Is Backing Strip used? Yes
Preheat Temperature Range 50 °F. Min.
Interpass Temperature Range "
Postheat Treatment None

WELDING PROCEDURE

Single or Multiple Pass Multiple
Single or Multiple Arc Single
Position of Groove Horizontal (2G pos.) (See Para. & Figs. Q-2 & Q-3, or QN-2 & QN-3)
(Flat, horizontal, vertical, or overhead; if vertical, state whether upward or downward)

FOR INFORMATION ONLY

Filler Wire—Diameter 1/8" and 5/32"
Trade Name Atom arc 7018
Type of Backing Ring
Forehand or Backhand —

WELDING TECHNIQUES

Joint Dimensions Agreed with Sheet 2 of 10
amps 90-180 volts 26-34 inches per min. —
Current D.C. Polarity Reverse

REDUCED SECTION TENSILE TEST (Figs. Q-6 and QN-6)

Specimen No.	Dimensions Width	Thickness	Area	Ultimate Total Load, lb.	Ultimate Unit Stress, psi	Character of Failure and Location
39-2-1	.561	.744	.417	29,000	69,500	Broke in Base Metal
39-2-2	.561	.741	.416	29,600	71,200	Broke in Base Metal

GUIDED BEND TESTS (Figs. Q-7.1, Q-7.2, QN-7.1, QN-7.2, QN-7.3)

Type and Figure No.	Result	Type and Figure No.	Result
SIDE BEND SB-1	180° O.K.	" SB-3	180° O.K.
SIDE BEND SB-2	180° O.K.	" SB-4	180° O.K.

Results of Fillet-weld Tests, Fig. Q-8(c)
Welder's Name E. Carns Clock No. Stamp No. AW
Who by virtue of these tests meets welder performance requirements.
Test Conducted by M.W. KELLOGG LAB Laboratory—Test No. ML 9-39
per J. Williams

We certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

Signed THE M.W. KELLOGG COMPANY
(Manufacturer)

Date 11/25/69
By F.J. Richards

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code. Recommended Form Q-1 is available for purchase at ASME Headquarters.)

NOTE: Any essential variables in addition to those above shall be recorded.

Printed in U.S.A. (11/66) This Form is obtainable from the ASME, 345 E. 47th St., New York, N.Y. 10017.

Attach. 8

HEAT TREATED

THE M.W. KELLOGG COMPANY
A DIVISION OF PULLMAN INCORPORATED
PIPING FABRICATION

RECOMMENDED FORM Q-1 MANUFACTURER'S RECORD OF WELDING PROCEDURE QUALIFICATION TESTS

8/31/77

Specification No. P1-8R-F4-SMAW-2G   Date 7/12/64, Revised 6/11/71

Welding Process SMAW   Manual or Machine Manual

Material Specification A-106-C to A-106-C of P-No. 1 to P-No. 1

Thickness (if pipe, diameter and wall thickness) 16" Sch. 160 (1.594)

Thickness Range this test qualifies 3/16" thru 3.188

Filler Metal Group No. F- 4

Weld Metal Analysis No. A- 1

Describe Filler Metal if not included in Table Q-11.2 or QN-11.2 ______

For nonferrous welding—State if Filler Metal is silicon or aluminum killed.

FLUX OR ATMOSPHERE

Flux Trade Name or Composition ——

Inert Gas Composition ——

Trade Name —— Flow Rate ——

Is Backing Strip used? Yes

Preheat Temperature Range 50 °F. MIN.

Interpass Temperature Range " "

Postheat Treatment 1100°F-1200°F. w/3 hr.-hold

WELDING PROCEDURE

Single or Multiple Pass Multiple

Single or Multiple Arc Single

Position of Groove Horizontal (2G pos.) (See Para. & Figs. Q-2 & Q-3, or QN-2 & QN-3)
(Flat, horizontal, vertical, or overhead; if vertical, state whether upward or downward)

FOR INFORMATION ONLY

Filler Wire—Diameter 1/8" and 5/32"

Trade Name atom arc 7018

Type of Backing ring

Forehand or Backhand ——

WELDING TECHNIQUES

Joint Dimensions Agreed with Sheet 2 of 10

Amps 90-180 Volts 26-34 Inches per min. ——

Current D.C. Polarity Reverse

REDUCED SECTION TENSILE TEST (Figs. Q-6 and QN-6)

Specimen No.	Dimensions: Width	Dimensions: Thickness	Area	Ultimate Total Load, lb.	Ultimate Unit Stress, psi	Character of Failure and Location
TT-2-1	0.755	.997	.7527	58,820	76,820	Broke in Weld
TT-2-2	0.755	.997	.7527	56,600	75,200	Broke in weld

GUIDED BEND TESTS (Figs. Q-7.1, Q-7.2, QN-7.1, QN-7.2, QN-7.3)

Type and Figure No.	Result	Type and Figure No.	Result
Side Bend 2-1	O.K.	2-3	O.K.
Side Bend 2-2	O.K.	2-4	O.K.

Results of Fillet-weld Tests, Fig. Q-6(a) ______

Welder's Name R. Petersen   Clock No. ______   Stamp No. CD

Who by virtue of these tests meets welder performance requirements.

Test Conducted by M.W.K. Lab   Laboratory—Test No. P1-F4-8R-2G

per C. Diehl

We certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

Signed THE M.W. KELLOGG COMPANY
(Manufacturer)

Date 6/17/71   By F.J. Richards

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code. Recommended Form Q-1 is available for purchase at ASME Headquarters.)

NOTE: Any essential variables in addition to those above shall be recorded.

Printed in U.S.A. (11/66)   This Form is obtainable from the ASME, 345 E. 47th St., New York, N.Y. 10017

Attach. 9

THE M.W. KELLOGG COMPANY
A DIVISION OF PULLMAN INCORPORATED
PIPING FABRICATION

RECOMMENDED FORM Q-1 MANUFACTURER'S RECORD OF WELDING PROCEDURE QUALIFICATION TESTS

AS WELDED

Specification No. P1-8R-Pb-SMAW-5G   Date 8/31/77 * 11/25/69, Revised 6/11/71
Welding Process SMAW   Manual or Machine Manual
Material Specification A-106-B to A-106-B of P-No. 1 to P-No. 1
Thickness (if pipe, diameter and wall thickness) 6" Sch. 160 (.718)
Thickness Range this test qualifies 3/16" thru .750" *
Filler Metal Group No. F-4
Weld Metal Analysis No. A-1
Describe Filler Metal if not included in Table Q-11.2 or QN-11.2
For nonferrous welding—State if Filler Metal is silicon or aluminum killed.

FLUX OR ATMOSPHERE
Flux Trade Name or Composition —
Inert Gas Composition —
Trade Name — Flow Rate —
Is Backing Strip used? Yes
Preheat Temperature Range 50 °F. min.
Interpass Temperature Range 50 °F. min.
Postheat Treatment none

WELDING PROCEDURE
Single or Multiple Pass Multiple
Single or Multiple Arc Single
Position of Groove Vertical 5G Upward (See Para. & Figs. Q-2 & Q-3, or QN-2 & QN-3)
(Flat, horizontal, vertical, or overhead; if vertical, state whether upward or downward)

FOR INFORMATION ONLY
Filler Wire—Diameter 1/8 and 5/32
Trade Name Atom Arc #7018
Type of Backing Ring
Forehand or Backhand —

WELDING TECHNIQUES
Joint Dimensions Agreed with Sheet 2 of 6
amps 90-170 volts 26-34 inches per min. —
Current D.C. Polarity Reverse

REDUCED SECTION TENSILE TEST (Figs. Q-6 and QN-6)

Specimen No.	Dimensions Width	Dimensions Thickness	Area	Ultimate Total Load, lb.	Ultimate Unit Stress, psi	Character of Failure and Location
39-6-1	.561	.765	.418	38,300	70,500	Broke in Base metal
39-6-2	.561	.764	.417	42,200	64,800	Broke in Base metal

GUIDED BEND TESTS (Figs. Q-7.1, Q-7.2, QN-7.1, QN-7.2, QN-7.3)

Type and Figure No.	Result	Type and Figure No.	Result
Side Bend SB-1	180° O.K.	SB-3	180° O.K.
Side Bend SB-2	180° O.K.	SB-4	180° O.K.

Results of Fillet-weld Tests, Fig. Q-8(a)
Welder's Name J. Butler   Clock No.   Stamp No. 9V
Who by virtue of these tests meets welder performance requirements.
Test Conducted by M.W. K LAB.   Laboratory—Test No. [illegible]
per J. Williams

We certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

Signed THE M.W. KELLOGG COMPANY
(Manufacturer)

Date 6/17/71   By F.J. RICHARDS

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code. Recommended Form Q-1 is available for purchase at ASME Headquarters.)

NOTE: Any essential variables in addition to those above shall be recorded.

RECOMMENDED FORM Q-1 MANUFACTURER'S RECORD OF WELDING PROCEDURE QUALIFICATION TESTS

HEAT TREATED

8/21/77

Specification No. P1-8R-Fh-SMAW-5G Date 8/3/64, Revised 6/11/71

Welding Process SMAW Manual or Machine Manual

Material Specification A-106-C to A-106-C of P-No. 1 to P-No. 1

Thickness (if pipe, diameter and wall thickness) 10" Sch. 160 (1.594)

Thickness Range this test qualifies 3/16" thru 3.188

Filler Metal Group No. F- 4

Weld Metal Analysis No. A- 1

Describe Filler Metal if not included in Table Q-11.2 or QN-11.2

For nonferrous welding—State if Filler Metal is nickel or aluminum killed.

WELDING PROCEDURE

Single or Multiple Pass Multiple

Single or Multiple Arc Single

Position of Groove Vertical 5G Upward (See Para. & Figs. Q-2 & Q-3, or QN-2 & QN-3)

(Flat, horizontal, vertical, or overhead; if vertical, state whether upward or downward)

FLUX OR ATMOSPHERE

Flux Trade Name or Composition —

Inert Gas Composition —

Trade Name — Flow Rate —

Is Backing Strip used? Yes

Preheat Temperature Range 50°F, min.

Interpass Temperature Range " "

Postheat Treatment 1100°F-1200°F, w/1hr. hold

FOR INFORMATION ONLY

Filler Wire—Diameter 1/8" and 5/32"

Trade Name Atom Arc 7018

Type of Backing Ring

Forehand or Backhand —

WELDING TECHNIQUES

Joint Dimensions Accord with Sheet 2 of 10

amps 90-130 volts 26-34 inches per min. —

Current D.C. Polarity Reverse

REDUCED SECTION TENSILE TEST (Figs. Q-6 and QN-6)

Specimen No.	Dimensions Width	Dimensions Thickness	Area	Ultimate Total Load, lb.	Ultimate Unit Stress, psi	Character of Failure and Location
TT-5-1	.760	.996	.7669	57,670	75,200	Broke in Weld
TT-5-2	.760	.996	.7669	56,400	73,540	Broke in Weld

GUIDED BEND TESTS (Figs. Q-7.1, Q-7.2, QN-7.1, QN-7.2, QN-7.3)

Type and Figure No.	Result	Type and Figure No.	Result
Side Bend S-1	O.K.	Side Bend S-3	O.K.
Side Bend S-2	O.K.	Side Bend S-4	O.K.

Results of Fillet-weld Tests, Fig. Q-6(a)

Welder's Name R. Peterson Clock No. Stamp No.

Who by virtue of these tests meets welder performance requirements.

Test Conducted by M.W. K. LAB. Laboratory—Test No. P1-Fh-8R-5G

per C. Diani

We certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

Signed THE M.W. KELLOGG COMPANY
(Manufacturer)

Date 6/17/71

By F.J. Richards

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code. Recommended Form Q-1 is available for purchase at ASME Headquarters.)

NOTE: Any essential variables in addition to those above shall be recorded.

Printed in U.S.A. (11/66) This Form is obtainable from the ASME, 345 E. 47th St., New York, N.Y. 10017

Attach. 11

30

WELDING TECHNIQUE SPECIFICATION NO. AWS 1-1

This document has been formulated to clarify the technique for applications of Weld Code 7/C procedures as applied to AWS welding only. This technique will be used in accordance with Pullman Power Products Process Sheet.

DATE: 5/17/79

REVISION: 4 DATE: 12-20-79

SUPPORTING PQR(s): Prequalified

Technique Specification for: Shielded Metal Arc Welding of ASTM A-36, A-441, A-572 Gr. 50, A-588, A-515 and A-516 in any applicable combination in accordance with AWS D1.1-79.

Base Metal: The base metal shall conform to those listed above. Other materials may be substituted with the approval of the Cognizant Welding Engineer.

Base Metal Thickness: This technique is qualified for welding of materials of unlimited thickness in accordance with AWS D1.1-79.

Filler Metal: The filler metal shall conform to AWS SFA 5.1, Type E-7018.

Position of Welding: Welding will be done in all positions. Weld progression will be vertical - up.

Preheat and Interpass Temperature: Preheat and Interpass temperature shall conform to those specified below:

BASE METAL THICKNESS (Actual)	MINIMUM PREHEAT °F	MAXIMUM INTERPASS °F
Up to 3/4"	50°F.	500°F.
Over 3/4" through 1 1/2"	150°F.	500°F.
Over 1 1/2" through 2 1/2"	225°F.	500°F.
Over 2 1/2" — —	300°F.	500°F.

When metal temperature is below 70°F, material will be flame dried. The preheat requirement of a joint is established by the thickest member being joined. The preheat applies to both sides of the joint and to the entire length of the joint a minimum distance as shown below:

TYPE OF WELD	MATERIAL THICKNESS (t)	MINIMUM DISTANCE FROM POINT OF WELD DEPOSIT
Fillet, Partial Pen. ≤ 1/4 t, and Base Metal Repairs 1/4 t	≤3 Inches	3 Inches
	>3 Inches	(t) thickness of part
Full Penetration, Partial Pen. > ½ t, Base Metal Repairs > ½ t.	All Thickness	2 t

31

Cleanliness: All weld preps will be free of rust, scale, grease, and other contaminants for at least 1" from the weld prep edge.

Weld Parameters: Welding parameters are specified in the table on page 3 of 3.

Welding Technique: The welding technique shall be as follows:

A) BEAD WIDTH - All welding will be accomplished using the stringer bead technique. Weaving is allowed on the cover pass only to a maximum of 5 times the electrode diameter.

B) INTERPASS CLEANING - All weld beads will be free of all slag prior to continuation of welding. NEEDLE GUNS shall not be used for any cleaning operation.

C) DEFECTS - All visable defects, i.e., porosity, crater cracks, cold lap, shall be removed prior to the continuation of welding by grinding or or filling.

D) RUN-OFF TABS AND BACKING STRAPS - Run-off tabs and backing straps will be used whenever possible. Run-off tabs should be removed. Backing straps need not be removed unless specified by the owner or his designated representative. Removal of run-off tabs shall be accomplished by thermal cutting within 1/8" of the weldment and then blended into the base metal by grinding. Alternatively, removal may be entirely accomplished by grinding. Removal of backing straps will be accomplished by grinding or gouging to sound metal, and then back welded as needed. When any thermal process is used, the applicable preheat requirements are mandatory. Preheat may be maintained during grinding as desired.

E) BASE METAL BUILD-UPS - Base metal build-ups will conform in all aspects to this procedure.

F) WELD PROFILES - Weld profiles will be as follows:

1) Groove Welds - maximum reinforcement of 1/8" and shall blend smoothly into the base metal in accordance with the typical joint details and weld profiles, page 3 of 3.

2) Fillet Welds - size in accordance with the field drawing (+1/8, -1/16 for 10% of weld length) and profile in accordance with the typical joint details and weld profiles, page 3 of 3.

3) The final surface will be smooth enough as not to interfere with N.D.E. operations. Preheat may be maintained during final surface conditioning operations.

4) T-Joints and Corner Joints Groove Welds - maximum reinforcement of 1/8" and shall blend smoothly into the base metal with reentrant configurations in accordance with the typical joint details and profiles, page 3 of 3.

Attach. 13

ATTACHMENT B

Concern #136

Test: Allegation or Concern No. 136

ATS No.: RV-844-40 BN No.:

Characterization

Foley audit findings were not properly handled. (Two examples were provided by the alleger.) The alleged problem seems to be that Foley response to the audit did not really address the finding.

Assessment of Safety Significance

The staff conducted a face value assessment of the two audit findings and concluded that part of the concern was the result of a misinterpretation of the resolutions provided by the QA Director and the allegers apparent distrust of the Foley QA Director's motivations. The inspector concluded that since the two resolutions were written in rather general terms although there was not sufficient evidence to conclude that these were improperly handled. The staff concludes that exhaustive examination of this issue is unlikely to result in any new management or quality performance issues and, thus, the additional expenditure of staff resources is not warranted.

Staff Position

The staff concludes that an audit of the resolutions provided by Foley in response to QA audit findings would be in order to more fully evaluate the acceptability of resolutions provided. This action would provide the assurance needed to resolve this issue.

Action Required

This item will be turned over to PG&E for accomplishment of the above action. The licensee will be required to provide written response of their findings and necessary corrective action.

#136

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

CONFIDENTIAL SOURCE:
YES ☑
NO ☐

SUMMARY OF SPECIAL INSP. -RELATED INFORMATION

..O CANYON

	DATE	TIME INITIATED	TIME COMPLETED
Diablo Canyon Concerns	1/13/84	1:30p	4:45p

..ETING
..TERVIEW ✓
..LEPHONE CALL
..OLLECT ( )YES ( )NO
..HER

PARTICIPANTS NRC
OTHER: NAME

NAME	ORGANIZATION	YRS. ON SITE
	Foley	4 yrs.

LOCATION Diablo Canyon site

CALLED NO.	CALLING NO.

..Y:
Question: ARE YOU, OR ARE YOU AWARE OF, IMPROPER MANAGEMENT PRESSURES
~~AND QUESTION~~: TO "CUT CORNERS" (i.e. sacrifice safety to meet schedules, etc)?:

Reply: Yes has limited the identification of concerns.
According to him if the hardware has been adversely affected, there is no nonconformance. Also, no NCRs are to be written on work not required to be inspected. Concerns are identified on inspection reports (IRs) that should be NCRs but they never got there.

-Requirements have been circumvented by purchasing to contract 8833XR and installing to 5422. Items have been installed to contract 5422 that should come under specification 8833XR.

..D ..IFIED ..DENCE ..BLEM There are design control problems — there is no evidence of proper interface controls between electrical and mechanical groups. Mechanical will design instruments one way but electrical will have requirements that conflict.

A lot of verbal instruction has been used to accomplish work that should have been handled by DCNs.

Sometimes the accepted "as built" condition is not the true as

OVER

..EN

DATE	PAGE	OF
1/15/84		

2

REGION V FORM: 113

AUDIT ACTIVITIES

1. Foley QA does not audit

a. Procedures for compliance to Codes, Standards and contract Specs. He is not aware of any requirement in this regard.

(1) Question to be answered is: How does PG&E assure that Foley procedures comply with License commitments and Contract Specifications or is Foley contractually obligated to assure this? This is a good idea because Foley is required to comply with their procedure set in the field.

REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

CONFIDENTIAL SOURCE:
YES ☒
NO ☐

SUMMARY OF SPECIAL INSP. -RELATED INFORMATION

...lo CANYON

COPY

	DATE 1/4/84	TIME INITIATED 10 am	TIME COMPLETED 11:22 a.m.
...EETING - ...NTERVIEW * ...ELEPHONE CALL ...COLLECT ( )YES ( )NO ...THER	PARTICIPANTS NRC: OTHER: NAME		
	LOCATION CALLED NO.	CALLING NO.	

...Y:

...RD QUESTION: ARE YOU, OR ARE YOU AWARE OF, IMPROPER MANAGEMENT PRESSURES TO "CUT CORNERS" (i.e. sacrifice safety to meet schedules, etc)?:

ARE THERE, OR DOES THERE EXIST, BOXES OF RECORDS WHICH ARE NOT BEING REVIEWED? Verbal instructions were issued from Rick Wilson to limit the scope of the Foley document review to those Foley documents generated from Sept. 1981 through Present. Boxes with the Pre Sept 1981 records are in Vault - these were reviewed but no procedures or instructions were used in the conduct of this review. Additional [illegible] may exist in attic of Bldg. [illegible]

is unaware of the comprehensiveness of [illegible] review - doesn't know whether good or bad. old document turnover audits do exist in Files.

...O YOU KNOW OF ANY PROBLEMS WHICH HAVE BEEN, OR WERE IDENTIFIED, WHICH ...RE NOT BEING HANDLED (i.e: EVALUATED, CORRECTED OR RESOLVED) PROPERLY?

...isagreements - he knows of NCR Vaulting disagreements.

...eople in quality Control

e) verbally instructed to correct ...ecords (i.e: changing records of inspectors no longer employed.)

[illegible] ...eplace old record with a new attachment, leaving the old record intact & attached

...Y

DATE	PAGE
1/4/84	1 OF 3

REGION V FORM: 113

4

...ers. This advice was not heeded by Quality Director. It was explained to him that changes made were not important and consisted only of minor corrections. No Foley audit was conducted of this activity because
13. the Quality Director said the practice was acceptable; the Quality Director followed this up with an Oct. 6, 1983 memo (attached) providing guidelines for correcting obvious discrepancies.

- In about June 1983, Quality Director limited QA auditor badging for access to Unit 1. Only 2 Foley QA people are authorized Unit 1 access. Foley QA has 5 QA auditors at present. These 2 badges were only recently issued. Foley had not been authorized Unit 1 access since about June 1983. #134
- In Sept 1983 QA Director authorized "correcting obvious discrepancies" on Quality documentation, without providing for management review of individual corrections, using only minimum, general guidelines. 1
- #136 QA Director, in audit PA 125 finding 10, accepted the finding stating that hold pts are not legal to be signed off on the traveler.
- #135 Foley QA audit program was halted for about 5 months (APRIL 83 to Sept. 83)
- NCRs were not written in response to Audit PA 135, finding 12, regarding failure to perform daily & weekly inspections of Unit 1 welding electrode storage ovens.

..., cont'd.

The Quality Director has allegedly verbally issued instructions to the effect that an NCR is only to be written to document hardware deficiencies, and not for failure to follow procedures, contrary to QCP-3.

ATTACHMENT C

Concerns #137 and #140

Task: Allegation or Concern No. 137

ATS No.: RV-84A-40 BN No.:

Characterization

Foley did not audit procedure adequacy.

Staff Position

This allegation is general in nature, but appears to be a restatement of concerns identified and examined in allegation 68. Also, on page 4 of Report 50-275/83-37 dated February 29, 1984, this issue appears to have been addressed. The issue of concern here does not represent a new significiant management or quality performance issue which has not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

Task: Allegation or Concern No. 140

ATS No.: RV-84-A-0014 BN No.:

Characterization

Foley used material purchased for one contract on another. (No specific examples were provided)

Implied Significance to Plant Design, Construction, or Operation

The staff considers this issue to have mininal safety significance because Foley purchases were primarily restricted to commercial grade, off-the-shelf items.

Staff Position

The staff considers that exhaustive resolution of this issue will not result in any new significant management or quality performance issues.

Action Required

This item will be turned over to PG&E for evaluation and response. The licensee will be required to provide the results of their evaluation, and any necessary corrective actions, to the staff in writing.

137,140

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

CONFIDENTIAL SOURCE:
YES ☑
NO ☐

SUMMARY OF SPECIAL INSP. -RELATED INFORMATION

O CANYON

Diablo Canyon Concerns	DATE 11/3/84	TIME INITIATED 1:30p	TIME COMPLETED 4:45p

EETING
NTERVIEW ✓
ELEPHONE CALL
COLLECT ( )YES ( )NO
THER

PARTICIPANTS NRC:

OTHER: NAME	ORGANIZATION	YRS. ON SITE
	Foley	4 mo.

LOCATION Diablo Canyon site
CALLED NO.
CALLING NO.

RY:
Question: ARE YOU, OR ARE YOU AWARE OF, IMPROPER MANAGEMENT PRESSURES
~~AND QUESTION~~: TO "CUT CORNERS" (i.e. sacrifice safety to meet schedules, etc)?:

Reply: Yes has limited the identification of concerns.
According to him if the hardware has been adversely affected, there is no nonconformance. Also, no NCRs are to be written on work not required to be inspected. Concerns are identified on inspection reports (IRs) that should be NCRs but they never got there.
-Requirements have been circumvented by purchasing to contract 8833XR and installing to 5422. Items have been installed to contract 5422 that should come under specification 8833XR.
ED SPECIFIC DESIGN PROBLEM
{There are design control problems — there is no evidence of proper interface controls between electrical and mechanical groups. Mechanical will design instruments one way but electrical will have requirements that conflict.
A lot of verbal instruction has been used to accomplish work that should have been handled by DCNs.
Sometimes the accepted "as built" condition is not the true as
OVER

EN

DATE 11/5/84	PAGE OF

REGION V FORM: 113

3

Stainless Steel Tube welding & Bending by Foley.

1. Concern is that Foley didn't have
- a mechanism for Verifying Purging gas flow and verifying O_2 content in the line. Several instances were identified where the flow meter ball would stay up when the needle valve was closed.

QC

The individual Information is based upon conversations with Instrumentation Q.C and not on first hand knowledge.

The individual has observed ~~stay~~ sugaring (⇒ no purge) and constriction in the weld area (due to burn through of the thin tubing) on welds which were cut out of these Tubing systems.

- Examine also controls applied to other SS Tubing welding, eg: RPR Reference leg rerouting.

139

WISHES TO BE ANONOMUS

1/14/83

An interview with

Analist indicated quality concerns and the system which addresses quality concerns with Foley. He stated that "the performance qualification of GTAW socket fillet welders WORKING on safety related instrumentation lines was insufficient to demonstrate their skill and ability to make sound welds" and that the PG&E document 8802 paragraph 2.62 commits to gas purge on these welds and this requirement is not being followed. He stated that the lines of concern were pressure tested and had passed PT examination, but he had seen evidence of gross melt through and "sugaring" on welds that had been removed. His specific concern was with the RVLIS.

He believed that Foley violated the SCIX performance qualification rules. He referenced a document trail of QW356 to QW403.16 to QW 303.6 (not in 1980 or 1983 Code and not therefore applicable) to QW452.4. I informed him that the Standard SCIX committee answers to this question

5

was that the qualification of welders with groove weld test assemblies qualifies welders to all fillets in all sizes which includes socket fillets on instrumentation tubing. This is the proper Codes and Standards interpretation, but does not properly address the welders ability to weld sound welds which is the intent of SC IX.

supplied two documents — attached to show how this question was addressed.

The question of removal of gas purge QW 408.8 should be addressed along with the licensee commitment in 8802 para 2.62.

An engineering evaluation of the adequate performance of the tubing with unknown weld quality (that passed pressure and PT tests) should be addressed.

A 2d question was the ability of the Foley QC program to adequately control bending of tubing. He indicated that he had seen examples of tubing with 50% wall reduction in bend areas.

IN MY OPINION - Both of these questions should be addressed by the licensee's engineering and quality personnel

SDReynolds JR

PS - Rough cryptic notes also attached

comment by SDR -

The Codes and Standards answer to 8802-1502 inspection report is legalistically correct, but may not be a "good engineering" answer in this particular case. It is the intent of SCIX that welders be qualified by methods that can demonstrate their ability to make sound welds.

Original

THE HOWARD P. FOLEY COMPANY

INSPECTION REPORT

Page 1 of 2

NUMBER: 8802-1530

PREPARED BY: G. Herrmann/R.D. Risinger

ATTACHMENTS YES ☐ NO ☒

DATE: 8-15-83

ITEMS INSPECTED: QCP-5 App. I 8-08-83

UNIT I X UNIT II X

LOCATION: Various

INSPECTION CRITERIA ☐ DRAWING: ☐ SPECIFICATION: ☒ PROCEDURE:

DOCUMENT TITLE AND NUMBER: QCP-5 APPENDIX I

RESULTS OF INSPECTION:

1. PCN 7 deleted performance qualifications M-10 from QCP-5 App. I. (½" S.S. socket weld qualification.) Consequently there are no WP's in the procedure books to verify qualifications.

2. QW-303.5 fillet welds require that "welders who make fillet welds on pipe or tube less than 2 7/8 in. O.D. must pass the pipe fillet test per QW-452. 4-..... Currently there are no welders qualified to weld on pipe or tubing less than 2 7/8 in. O.D.

ISSUE X FILE ____

MAKE INTO NCR ____ OTHER ____

INITIATED BY: G. HERRMANN By [signature] DATE: 8/15/83

DISPOSITION: SEE ATTACHED SHEET.

BY: [signature] DATE: 8-16-83

QUALITY CONTROL SUPERVISOR REVIEW:
ACCEPT ✓ REJECT ____
SIGNATURE: [signature] DATE: 8/16/83

CLOSE OUT COMMENTS: PCN 12 RE-INSTATES M-10 (EFFECTIVE DATE 8/26/83)

Q.C. INSPECTOR:
ACCEPT ✓ REJECT
SIGNATURE [signature] QA
DATE 10/16/83

HOLD TAG# REMOVAL N/A
BY ____
DATE ____

Q.C. SUPERVISOR FINAL:
SIGNATURE [signature] QA
DATE 10/16/83

HPF/IR 6-28-83

Close to File (date) 10/16/83

THE HOWARD P. FOLEY COMPANY
INSPECTION REPORT - CONTINUATION SHEET

NO. 8802-1530

CONTINUATION OF: RESULTS OF INSPECTION ☐ PROPOSED DISPOSITION ☒ CORRECTIVE ACTION TAKEN ☐

DATE 8/16/83

1. With the deletion of WPS M-10 from Appendix I of QCP-5, two weld Procedure Specifications remain which are acceptable for Welder Performance Qualifications. Specifically, in QCP-5D, WPS M-01 and M-03 qualify a welder to make 1/4" Ø tubing and larger socket welds. Additionally, WPS M-10 will be included in the next PCN to QCP-5D.

2. QW-303.5 no longer exists. (See Winter '82 addenda to ASME Sec. IX). QW-303.1 states, in part, "... welders who pass the required tests for groove welds shall also be qualified to make fillet welds in all thicknesses and pipe diameters of any size within the limits of the welding variables of QW-350." Included in QW-350 "Welding Variables for Welders", under GTAW Essential Variables, QW-403.16 requires conformance to QW-452. QW-452.6 "Fillet Qualification By Plate Or ~~The~~ PIPE 8-16-83 Groove Weld Tests" qualifies fillet welds of all sizes, material thicknesses and diameters.

HPF/IR

QW-482 SUGGESTED FORMAT FOR WELDING PROCEDURE SPECIFICATION (WPS)
(See QW-201.1, Section IX, ASME Boiler and Pressure Vessel Code)

Company Name The H.P. Foley Company By: Z R Wi[illegible] 8/1?/83
Welding Procedure Specification No. M-10 Date 4-18-83 Supporting PQR No.(s) M-10PQR
Revision No. 1 Date ________
Welding Process(es) GTAW (Stainless to Stainless) Type(s) Manual
(Automatic, Manual, Machine or Semi-Auto.)

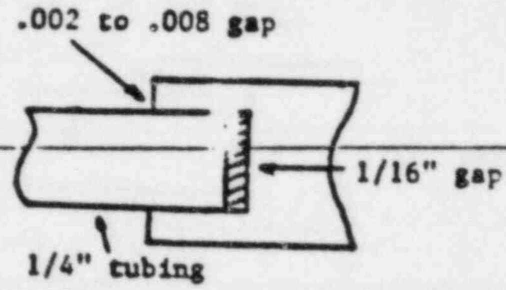
JOINTS (QW-402)

Details

Joint Design Socket Weld
Backing (Yes) ________ (No) XX
Backing Material (Type) N/A

Sketches, Production Drawings, Weld Symbols or Written Description should show the general arrangement of the parts to be welded. Where applicable, the root spacing and the details of weld groove may be specified.

(At the option of the Mfgr., sketches may be attached to illustrate joint design, weld layers and bead sequence, e.g. for notch toughness procedures, for multiple process procedures, etc.)



***BASE METALS (QW-403)**

P-No. 8 Group No. 1 to P-No. 8 Group No. 1
OR
Specification type and grade ASTM A213 TP316
to Specification type and grade ASTM A479 TP316
OR
Chem. Analysis and Mech. Prop. N/A
to Chem. Analysis and Mech. Prop. N/A
Thickness Range:
Base Metal: Groove N/A Fillet 1/4" to Unlimited
Deposited Weld Metal
Pipe Dia. Range: Groove N/A Fillet 1/4" to Unlimited
Other Fillet welds Ref. ASME Sec. IX Table 452.4

***FILLER METALS (QW-404)**

F-No. 6 Other N/A
A-No. 8 Other N/A
Spec. No. (SFA) 5.9
AWS No. (Class) ER316
Size of filler metals .045" to .125"
(Electrode, Cold Wire, Hot Wire, etc.)
Electrode-Flux (Class) N/A
Flux Trade Name N/A
Consumable Insert N/A

*Each base metal-filler metal combination should be recorded individually.

INFORMATION ONLY

WRE 1215 REV. 1

ITEMS INSPECTED:
1/4" SS Tubing welds

UNIT I LOCATION 85' BENCH

Foley
ELECTRICAL CONTRACTORS

INSPECTION REPORT

NO. 8202-1861
DATE 12-21-83
PAGE 1 OF 1
ATTACHMENTS: YES ____ NO X

INSPECTION CRITERIA DRAWING ☐ SPECIFICATION ☐ PROCEDURE ☑

DOCUMNET TITLE AND NUMBER: QCPM-1 WPS M-01 & M-10

RESULTS OF INSPECTION: Welder unable to maintain Gas Backing Purge During welding of stainless steel line, due to welding against closed system. (Barlow Bellows) Flow could not be maintained per WPS. Are required. 15-20 CFH. Flow rate. (Ref QCPM-1 4.3.4.5) FW# 6 LTHOC

ISSUE ☐

FILE ☐

[signature]	12-21-83	[signature]	12-21-83
INITIATED BY	DATE	QC SUPERVISOR REVIEW	DATE

DISPOSITION:

INFORMATION ONLY

DISPOSITION BY	DATE	QUALITY REVIEW	DATE

Q.C. INSPECTOR

ACCEPT ______ REJECT ______ HOLD TAG # ____________ QC SUPERVISOR FINAL:

SIGNATURE ______________ REMOVAL BY ______________ SIGNATURE ______________

DATE ______________ DATE ______________ DATE ______________

HPF/IR 11-1-83

Instrumentation 9(1978) June 76

Qualification of procedures and welders for instrumentation

- basically tubing 1" diameter to 3/16"
- Stainless tubing
- socket fillet type welds (essentially) no butt

- current procedure qualification practice and previous welder qualification

Dec WPS M-01 qualified by M-01 PQR

meet Code Rules

~~[illegible]~~ PG&E 8802 , Electrical and Mechanical Para 2.22 commits to S(IX

2.62 commits to gas purge.

? Does QW 408.8 apply to welders where they have been qualified w/ gas backing if they weld w/o gas
what is the welding and metallurgical significance
E.g 3/16 x .049" wall tubing
has evidence that they delete backing

Gas purge is not a QC check off item for socket fillets, Foley has no Oxygen analysis equipments. There is no way to verify the purge.

Used Argon backing in welder performance testing

12

QW 356 reference 403.16

QW 403.16 references QW 303.6 (not in 1980 / 1983 SCIX

QW 452

QW 452.4

< 3/4" not less than size welded

* Lack of adequate qualification to demonstrate welding skill and ability to make sound welds in operations in mains:

~~Problem continues that less than satisfactory~~ welds are being made.

People have welds available with tubing melt thru and sugaring

other concern - improper controls over bending of tubing. Examples has been shown ~~that~~ there are some tubing with 50% wall reduction.

Still have passed pressure tests and PT examinations

Reactor Vessel Level Indicating System

These items ~~near~~ lead me to believe ~~that~~ is a definite concern of function of safety related instrument lines

13

137,140 ①

Interview 1/18/84 9:00 a.m. to 10:50 a.m.

Design Control Issue is addressing the DCN issue)

H.P. Foley completes discrete work activities (i.e. DCN) by PG&E issuing a work request. Foley completes this work & closes the work request. Subsequently, PG&E issues a DCN revision and re-open the previous work request, which had already been closed. Foley tracks work by work request and not the DCN; PG&E is responsible for verifying that the DCN is complete and Foley completes the work statement of the work request. Example was shown where one work request accomplished FT installations & later a 2nd W.R. was issued to accomplish the same thing. PG&E mgmt doesn't appear to be in control of the station.

As-built Issue:

(1) During 81/82 time frame HVAC support as-built's were not returned to PG&E for verification of design adequacy. H.P.F. doesn't have as-built procedures for controlling as-built documentation and generation, as required by Foley QA manual.

(2) Specifics may be provided ; QC Insp.

(3) PG&E has been provided HVAC support as-builts for about the last 4 months (late 83).

→ (4) ∴ PG&E has not been verifying the as-built condition to compliance with the design calculations. ∴ PG&E Eng not in full control. 14

137, 14c

②

#140

HEAT LOG PROBLEM

① Several IRS/NCRS document material / Heat Log problems.

② There is no QC present when material (Steel, SS Tubing) is cut and the Heat Number is transferred to the remaining piece.

③ His concern is that Heat No's have been applied to material in the field based on the Production copy of the Heat Log, which references heat NO. to material shape and size. (His DETAILS)

④ Feels that crafts have a procedure requiring Heat No. Transfer but doesn't know if one is established.

⑤ Reference Recent PG&E audit on HVAC system which identifies the problem.

* ⑥ He Feels that Production has engaged in falsification of heat records; in the field by stamping heat No's on steel after installation, and then Logging these Heat No's onto documentation completing the falsifications. Questions to be answered is: Are these practices required by Codes & STDS or is this something which the Licensee merely committed to?

137,140

#137

③

AUDIT ACTIVITIES

1. Foley QA does not audit

a. Procedures for compliance to Codes, Standards and contract Specs. He is not aware of any requirement in this regard.

(1) Question to be answered is: How does PG&E assure that Foley procedures comply with license commitments and contract specifications or is Foley contractually obligated to assure this? This is a good idea because Foley is required to comply with their procedures set in the field.

ATTACHMENT D

Concern #139

Task: Allegation or Concern No. 139

ATS No.: RV-84-A-0013 BN No.:

Characterization

Foley Improperly Performed Tubing Fabrication (Socket Welding and Bending).

Assessment of Safety Significance

The allegers concern primarily involved Foley fabrication of the reactor vessel water level indication system tubing. The staff had previously examined the installation of this system and found nothing of particular significance or concern (See NRC Inspection Report Nos. 50-275/81-04 and 81-10). The staff requested that PG&E address this concern and evaluated PG&Es written response.
The staff's face value assessment indicates that this issue is of minimal safety significance.

Staff Position

The staff's evaluations indicate that this issue would not result in any new significant management or quality performance issues.

Action Required

This item will be turned over to PG&E for evaluation and resolution. The licensee will be required to provide the results of their evaluation, and any necessary corrective actions, to the staff in writing.

#139

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

CONFIDENTIAL SOURCE:
YES ☑
NO ☐

SUMMARY OF SPECIAL INSP. -RELATED INFORMATION

O CANYON

Diablo Canyon Concerns	DATE 1/13/84	TIME INITIATED 1:30p	TIME COMPLETED 4:45p

ETING -
TERVIEW ✓
LEPHONE CALL
OLLECT ( )YES ( )NO
HER

PARTICIPANTS NRC

OTHER: NAME		ORGANIZATION	YRS. ON SITE
		Foley	4 mo.

LOCATION Diablo Canyon site

CALLED NO.

CALLING NO.

RY:

Question: ARE YOU, OR ARE YOU AWARE OF, IMPROPER MANAGEMENT PRESSURES TO "CUT CORNERS" (i.e. sacrifice safety to meet schedules, etc)?:

Reply: Yes has limited the identification of concerns. According to him if the hardware has been adversely affected, there is a nonconformance. Also, no NCRs are to be written on work not required to be inspected. Concerns are identified on inspection reports (IRs) that should be NCRs but they never get there.

-Requirements have been circumvented by purchasing to contract 8833XR and installing to 5422. Items have been installed to contract 5422 that should come under specification 8833XR.

There are design control problems - There is no evidence of proper interface controls between electrical and mechanical groups. Mechanical will design instruments one way but electrical will have requirements that conflict.

A lot of verbal instruction has been used to accomplish work that should have been handled by DCNs.

Sometimes the accepted "as built" condition is not the true as

OVER

EN

DATE 1/16/84

PAGE OF

2

REGION V FORM

(14)

Stainless Steel Tube welding & Bending by Foley.

1. Concern is that Foley didn't have a mechanism for verifying purging gas flow and verifying O_2 content in the line. Several instances were identified where the flow meter ~~ball~~ ball would stay up when the needle valve was closed.

QC

The individual information is based upon conversations with Instrumentation QC and not on first hand knowledge.

The individual has observed ~~stay~~ sugaring (⇒ no purge) and constriction in the weld area (due to burn through of the thin tubing) on welds which were cut out of these tubing systems.

- Examine also controls applied to other SS tubing welding, eg: PZR Reference leg rerouting.

WISHES TO BE ANONOMOUS

1/14/83

An interview with

Analyst indicated quality concerns and the system which addresses quality concerns with Foley. He stated that "the performance qualification of GTAW socket fillet welders WORKING on safety related instrumentation lines was in sufficient to demonstrate their skill and ability to make sound welds" and that the PG&E document 8802 paragraph 2.62 commits to gas purge on these welds and this requirement is not being followed. He stated that the lines of concern were pressure tested and had passed PT examination, but he had seen evidence of gross melt through and "sugaring" on welds that had been removed. His specific concern was with the RVLIS.

He believed that Foley violated the SCIX performance qualification rules. He referenced a document trail of QW356 to QW403.16 to QW303.6 (not in 1980 or 1983 Code and not therefore applicable) to QW452.4. I informed him that the Standard SCIX committee answers to this question was that the qualification of welders with groove weld test assemblies qualifies welders to all fillets on all sizes which includes socket fillets on instrumentation tubing. This is the proper Codes and Standards interpretation, but does not properly address the welders ability to weld sound welds which is the intent of SC IX.

supplied two documents — attached to show how this question was addressed.

The question of removal of gas purge QW 408.8 should be addressed along with the licensee commitment in 8802 para 2.62.

An engineering evaluation of the adequate performance of the tubing with unknown weld quality (that passed pressure and PT tests) should be addressed.

A 2d question was the ability of the Foley QC program to adequately control bending of tubing. He indicated that he had seen examples of tubing with 50% wall reduction in bend areas.

IN MY OPINION - Both of these questions should be addressed by the licensee's engineering and quality personnel

SDReynolds JR

PS - Rough cryptic notes also attached

comment by SDR —
The Codes and Standards answer to 8802-1502 inspection report is legalistically correct, but may not be a "good engineering" answer in this particular case. It is the intent of SC IX that welders be qualified by methods that can demonstrate their ability to make sound welds.

Original

THE HOWARD P. FOLEY COMPANY

INSPECTION REPORT

Page 1 of 2

NUMBER: 8802-1530

PREPARED BY: G. Herrmann/R.D. Risinger

ATTACHMENTS YES ☐ NO ☒

DATE: 8-15-83

ITEMS INSPECTED: QCP-5 App. I 8-08-83

UNIT I X UNIT II X

LOCATION: Various

INSPECTION CRITERIA ☐ DRAWING: ☐ SPECIFICATION: ☒ PROCEDURE:

DOCUMENT TITLE AND NUMBER: QCP-5 APPENDIX I

RESULTS OF INSPECTION:

1. PCN 7 deleted performance qualifications M-10 from QCP-5 App. I. (½" S.S. socket weld qualification.) Consequently there are no WP's in the procedure books to verify qualifications.

2. QW-303.5 fillet welds require that "welders who make fillet welds on pipe or tube less than 2 7/8 in. O.D. must pass the pipe fillet test per QW-452. 4-..... Currently there are no welders qualified to weld on pipe or tubing less than 2 7/8 in. O.D.

ISSUE X FILE ____

MAKE INTO NCR ____ OTHER ____

By [signature]

INITIATED BY: G. HERRMANN DATE: 8/15/83

DISPOSITION: SEE ATTACHED SHEET.

BY: [signature] DATE: 8-16-83

QUALITY CONTROL SUPERVISOR REVIEW:

ACCEPT ✓ REJECT ____

SIGNATURE: [signature] DATE: 8/16/83

CLOSE OUT COMMENTS: PCN 12 RE-INSTATES M-10 (EFFECTIVE DATE 8/26/83)

Q.C. INSPECTOR:

ACCEPT ✓ REJECT ____

SIGNATURE [signature] QA

DATE 10/16/83

HOLD TAG# N/A

REMOVAL BY ____

DATE ____

Q.C. SUPERVISOR FINAL:

SIGNATURE [signature] QA

DATE 10/16/83

HPF/IR 6-28-83

Close to File (date) 10/16/83

7

THE HOWARD P. FOLEY COMPANY
INSPECTION REPORT - CONTINUATION SHEET

NO. 8302-1330

CONTINUATION OF:

RESULTS OF INSPECTION ☐
PROPOSED DISPOSITION ☒
CORRECTIVE ACTION TAKEN ☐

DATE 8/16/83

1. With the deletion of WPS M-10 from Appendix I of QCP-5, two weld Procedure Specifications remain which are acceptable for Welder Performance Qualifications. Specifically, in QCP-5D, WPS M-01 and M-03 qualify a welder to make 1/4" Ø tubing and larger socket welds. Additionally, WPS M-10 will be included in the next PCN to QCP-5D.

2. QW-303.5 no longer exists. (See Winter '82 addenda to ASME Sec. IX). QW-303.1 states, in part, "... welders who pass the required tests for groove welds shall also be qualified to make fillet welds in all thicknesses and pipe diameters of any size within the limits of the welding variables of QW-350." Included in QW-350 "Welding Variables for Welders", under GTAW Essential Variables, QW-403.16 requires conformance to QW-452. QW-452.6 "Fillet Qualification By Plate Or ~~The~~ PIPE [initials] 8-16-83 Groove Weld Tests" qualifies fillet welds of all sizes, material thicknesses and diameters.

8

QW-482 SUGGESTED FORMAT FOR WELDING PROCEDURE SPECIFICATION (WPS)
(See QW-201.1, Section IX, ASME Boiler and Pressure Vessel Code)

Company Name The H.P. Foley Company By: ZR Wil[illegible] 8/1?/83
Welding Procedure Specification No. M-10 Date 4-18-83 Supporting PQR No.(s) M-10PQR
Revision No. 1 Date ———
Welding Process(es) GTAW (Stainless to Stainless) Type(s) Manual
(Automatic, Manual, Machine, or Semi-auto.)

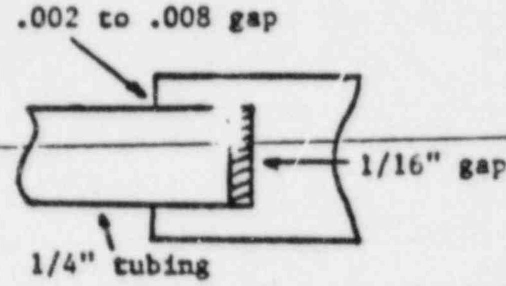
JOINTS (QW-402)

Joint Design Socket Weld
Backing (Yes) ______ (No) XX
Backing Material (Type) N/A

Sketches, Production Drawings, Weld Symbols or Written Description should show the general arrangement of the parts to be welded. Where applicable, the root spacing and the details of weld groove may be specified.

(At the option of the Mfgr., sketches may be attached to illustrate joint design, weld layers and bead sequence, e.g. for notch toughness procedures, for multiple process procedures, etc.)

Details



***BASE METALS (QW-403)**

P-No. 8 Group No. 1 to P-No. 8 Group No. 1
OR
Specification type and grade ASTM A213 TP316
to Specification type and grade ASTM A479 TP316
OR
Chem. Analysis and Mech. Prop. N/A
to Chem. Analysis and Mech. Prop. N/A
Thickness Range:
Base Metal: Groove N/A Fillet 1/4" to Unlimited
Deposited Weld Metal
Pipe Dia. Range: Groove N/A Fillet 1/4" to Unlimited
Other Fillet welds Ref. ASME Sec. IX Table 452.4

***FILLER METALS (QW-404)**

F-No. 6 Other N/A
A-No. 8 Other N/A
Spec. No. (SFA) 5.9
AWS No. (Class) ER316
Size of filler metals .045" to .125"
(Electrode, Cold Wire, Hot Wire, etc.)
Electrode-Flux (Class) N/A
Flux Trade Name N/A
Consumable Insert N/A

*Each base metal-filler metal combination should be recorded individually.

INFORMATION ONLY

WRE 1215 REV. 1 ITEMS INSPECTED: 1/4" SS Tubing welds UNIT I LOCATION 85' BENCH	**Foley** ELECTRICAL CONTRACTORS INSPECTION REPORT	NO. 8802-1861 DATE 12-21-83 PAGE 1 OF 1 ATTACHMENTS: YES ___ NO X

INSPECTION CRITERIA DRAWING ☐ SPECIFICATION ☐ PROCEDURE ☒

DOCUMNET TITLE AND NUMBER: QCPM-1 WPS M-01 & M-10

RESULTS OF INSPECTION: Welder unable to maintain Gas Backing Purge During welding of stainless steel Line, due to welding against closed system. (Barlow Bellows) Flow could not be maintained per WPS. Are required. 15-20 CFH. Flow rate. (Ref QCPM-1 4.3.4.5) FW# 6 LT1400

ISSUE ☐

FILE ☐

RDZ 12-21-83
INITIATED BY DATE

[signature] 12-21-83
QC SUPERVISOR REVIEW DATE

DISPOSITION:

INFORMATION ONLY

DISPOSITION BY ___ DATE ___ QUALITY REVIEW ___ DATE ___

Q.C. INSPECTOR

ACCEPT ___ REJECT ___ HOLD TAG # ___ QC SUPERVISOR FINAL:

SIGNATURE ___ REMOVAL BY ___ SIGNATURE ___

DATE ___ DATE ___ DATE ___

HPF/IR 11-1-83

60

Instrumentation 9(1978) June 7c

Qualification of procedures and welders for instrumentation
- basically tubing 1" diameter to 3/16"
- stainless tubing
- socket fillet type welds (essentially) no butt

- current procedure qualification practice
and previous welder qualification
Deca WPS M-01 qualified by M-01 PQR
meet Code Rules
~~[illegible]~~ PG&E 8802 Electrical and Mechanical Para 2.22 commits to S.C IX

2.62 commits to
gas purge.

? Does QW 408.8 apply to welders where
they have been qualified w/ gas backing
if they weld w/o gas
what is the welding and metallurgical significance
E.g 3/16 x .049" wall tubing
has evidence that they delete backing

Gas purge is not a QC check off item for
socket fillets, Foley has no Oxygen analysis
equipments. There is no way to verify the
purge.

Used Argon backing in welder performance testing

QW 356 references 403.16

QW 403.16 references QW 303.6 (not in 1983 S[illegible] 1980

QW 452

QW 452.4

< 3/4" not less than size welded

* Lack of adequate qualification to demonstrate welding skill and ability to make ~~sound~~ welds in operations

Problem continues that less than satisfactory welds are being made.

People have welds available with tubing melt thru and sugaring

Other concern - improper controls over bending of tubing. Examples has been shown that there are some tubing with 50% wall reduction.

Still have passed pressure tests and PT examinations

Reactor Vessel Level Indicating System

~~These items near lead me to believe that~~

is a definite concern of function of safety related instrument lines

12

RESPONSE TO NRC CONCERNS ON
RVLIS TUBING DATED 1-14-84

CONCERN #1

A) ASME Section IX, Part QW Welding, Article I, Welding General Requirements, Paragraph QA-100.1

"The purpose of the WPS and PQR, is to determine that the weldment proposed for construction is capable of providing the required properties for its intended application. It is presupposed that the welder, or welding operator, performing the welding procedure qualification test is a skilled workman."

B) Paragraph QW-100.2

"In performance qualification, the basic criterion established for welder qualification is to determine the welder's ability to deposit sound metal. The purpose of the Performance Qualification Test for the welding operator is to determine the operator's mechanical ability to operate the welding equipment."

The Code (ASME Section IX) does not require the welder to qualify on the specific intended application and does allow welders who test on groove welds to also be qualified to make fillet welds of any size on base metals in all thicknesses and pipe diameters, within the limits of the welding variables in QW-350

C) The RVLIS is a closed capillary system constructed of 3/16" O.D. X 0.049" wall armored S.S. tubing. The completed system was hydrostatically tested to 2400 PSIG for 1 hour prior to evacuation and filling with demineralized water.

Thousands of small diameter tube to socket weld fittings have been installed in the plant and hydro tested to 3200 PSIG without failure. The welders who made those welds were qualified to the same groove weld procedure as those who made the RVLIS welds.

CONCERN #2

A) Specification 8802, Paragraph 2.62 states:

"During welding operations, the inside of the tubing shall be kept purged with regulated, clean, dry argon."

B) H. P. Foley Q.C. Procedure #QCPM-1, Installation of S.S. Tubing and fittings Paragraph 4.3.4.4 states:

"The inside of the tubing and fitting shall be purged with regulated, dry argon, during weld."

C) H. P. Foley Weld Procedure Specifications (WPS) M-01 & M-10, S.S. V Groove & Socket Weld both require 15-20 CFH argon purge.

D) ASME Section IX, Welding and Brazing Qualifications.

1) Article IV, Welding Data, WQ-400 variables, Paragraph QW-408.8 -

The ommission of inert gas backing is permissible and WPS requalification is not required when the procedure is used only for a single-welded butt joint with a backing strip or a double- welded butt joint or a fillet weld.

Obviously the socket weld tube fittings in the RVLIS are fillet welds.

Based on the above:

While the 8802 Specification and H. P. Foley procedures require an argon purge, ASME Section IX identified the purge or inert gas backing as a non-essential variable for fillet welds.

Due to the configuration of the socket weld fitting there is no molten metal puddle on the underside of the weld during the weld process as with a groove or butt weld. Gas backing is only necessary to preclude "sugaring" that occurs when molten metal can come in contact with an oxygen atmosphere.

It has been recognized that the closure weld on capillary systems cannot be purged as far as being able to establish an argon flow rate. However, the tubing sysgtem is "packed" with argon prior to making the closure weld.

H. P. Foley Q.C. has not identified any procedure violations on the RVLIS concerning lack of purge, however, they have initiated NCR #8802-1016 on Lack of Purge on Unit 1 LT-460.

A specification change notice will change 8802, Section 4, Paragraph 2.62 to allow purge or lack of purge to be at the direction of the Constructor.

CONCERN #3

A) Unable to locate any cases where a 50% wall thickness reduction was observed in RVLIS tubing bends.

B) Re. attached letters, Mechanical and Nuclear Engineering has addressed the subject of short radius bends in instrument tubing at Diablo Canyon.

Attachment "A", Table 2 shows calculation for 316 S.S. tubing ASTM A-269. The tubing used in the RVLIS is 304L ASME SA 213, 3/16" O.D. (+.004" - 000") x .049 (+20% - 0) wall.

Engineering Department has accepted Table 2 for tubing applications with design conditions more severe than RVLIS.

C) The second consideration, beside wall thinning, in bending small diameter tubing is possible closing of the tube inside diameter. The RVLIS tubing is a closed capillary system which had been filled, tested and calibrated verifying that all tubing is open and not blocking flow.

MEMORANDUM

TO: T. CRAWFORD / [illegible]
LOCATION: 45 / 9 / D
025214
026173

FROM: M. R. TRESLER
DATE: 7/7/83

JOB NO.: 15 32D

SUBJECT: INSTRUMENT TUBING WITH 2½ D-RADIUS BENDS
FILE:
(5)

TO VERIFY THE INSTR. TUBING WITH 2½ D-RADIUS TUBING BENDS AT DIABLO CANYON, WE NEED YOUR INPUT:

- ARE THERE ANY 2½ D-RADIUS BENDS (S.S. TYPE 316) e.g. AT MOSS LANDING OR ANY OTHER OPERATING PG & E PLANT IN THE HIGH PRESSURE/TEMPERATURE STEAM AND FEEDWATER SYSTEM.

- IF YES, DID PG & E EXPERIENCE ANY DIFFICULTIES, OR ARE BENDS OPERATING SATISFACTORILY?

MAY WE HAVE YOUR RESPONSE BY 7/13/83. YOUR COOPERATION WILL BE APPRECIATED. This information is req'd for qualification of 2½D bends used in DC HR.

MRT/KFB/[illegible]
RESPONSE REQUIRED: YES
DATE DUE: 7/13/83

M R Tresler

CC: M.R. TRESLER
J. ANTE
C. NICHOLS
K. BACHNIK

MEMORANDUM 026173

TO: MR TRESLER / K. BAZANIK LOCATION 45/B/

FROM: TN CRAWFORD / FJ CUCCA DATE JULY 16 19 83

JOB NO. 15320 (4)

SUBJECT SHORT RADIUS BENDS IN INSTRUMENT TUBING FILE

THIS IS A COMPLETE RESPONSE TO YOUR MEMO OF JULY 7, 1983, CHRON # 025214.

BEND RADII OF 2½ D (AND AS SHORT AS 2D IN ACCORDANCE WITH TYPICAL RECOMMENDATIONS OF TUBE BENDER SUPPLIERS) FOR 316 SS TUBING ARE COMMONLY USED IN OTHER PG&E OPERATING PLANTS INCLUDING THOSE AT PITTSBURG & CONTRA COSTA. THE TUBING USED AT THESE FOSSIL FUEL PLANTS IS EXPOSED TO PRESSURES AS HIGH AS 3600 PSI. AS TUBING IS PRIMARILY USED FOR INSTRUMENT SENSING LINES IT IS NOT USUALLY EXPOSED TO HIGH TEMPERATURES.

FAILURES IN THE HIGH PRESSURE TUBING APPLICATIONS USUALLY OCCUR AT THE FITTINGS RATHER THAN AT THE TUBE BENDS ALTHOUGH THERE HAVE BEEN SOME FAILURES JUST DOWNSTREAM OF THE BENDS.

BENDING THE TUBING IMPOSES A TENSILE STRESS ON THE OUTSIDE PART OF THE BEND CAUSING IT TO BE STRAIN HARDENED. THIS IN COMBINATION WITH THE LARGE MARGIN OF SAFETY BETWEEN ALLOWABLE AND YIELD STRESSES IN PIPE/TUBING DESIGN PROBABLY ACCOUNTS FOR THE LOW FAILURE RATE.

IT IS ALSO NOTABLE THAT THE NOMINAL WALL THICKNESS FOR TUBING USED AT PG&E PLANTS OTHER THAN DCPP IS .049" FOR 3/8" & 1/2" O.D. TUBING WHEREAS AT DIABLO CANYON IT IS .065" FOR 3/8" & 1/2" OD TUBING.

T.N. Crawford

FJC/

NO RESPONSE REQ'D

ATTACHMENT 'A'

Table 1

Tube Dia. (in.)	Req'd t min (in.)	Actual Thickness (in.)	Excess (in.)	Min. Thickn. Recommended Prior to Bending (1.06 tm)	Required Allowance For Thinning (in.)	Wall Thickn. Tolerance Per ASTM 269 (in.)	Effective Wall Thickness After Bending (in.)
3/16	0.021	0.049	0.028	0.022	0.001	±0.003	0.045
1/8	0.014	0.035	0.021	0.015	0.001	±0.002	0.032
1/4	0.027	0.065	0.038	0.029	0.002	±0.004	0.059
3/8	0.041	0.065	0.024	0.043	0.002	±0.006	0.058
1/2	0.055	0.065	0.010	0.058	0.003	±0.006	0.056
3/4	0.082	0.095	0.013	0.087	0.005	±0.008	0.082
1"	0.11	0.095	0	0.117	0.007	±0.011	0.078

Table 2

Tube Dia. (in.)	Req'd t min (in.)	Actual Thickness (in.)	Excess (in.)	Min. Thickn. Recommended Prior to Bending (1.06 tm)	Required Allowance For Thinning (in.)	Wall Thickn. Tolerance Per ASTM 269 (in.)	Effective Wall Thickness After Bending (in.)
3/16	0.013	0.049	0.036	0.016	0.003	±0.002	0.044
1/8	0.008	0.035	0.027	0.010	0.002	±0.001	0.030
1/4	0.018	0.065	0.047	0.023	0.005	±0.003	0.057
3/8	0.026	0.065	0.039	0.033	0.007	±0.004	0.054
1/2	0.035	0.065	0.030	0.044	0.009	±0.004	0.052
3/4	0.053	0.095	0.042	0.066	0.013	±0.005	0.077
1"	0.071	0.095	0.024	0.089	0.018	±0.007	0.070

Table 1 is for 4500 psig @ 200°F and a bend radius of 6D. Conditions of the compressed breathing air system.

Table 2 is for pipe spec. design conditions (2500 psig @ 650°F) and a bend radius of 3D.

029075

INTEROFFICE MEMORANDUM

Diablo Canyon Project

(2)

PACIFIC GAS AND ELECTRIC COMPANY
BECHTEL POWER CORPORATION

–

To File

From M. R. Tresler

Of M&NE Piping

At 45/8/D37 Extension 8-3944

Date August 16, 1983

File No. 146.10

Subject Instrument Tubing With Less Than 3 D Bends

Mr. T.W. Crawford's response (Chron #D26173) to my IOM of 7/7/83 (Chron #26614), indicates that tubing bends with radii of 2D and 2-1/2D are being used succesfully at similar operating conditions at other PG&E plants.

No failures at the tube bends caused by excessive hardness resulting from the cold bending process have been recorded. Failures have only occurred at fittings and just downstream of the bends, and are attributed to corrosion.

Based on the above and the information shown in Tables 1 and 2 (Attachment 'A'), the actual wall thickness is in excess of the minimum required wall thickness, except for 1" dia. Table 1. According to I&C,1" dia. tubing is not being used at the compressed breathing air system, only 3/8" and 1/2".

It, therefore, can be concluded that the instrument tubing is acceptable for the service intended.

M R Tresler

M. R. Tresler

Response Required: No
MRT/KFBachnik/jic
Attachment: Attachment 'A'

cc: T.W. Crawford w/a
J. Ante w/a
D. Tateosian w/a
C. Nickols w/a
D. Crosby w/a

Memo for: T. B. Hock 1/14/84 139

Subject: RVLIS System; Instrument Line Socket Welding and Bending.

Concerns have been expressed, related to the RVLIS system, as follows:

1. The performance qualification of GTAW socket fillet welders may have been insufficient to demonstrate their skill and ability to make sound welds. While the qualification of welders with groove weld test assemblies qualifies welders to all fillets, on all sizes, which includes socket welds on instrumentation tubing, the NRC considers that the intent of Section IX is that the ability of a welder to make sound welds in the intended application should be demonstrated. It has been alleged that the failure to provide for the intent of Section IX has resulted in a significant number of RVLIS tubing welds with melt through or near melt through conditions.

2. Allegedly, Foley did not use purge gas while making the stainless steel RVLIS tubing welds, resulting in "sugaring" of the socket fillet welds. This concern was accompanied with the 20 statements that (1) gas purge was not a QC checkoff item for socket fillets on this tubing, & (2) Foley had no oxygen analysis equipment. Thus, there was no way to verify that purge was implemented in compliance with PG&E specification 8802, paragraph 2.62.

3. The Foley QC program was, allegedly, not adequate to control the bending of the stainless steel RVLIS tubing, as evidenced by cases being identified wherein up to 50% wall thickness reduction was observed in the bend areas.

Accordingly, TU&E is requested to address the above concerns with particular attention given to the following:

1. The question of removal of the gas purge (ref. QW.408.5) should be evaluated for technical significance and compliance with Specification 8802, paragraph 2.6.2.

2. An engineering evaluation, of the adequacy of performance of the subject tubing with unknown weld quality, is requested.

In order to support the NRC effort to resolve this issue, the response is requested to be provided by January 18, 1984, in writing.

V/R

B.F. Kirk

21

RESPONSE TO NRC CONCERNS ON
RVLIS TUBING DATED 1-14-84

CONCERN #1

A) ASME Section IX, Part QW Welding, Article I, Welding General Requirements, Paragraph QA-100.1

"The purpose of the WPS and PQR, is to determine that the weldment proposed for construction is capable of providing the required properties for its intended application. It is presupposed that the welder, or welding operator, performing the welding procedure qualification test is a skilled workman."

B) Paragraph QW-100.2

"In performance qualification, the basic criterion established for welder qualification is to determine the welder's ability to deposit sound metal. The purpose of the Performance Qualification Test for the welding operator is to determine the operator's mechanical ability to operate the welding equipment."

The Code (ASME Section IX) does not require the welder to qualify on the specific intended application and does allow welders who test on groove welds to also be qualified to make fillet welds of any size on base metals in all thicknesses and pipe diameters, within the limits of the welding variables in QW-350

C) The RVLIS is a closed capillary system constructed of 3/16" O.D. X 0.049" wall armored S.S. tubing. The completed system was hydrostatically tested to 2400 PSIG for 1 hour prior to evacuation and filling with demineralized water.

Thousands of small diameter tube to socket weld fittings have been installed in the plant and hydro tested to 3200 PSIG without failure. The welders who made those welds were qualified to the same groove weld procedure as those who made the RVLIS welds.

CONCERN #2

A) Specification 8802, Paragraph 2.62 states:

"During welding operations, the inside of the tubing shall be kept purged with regulated, clean, dry argon."

B) H. P. Foley Q.C. Procedure #QCPM-1, Installation of S.S. Tubing and fittings Paragraph 4.3.4.4 states:

"The inside of the tubing and fitting shall be purged with regulated, dry argon, during weld."

C) H. P. Foley Weld Procedure Specifications (WPS) M-01 & M-10, S.S. V Groove & Socket Weld both require 15-20 CFH argon purge.

D) ASME Section IX, Welding and Brazing Qualifications.

1) Article IV, Welding Data, WQ-400 variables, Paragraph QW-408.8 -

The ommission of inert gas backing is permissible and WPS requalification is not required when the procedure is used only for a single-welded butt joint with a backing strip or a double- welded butt joint or a fillet weld.

Obviously the socket weld tube fittings in the RVLIS are fillet welds.

Based on the above:

While the 8802 Specification and H. P. Foley procedures require an argon purge, ASME Section IX identified the purge or inert gas backing as a non-essential variable for fillet welds.

Due to the configuration of the socket weld fitting there is no molten metal puddle on the underside of the weld during the weld process as with a groove or butt weld. Gas backing is only necessary to preclude "sugaring" that occurs when molten metal can come in contact with an oxygen atmosphere.

It has been recognized that the closure weld on capillary systems cannot be purged as far as being able to establish an argon flow rate. However, the tubing sysgtem is "packed" with argon prior to making the closure weld.

H. P. Foley Q.C. has not identified any procedure violations on the RVLIS concerning lack of purge, however, they have initiated NCR #8802-1016 on Lack of Purge on Unit 1 LT-460.

A specification change notice will change 8802, Section 4, Paragraph 2.62 to allow purge or lack of purge to be at the direction of the Constructor.

CONCERN #3

A) Unable to locate any cases where a 50% wall thickness reduction was observed in RVLIS tubing bends.

B) Re. attached letters, Mechanical and Nuclear Engineering has addressed the subject of short radius bends in instrument tubing at Diablo Canyon.

Attachment "A", Table 2 shows calculation for 316 S.S. tubing ASTM A-269. The tubing used in the RVLIS is 304L ASME SA 213, 3/16" O.D. (+.004" - 000") x .049 (+20% - 0) wall.

Engineering Department has accepted Table 2 for tubing applications with design conditions more severe than RVLIS.

C) The second consideration, beside wall thinning, in bending small diameter tubing is possible closing of the tube inside diameter. The RVLIS tubing is a closed capillary system which had been filled, tested and calibrated verifying that all tubing is open and not blocking flow.

MEMORANDUM

TO: T. CRAWFORD / JOE CUCCIA — LOCATION: 45/9/D — 025214

FROM: M.R. TRESLER — DATE: 7/7/83 — 026173

JOB NO: 15 32D

SUBJECT: INSTRUMENT TUBING WITH 2½ D-RADIUS BENDS — FILE: (5)

TO VERIFY THE INSTR. TUBING WITH 2½ D-RADIUS TUBING BENDS AT DIABLO CANYON, WE NEED YOUR INPUT:

- ARE THERE ANY 2½ D-RADIUS BENDS (S.S. TYPE 316) e.g. AT MOSS LANDING OR ANY OTHER OPERATING PG & E PLANT IN THE HIGH PRESSURE/TEMPERATURE STEAM AND FEEDWATER SYSTEM.

- IF YES, DID PG & E EXPERIENCE ANY DIFFICULTIES, OR ARE BENDS OPERATING SATISFACTORILY?

MAY WE HAVE YOUR RESPONSE BY 7/13/83. YOUR COOPERATION WILL BE APPRECIATED. This information is req'd for qualification of 2½D bends used in DC 1&2.

MRT/KFB/[signature]

RESPONSE REQUIRED: YES

DATE DUE: 7/13/83

M R Tresler

CC: M.R. TRESLER
~~J. ANTE~~
C. NICHOLS
K. BACHNIK

MEMORANDUM 026173

TO: MR TRESLER / K. BAZANIK LOCATION: 45/B/

FROM: TN CRAWFORD / FJ CUCCA DATE: JULY 16 1983

JOB NO. 15320 (4)

SUBJECT: SHORT RADIUS BENDS IN INSTRUMENT TUBING FILE

THIS IS A COMPLETE RESPONSE TO YOUR MEMO OF JULY 7, 1983, CHRON # 025214.

BEND RADII OF 2½ D (AND AS SHORT AS 2D IN ACCORDANCE WITH TYPICAL RECOMMENDATIONS OF TUBE BENDER SUPPLIERS) FOR 316 SS TUBING ARE COMMONLY USED IN OTHER PG&E OPERATING PLANTS INCLUDING THOSE AT PITTSBURG & CONTRA COSTA. THE TUBING USED AT THESE FOSSIL FUEL PLANTS IS EXPOSED TO PRESSURES AS HIGH AS 3600 PSI. AS TUBING IS PRIMARILY USED FOR INSTRUMENT SENSING LINES IT IS NOT USUALLY EXPOSED TO HIGH TEMPERATURES.

FAILURES IN THE HIGH PRESSURE TUBING APPLICATIONS USUALLY OCCUR AT THE FITTINGS RATHER THAN AT THE TUBE BENDS ALTHOUGH THERE HAVE BEEN SOME FAILURES JUST DOWNSTREAM OF THE BENDS.

BENDING THE TUBING IMPOSES A TENSILE STRESS ON THE OUTSIDE THE OF THE BEND CAUSING IT TO BE STRAIN HARDENED. THIS IN CONJUNCTION WITH THE LARGE MARGIN OF SAFETY BETWEEN ALLOWABLE AND YIELD STRESSES IN PIPE/TUBING DESIGN PROBABLY ACCOUNTS FOR THE LOW FAILURE RATE.

IT IS ALSO NOTABLE THAT THE NOMINAL WALL THICKNESS FOR TUBING USED AT PG&E PLANTS OTHER THAN DCPP IS .049" FOR 3/8" & 1/2" OD TUBING WHEREAS AT DIABLO CANYON IT IS .065" FOR 3/8" & 1/2" OD TUBING.

FJC/
NO RESPONSE REQ'D

T.N. Crawford 26

29075

(3)

ATTACHMENT 'A'

Table 1

Tube Dia. (in.)	Req'd t min (in.)	Actual Thickness (in.)	Excess (in.)	Min. Thickn. Recommended Prior to Bending (1.06 tm)	Required Allowance For Thinning (in.)	Wall Thickn. Tolerance Per ASTM 269 (in.)	Effective Wall Thickness After Bending (in.)
3/16	0.021	0.049	0.028	0.022	0.001	±0.003	0.045
1/8	0.014	0.035	0.021	0.015	0.001	±0.002	0.032
1/4	0.027	0.065	0.038	0.029	0.002	±0.004	0.059
3/8	0.041	0.065	0.024	0.043	0.002	±0.006	0.058
1/2	0.055	0.065	0.010	0.058	0.003	±0.006	0.056
3/4	0.082	0.095	0.013	0.087	0.005	±0.008	0.082
1"	0.11	0.095	0	0.117	0.007	±0.011	0.078

Table 2

Tube Dia. (in.)	Req'd t min (in.)	Actual Thickness (in.)	Excess (in.)	Min. Thickn. Recommended Prior to Bending (1.06 tm)	Required Allowance For Thinning (in.)	Wall Thickn. Tolerance Per ASTM 269 (in.)	Effective Wall Thickness After Bending (in.)
3/16	0.013	0.049	0.036	0.016	0.003	±0.002	0.044
1/8	0.008	0.035	0.027	0.010	0.002	±0.001	0.030
1/4	0.018	0.065	0.047	0.023	0.005	±0.003	0.057
3/8	0.026	0.065	0.039	0.033	0.007	±0.004	0.054
1/2	0.035	0.065	0.030	0.044	0.009	±0.004	0.052
3/4	0.053	0.095	0.042	0.066	0.013	±0.005	0.077
1"	0.071	0.095	0.024	0.089	0.018	±0.007	0.070

Table 1 is for 4500 psig @ 200°F and a bend radius of 6D. Conditions of the compressed breathing air system.

Table 2 is for pipe spec. design conditions (2500 psig @ 650°F) and a bend radius of 3D.

029075

(2)

INTEROFFICE MEMORANDUM

Diablo Canyon Project

PACIFIC GAS AND ELECTRIC COMPANY
BECHTEL POWER CORPORATION

To File

From M. R. Tresler

Of M&NE Piping

At 45/B/D37 Extension 8-3944

Date August 16, 1983

File No. 146.10

Subject Instrument Tubing With Less Than 3 D Bends

Mr. T.W. Crawford's response (Chron #026173) to my IOM of 7/7/83 (Chron #26614), indicates that tubing bends with radii of 2D and 2-1/2D are being used succesfully at similar operating conditions at other PG&E plants.

No failures at the tube bends caused by excessive hardness resulting from the cold bending process have been recorded. Failures have only occurred at fittings and just downstream of the bends, and are attributed to corrosion.

Based on the above and the information shown in Tables 1 and 2 (Attachment 'A'), the actual wall thickness is in excess of the minimum required wall thickness, except for 1" dia. Table 1. According to I&C,1" dia. tubing is not being used at the compressed breathing air system, only 3/8" and 1/2".

It, therefore, can be concluded that the instrument tubing is acceptable for the service intended.

M R Tresler

M. R. Tresler

Response Required: No
MRT/KFBachnik/jic
Attachment: Attachment 'A'

cc: T.W. Crawford w/a
J. Ante w/a
D. Tateosian w/a
C. Nickols w/a
D. Crosby w/a

ATTACHMENT E

Concern #143

Task: Allegation or Concern No. 143

ATS No.: RV-84-A-0015 BN No.:

Characterization

Foley did not torque beam clips at installation.

Assessment of Safety Significance

Lawarence Livermore National Laboratory inspectors, under contract to the NRC, have examined the tightness of beam clips bolts and have found no evidence that these have not been torqued. The staff considers that exhaustive examination of this allegation would not result in any new significant management or quality performance issues.

Action Required

This item will be turned over to PG&E for evaluation and response. The licensee will be required to provide the results of their evaluations, and any necessary corrective actions, to the staff in writing.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

CONFIDENTIAL SOURCE: 143
YES [X]
NO [ ]

SUMMARY OF SPECIAL INSP -RELATED INFORMATION

DIABLO CANYON

COPY

:	DATE 1/17/84	TIME INITIATED 6:00 p	TIME COMPLETED 6:30 p
MEETING INTERVIEW TELEPHONE CALL -COLLECT ( )YES ( )NO OTHER	PARTICIPANTS NRC: OTHER: NAME #454	ORGANIZATION	YES. ON SITE
	LOCATION CALLED NO.	CALLING NO.	

ARY:

UDARD QUESTION: ARE YOU, OR ARE YOU AWARE OF, IMPROPER MANAGEMENT PRESSURES TO "CUT CORNERS" (i.e. sacrifice safety to meet schedules, etc)?:

No intimidation. No management pressures to cut corners. Did feel pushed to keep up with production which required some QC inspectors to work long hours; however, he did not feel any of his work had been compromised.

He is concerned with design control; i.e. standard supports being modified by several work requests. He is concerned with the use of beam clamps on S221 supports (Some require welding others are not). Concerned with the quality of existing work. He believes the "Red Head" anchors should be torqued. Doesn't feel that engineering is responsive to QC concerns. Had a concern with using Bechtel field as-builts to resolve Foley SIWS discrepancies. Concerned with use of hex head bolts in cable trays. Also concerned with lack of criteria for edge distance on unistrut clamps (clamp could be at end of the strut)

TTEN BY

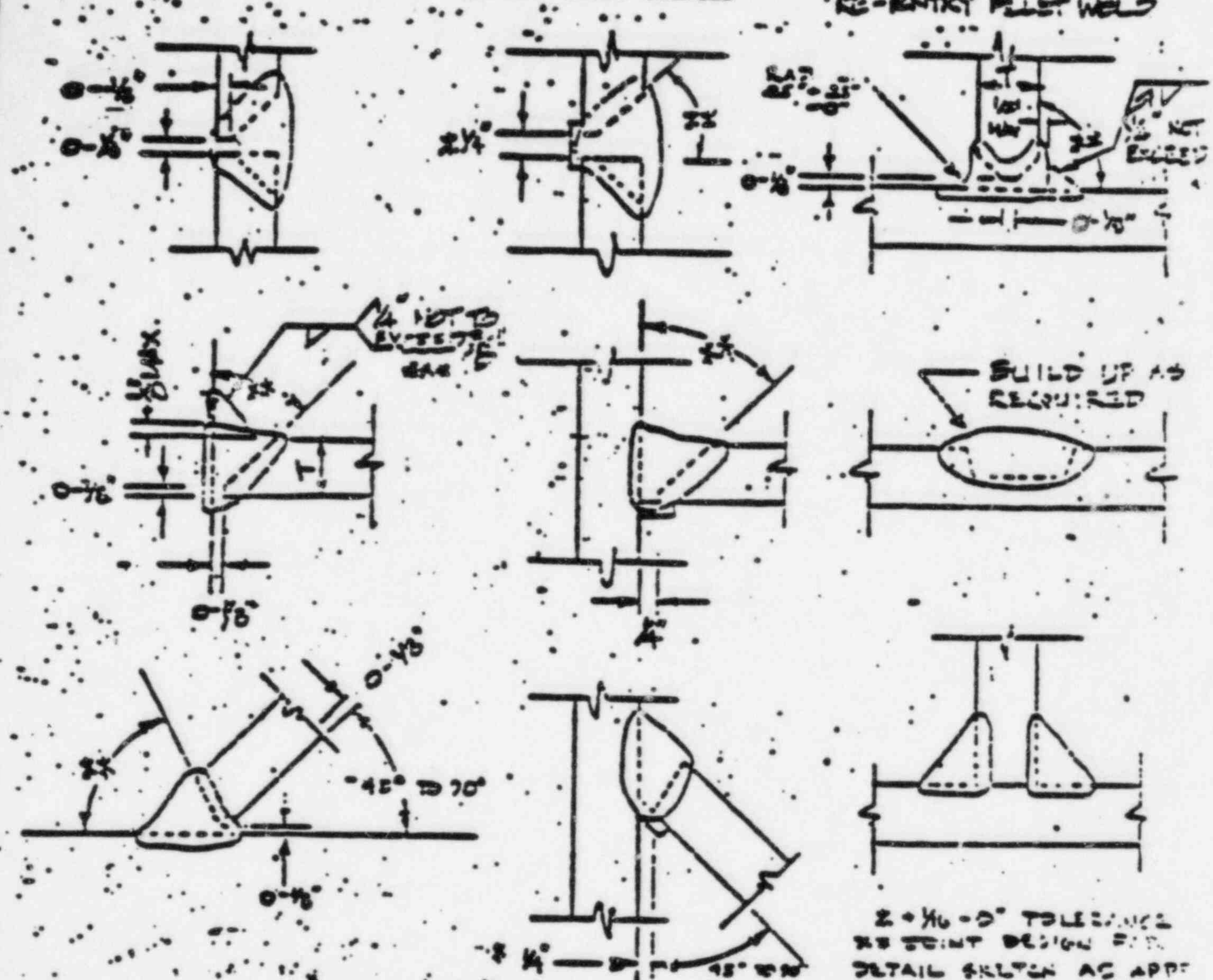
DATE 1/18/84

PAGE 1 OF 1

REGION V FORM: 113

2

TYPICAL JOINT DETAILS



Z + 1/16 - 0" TOLERANCE
AS JOINT DESIGN PER
DETAIL SKETCH AS APPR
BY CUSTOMER
— 1/16" FOR 10% OF LENGTH

WELDING PARAMETERS

WELD LAYER OR PASS	PROCESS	FILLER METAL CLASS.	FILLER METAL DIA.	CURRENT TYPE POLA.	CURRENT AMP. RANGE	VOLT RANGE*	TRAVEL SPEED RANGE**
All	SMAW	E7018	3/32	DCRP	65-120	27	2
			1/8		100-165	31	2
			5/32		140-220	34	3
			3/16		180-275	36	3

** Minimum
* Maximum

APPROVALS:

Prepared by: W. Casey 12-20-79 Cognizant Welding Engineer

Approved by: [signature] 12/20/79 Q. A. Manager

Approved by: Ran [signature] DEL 12/21/79 P.G.& E. Representative

3

ATTACHMENT F

Concern #149

Task: Allegation or Concern No. 149

ATS No.: RV 84A016 **BN No.:**

Characterization

Foley did not submit HVAC as-built information during 1981/82; as-built may not be checked against design.

Implied Significance to Plant Design, Construction, or Operation:

If true this concern may result in instances where the HVAC system or supports may not perform as intended by the designer.

Assessment of Safety Significance

The staff requested that the licensee conduct an evaluation of this concern. The licensee found that the installed condition of the duct work conformed to design. This was further reinforced based upon satisfactory completion of flow balance and pressure differential testing. The licensee stated that the as-built conditions of support structures was in the process of evaluation. Therefore, the staff feels that further evaluation of this concern would not likely result in any new management or quality performance issues.

Action Required

This item will be turned over to PG&E for evaluation and response. The licensee will be required to provide the results of their evaluation, and any necesssary corrective actions, to the staff in writing.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

CONFIDENTIAL SOURCE:
YES ☑
NO ☐

SUMMARY OF SPECIAL INSP. -RELATED INFORMATION

D CANYON

	DATE	TIME INITIATED	TIME COMPLETED
Diablo Canyon Concerns	11/3/84	1:30p	4:45p

PARTICIPANTS NRC:
OTHER: NAME

NAME	ORGANIZATION	YRS. ON SITE
[illegible]	Foley	4 [illegible]

ETING
TERVIEW ✓
LEPHONE CALL
OLLECT ( )YES ( )NO
HER

LOCATION Diablo Canyon site
CALLED NO.
CALLING NO.

RY:
Question: ARE YOU, OR ARE YOU AWARE OF, IMPROPER MANAGEMENT PRESSURES
AND QUESTION: TO "CUT CORNERS" (i.e. sacrifice safety to meet schedules, etc)?:

Reply: Yes. has limited the identification of concerns.
According to him if the hardware has been adversely affected, there is no nonconformance. Also, no NCRs are to be written on work not required to be inspected. Concerns are identified on inspection reports (IRs) that should be NCRs but they never got there.
- Requirements have been circumvented by purchasing to contract 8833XR and installing to 5422. Items have been installed to contract 5422 that should come under specification 8833XR.

There are design control problems — There is no evidence of proper interface controls between electrical and mechanical groups. Mechanical will design instruments one way but electrical will have requirements that conflict.

A lot of verbal instruction has been used to accomplish work that should have been handled by DCNs.

Sometimes the accepted "as built" condition is not the true as

OVER

EN

DATE 11/5/84

PAGE OF

2

REGION V FORM: 113

Interview 1/18/84 9:00am to 10:50 a.m.

<u>Design Control Issue</u> is Addressing the DCN Issue)

H.P. Foley completes discrete work activities (i.e. DCN) by PG&E issuing a work request. Foley completes this work & closes the work request. Subsequently, PG&E issues a DCN revision and re-open the previous work request, which had already been closed. Foley tracks work by work request and not the DCN; PG&E is responsible for verifying that the DCN is complete and Foley completes the work statement of the work request. Example was shown where one work request accomplished FT installations & later a 2nd W.R. was issued to accomplish the same thing. PG&E mgmt doesn't appear to be in control of the situation.

<u>As-built Issue</u>:

(1) During 81/82 time frame HVAC support as-built's were not returned to PG&E for verification of design adequacy. H.P.F. doesn't have as-built procedures for controlling as-built documentation and generation, as required by Foley QA manual.

(2) Specifics may be provided

(3) PG&E has been provided HVAC support as-builts for about the last 4 months (late 83).

→ (4) ∴ PG&E has not been verifying the as-built condition to compliance with the design calculations. ∴ PG&E can not in 3

ATTACHMENT G

Concern #150

Task: Allegation or Concern No. 150

ATS No.: RV 84A016 BN No.:

Characterization

Foley production may have falsified structural steel and tubing heat number records. (No specific examples were provided)

Implied Significance to Plant Design, Construction, or Operation

The staff's face value assessment is that this concern involves only minimal safety significance.

Assessment of Safety Significance

The alleger indicated that he knew of no specific examples of such falsification but stated that Foley production was in the process of assuring that quality documentation was in order. The alleger was told that one item being resolved by Foley production was in the area of steel and tubing traceability to material certifications and that in this process several instances required that a QC inspector inspect material in the field to verify that a material heat number was stenciled onto the installed piece. The alleger had heard that, if the material was not so stenciled, production would research the records and select a traceability number based upon material type, shape and time of issue. Thus, the alleger concluded that there was a possibility that traceability documentation of installed materials could be falsified.

The staff considers that, even if true, this concern involves only minimum safety significance because Foley structure steel was purchased as an off-the-shelf, commercial grade material which was supplied with, and receipt inspected for evidence of proper material physical and chemical properties. Stainless steel tubing is mainly 3/8 inch material which is similarly receipt inspected and supplied with evidence of conformance with specified chemical and physical properties and hydrostatically tested following installation.

Thus, the staff considers that exhaustive evaluation of this concern would not likely result in any new significant management or quality performance issues.

Action Required

This item will be turned over to PG&E for evaluation and response. The licensee will be required to provide the results of their evaluation, and any necessary corrective actions, to the staff in writing.

2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

CONFIDENTIAL SOURCE:
YES ☑
NO ☐

SUMMARY OF SPECIAL INSP. -RELATED INFORMATION

O CANYON

Diablo Canyon Concerns	DATE 1/13/84	TIME INITIATED 1:30p	TIME COMPLETED 4:45p

ETING
TERVIEW ✓
LEPHONE CALL
OLLECT ( )YES ( )NO
HER

PARTICIPANTS NRC:
OTHER: NAME

NAME	ORGANIZATION	YRS. ON SITE
	Foley	4 mo.

LOCATION Diablo Canyon site
CALLED NO.
CALLING NO.

Y:
Question: ARE YOU, OR ARE YOU AWARE OF, IMPROPER MANAGEMENT PRESSURES TO "CUT CORNERS" (i.e. sacrifice safety to meet schedules, etc)?:

Reply: Yes. has limited the identification of concerns. According to him if the hardware has been adversely affected, there is no nonconformance. Also no NCRs are to be written on work not required to be inspected. Concerns are identified on inspection reports (IRs) that should be NCRs but they never got there.

-Requirements have been circumvented by purchasing to contract 8833XR and installing to 5422. Items have been installed to contract 5422 that should come under specification 8833XR.

There are design control problems - There is no evidence of proper interface controls between electrical and mechanical groups. Mechanical will design instruments one way but electrical will have requirements that conflict.

A lot of verbal instruction has been used to accomplish work that should have been handled by DCNs.

Sometimes the accepted "as built" condition is not the true as

OVER

EN

DATE 1/16/84 | PAGE OF

3

REGION V FORM: 113

HEAT LOG PROBLEM

① Several IRS/NCRS Document material/Heat Log problems.

② There is no QC present when material (Steel, SS Tubing) is cut and the Heat Number is transferred to the remaining piece.

③ His concern is that Heat No's have been applied to material in the field based on the Production copy of the Heat Log, which references heat NO. to material shape and size. (Has DETAILS)

④ Feels that crafts have a procedure requiring Heat No. Transfer but doesn't know if one is established.

⑤ Reference Recent PG&E audit on HVAC system which identifies the problem.

* ⑥ He Feels that Production has engaged in falsification of heat records; in the field by stamping heat No's on steel after installation, and then Logging these Heat No's onto documentation completing the falsification. Questions to be answered ~~are~~ is: Are these practices required by Codes & STD's or is this something which the Licensee newly committed to?

4

ATTACHMENT H

Concern #155

Task: Allegation or Concern No. 155

ATS No.: RV 84A018 **BN No.:**

Characterization

Welding on embed plates causes distortion, may damage plate or anchors.

Implied Significance to Plant Design, Construction, or Operation

Embed can sustain sufficient damage so that the anchoring capacity of the studs will be less than designed.

Staff Position

This allegation is an issue which appears to be a restatement of concerns identified in the past. The issue of concern here does not appear to represent a new significant management or technical situation which has not been previously addressed. Similar issues were discussed in the time frame of March 1979 when IE Bulletin 79-02 was issued.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to thier findings and corrective actions.

ANDV. SOURCE (155)

FOLEY
ELECTRICAL CONTRACTORS

Received 1-16-8'
"thrown" into hands
onsite by someone w/o explanation

April 5, 1983

To:

Re: NCR's 5422-95, 96 & 97 (Attached)

The Disposition of above stated Non-Conformance Reports is somewhat questionable..

First of all, I don't feel that a repair in accordance with QCP-11 is adequate, unless the structural integrity of the embed plate has been verified prior to patching the concrete, as the patching is mainly a cosmetic repair. There is the possibility that as the embed plate warps that the nelson studs can be pulled off of the embed, i.e. the weld that attached the nelson stud to the embed plate breaks, it is also possible that the concrete behind the embed can sustain sufficient damage from excessive heat input that the anchoring capacity of the nelson studs will be considerably less than the intended design values.

Second, I do not believe that the disposition of these NCR's should instruct Quality Control inspectors not to generate further NCR's on this condition, this matter should be between the inspector and his/her supervisor. It should also be noted that these cases apply to a Class I structure and that this structure (Platform 68G) surrounds safety related equipment, i.e. Reactor coolant pump.

Third, The disposition states that this condition is "inevitable" when welding along the edges of embed plates, this is not the case through past experience on the same problem, it has been found the close adherance of a lowered interpass temperature (200° F. Max.) virtually eliminates the problem and concrete damage is kept to a minimum. It is also desireable to keep the weldment at least 1" from the edge of an embed plate to reduce distortion of the plate along the edges.

THE
HOWARD P. FOLEY
COMPANY
P. O. BOX 327,
AVILA BEACH, CALIF.
93424
805-595-7377

I discussed this matter with and on 4-4-83, stated: "That's the way it's been done for 10 years" and that he saw no reason to change now. said he would like to re-disposition the NCR's since he had a non-class I work request to repair with.

I did not feel that either or response was adequate.

Sincerely,

Foley
ELECTRICAL CONTRACTING

THE
HOWARD P. FOLEY
COMPANY

NONCONFORMANCE REPORT

Page 1 of 1

5422-95

[DESC]RIPTION: C-6181, CONN. 319, PLATFORM 68 G, EXISTING EMBEDDED PLATE

YES ☐ NO ☐ ATTACHMENTS

Date: 3/22/83

HOLD TAG # 5422-95

☐ REMOVED

BY ______ DATE ______

REF. HPF/IR NUMBER N/A

UNIT I ☒ UNIT II ☐ / LOCATION CONTAINMENT EL. 110' CLASS I ☒ NON-CLASS I ☐

INSPECTION CRITERIA: DRAWING ☐ SPECIFICATION ☐ PROCEDURE ☒

DOCUMENT TITLE AND NUMBER: QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

THE EXISTING EMBEDDED PLATE DISTORTED DUE TO WELD # 319 C. THIS CAUSED THE CONCRETE IN THIS AREA TO CRACK AND SEPARATE APPROX. 1/8".

[signature]	3-22-83	[signature]	3-22-83	Glenn Beaux	3-22-83
INITIATED BY	DATE	QUALITY MANAGER	DATE	PROJECT MANAGER	DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

Construction to repair cracked concrete as required in this area per QCP-11. In the future, Quality Control Inspectors to document this condition on an Inspection Report, as it is inevitable that this condition will occur on occasions when welding along edges of embedded plates.

[signature]	3-24-83	[signature]	3-29-83
DISPOSITION BY	DATE	PROJECT MANAGER	DATE
[signature]	3-24-83	[signature]	3-28-83
QUALITY MANAGER	DATE	PACIFIC GAS AND ELECTRIC CO.	DATE

DB

DISPOSITION ACCOMPLISHED

INFORMATION ONLY

VERIFIED BY	DATE	SUPERINTENDENT	DATE	QUALITY MANAGER	DATE

THE HOWARD P. FOLEY CO. ACCEPTANCE

PROJECT MANAGER ______ DATE ______

PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE

SIGNATURE ______ DATE ______

HPF/NCR 5-14-82

NONCONFORMANCE REPORT

Page 1 of 1

Number: 5422-96

[DESCR]IPTION: CG181, CONN 325
[PL]ATFORM 686, EXISTING EMBEDDED PLATE

YES ☐ NO ☒
ATTACHMENTS

Date: 3/22/83

HOLD TAG #
☐ REMOVED
BY ______ DATE ______

[RE]F. HPF/IR NUMBER N/A

UNIT I ☒ UNIT II ☐ / [LOC]ATION CONTAINMENT EL. 110' CLASS I ☒ NON-CLASS I ☐

INSPECTION CRITERIA: DRAWING ☐ SPECIFICATION ☐ PROCEDURE ☒

DOCUMENT TITLE AND NUMBER: QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

THE EXISTING EMBEDDED PLATE DISTORTED DUE TO WELD # 325 A. THIS CAUSED THE CONCRETE IN THIS AREA TO CRACK.

[signature] 3-22-83	[signature] 3-22-83	[signature] 3-22-83
INITIATED BY / DATE	QUALITY MANAGER / DATE	PROJECT MANAGER / DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:
Construction to repair cracked concrete as required per QCP-11. In the future, Quality Control Inspectors to document this condition on an Inspection Report, as it is inevitable that this condition will occur on occasions when welding along edges of embedded plates.

J. Yeo 3-24-83
DISPOSITION BY DATE

PROJECT MANAGER DATE

QUALITY MANAGER DATE

PACIFIC GAS AND ELECTRIC CO. DATE

DISPOSITION ACCOMPLISHED

INFORMATION ONLY

VERIFIED BY DATE SUPERINTENDENT DATE QUALITY MANAGER DATE

THE HOWARD P. FOLEY CO. ACCEPTANCE

PROJECT MANAGER DATE

PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE

SIGNATURE DATE

HPF/NCR 5-14-82

NONCONFORMANCE REPORT

CAPTION: C-6181, CONN. 341 PLATFORM 68G, EXISTING EMBEDDED PLATE.	Page 1 of 1	54-22-97
	YES ☐ NO ☒ ATTACHMENTS	Date: 3/22/83
REF. HPF/IR NUMBER N/A	HOLD TAG # ☐ REMOVED BY ________ DATE ________	

UNIT I ☒ UNIT II ☐ / LOCATION CONTAINMENT, EL 110 CLASS I ☒ NON-CLASS I ☐

INSPECTION CRITERIA: DRAWING ☐ SPECIFICATION ☐ PROCEDURE ☒

DOCUMENT TITLE AND NUMBER: QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

THE EXISTING EMBEDDED PLATE DISTORTED DUE TO WELD #341 B. THIS CAUSED THE CONCRETE IN THIS AREA TO CRACK AND SEPARATE APPROX. 1/8".

INITIATED BY	DATE	QUALITY MANAGER	DATE	PROJECT MANAGER	DATE
[signature]	3-22-83	[signature]	3-22-83	[signature]	3-22-83

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

Construction to repair cracked concrete as required per QCP-11. In the future, Quality Control Inspectors to document this condition on an Inspection Report, as it is inevitable that this condition will occur on occasions when welding along edges of embedded plates.

DISPOSITION BY	DATE	PROJECT MANAGER	DATE
J. Yeo	3-24-83		
QUALITY MANAGER	DATE	PACIFIC GAS AND ELECTRIC CO.	DATE

DISPOSITION ACCOMPLISHED

INFORMATION ONLY

VERIFIED BY	DATE	SUPERINTENDENT	DATE	QUALITY MANAGER	DATE

THE HOWARD P. FOLEY CO. ACCEPTANCE		PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE	
PROJECT MANAGER	DATE	SIGNATURE	DATE

HPF/NCR 5-14-82

C.
P.F.
P.
M.W.
3-24-83 S.C.

WORK REQUEST

Q.C.

No. C-6388

INITIATED BY: Kay W. Johnson DATE: March 21, 1983

DIRECTED TO: THE HOWARD P. FOLEY COMPANY
PROJECT MANAGER

REQUIRED DUE DATE: April 1, 1983

Please furnish personnel, materials and equipment to chip out all cracked & spalled concrete and patch concrete, per attached sketch. Containment Unit-1 at elev 110'-0" RCP 1-3 room. Work shall be done in accordance with spec. 5422, and QCPC-10, 10A, or 11 which ever is applicable is required. There are two places that need to be patched.

CCO#18

Acct.# 22-365-07

PG&E G.C.
QUALITY CONTROL
REVIEWED & APPROVED
D. Bell
DATE 3/21/83

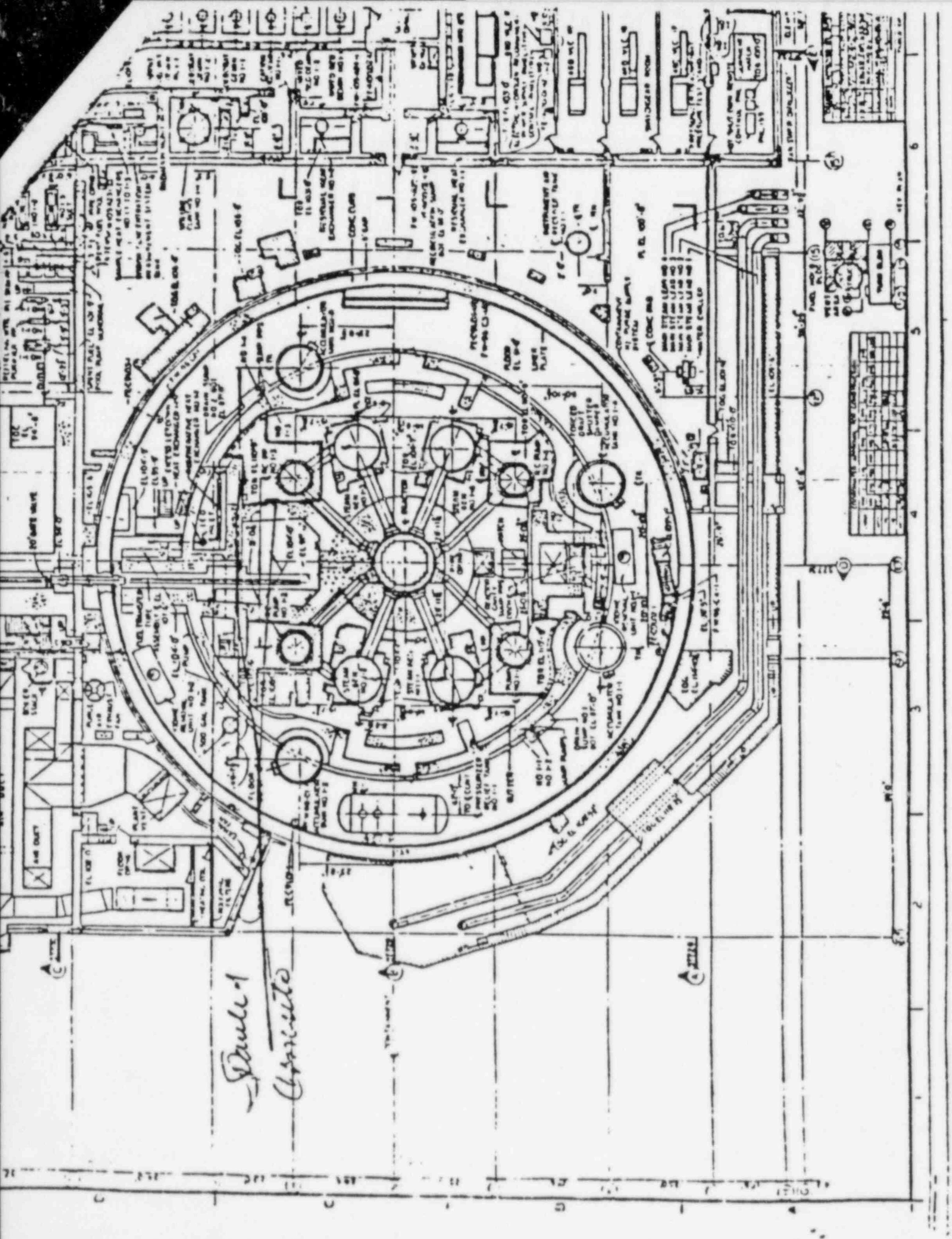
COMPLIANCE: Completed 4 places DATE:

Open work request Jack Ballew

PACIFIC GAS AND ELECTRIC COMPANY
RESIDENT ENGINEER APPROVAL (Signature) 3-22-83 (Date)

THE HOWARD P. FOLEY
PROJECT MANAGER APPROVAL

8



Anonymous/[illegible]
Source

CIVIL

№ 1408

THE HOWARD P. FOLEY COMPANY
PRODUCTION ENGINEERING DEPT.
ENGINEERING DISPOSITION REQUEST

Received 1-16-84
"Thrown" into J. Fair
hands on site by
someone w/o
explanation

[illegible] 1983
UNIT II

To [illegible]iller

Subject Welding of Embeded Plates

From Dave Jones

DG
DJ
BC
LF
BB
JG
CA
ES
AD

Problem Reference Letter #DCC - G013, Dated August 16, 1983 - Attached.

Please see attached sheet for H. P. Foley's proposed welding procedure for welding to structural embed plates. (1.) Is this acceptable?

Signed [signature] Date 8/29/83

Reply (1.) Yes, item 7 may be revised at a ~~[illegible]~~ later date.

Signed [signature] Date 8-30-83

FOR INFORMATION ONLY

10

MEMORANDUM

[illegible]o Canyon Project

PACIFIC GAS AND ELECTRIC COMPANY
BECHTEL POWER CORPORATION

Distribution August 16

D.A. Rockwell

General Construction Subject: [illegible] Imbeded Plates

Jobsite Extension 3372

Due to problems arising from heat spauling of concrete the following requirements are effective this date.

1. Fillet welds ½ inch and smaller, "skip welding", is required to reduce heat build up and minimize distortion of supports, stiffeners etc. to imbeded plates.
2. For partial and full penetration welds or when preheat is required for welding of imbeded plates a welding sequence plus a maximum inner pass temperature is required. This sequence procedure is to be approved by a PTGC Welding Engineer prior to all welding operations.
3. Protection of the concrete is mandatory during flame cutting operations for protection from molten slag. Wet insulation blankets are acceptable.

Questions regarding welding sequences, inner pass temperatures, preheat requirements, or special problems are to be directed thru the Lead Dicipline Engineer to the PTGC Lead Welding Engineer for approval or disposition. CIVIL

EDR 1408
REF

D.A. Rockwell
D.A. Rockwell
Project Team Engineer

JAMiller:css

cc: J. Arnold
G. Glascock
C. Johnson
R. Leiber
J. Macias
L. Rossetta
F. Russell

G. Karner - Pullman Power Products
R. Wilson - Foley Co.

PROJECT DIRECTOR'S ROUTING:
Original: FILE
Copies:
P. BOURQUE, Proj. Dir.
✓ S. MOSES, Sr. Proj. Mgr.
G. BROWN, Asst. P.M.
J. TILLMAN, Night P.M.
✓ R. WILSON, Qual. Dir.
F. LEE, Sched. Mgr.
✓ C. NEEDHAM, Eng. Mgr.
D. GOGGIN, Struc. Mgr.
R. PETERS, Elec. Mgr.
PIPPIN, Mech. Mgr.
I. DUTRA, Off. Mgr.
Action By:
Date Due:

DCC 6013

11

PRINTING

HOWARD P. FOLEY COMPANY

INTER-OFFICE COMMUNICATION

G. Glascock Date: 9-1-83

R. Knowles Ref DC1EC13560

A 3/8" full Pen weld is required to an Embed plate (TYP attached), 3 to 4 passes will be made with a maximum interpass temperature of 600°F.

Locations as per DC1EC13560

R. Knowles. OK -- G. T. Glascock 9-3-83

nature

ATTACHMENT I

Concern #175

Task: Allegation or Concern No. 175

ATS No. RV-84-A-007 BN No.

Characterization:

Changes from Interim "As Built" Drawings to Final Drawing - Inadequate Control has been exercised over the transition from Interim Drawings to Final Drawings of the station as actually constructed. No specifics were provided.

Assessment of Safety Significance

A face value assessment on the part of the staff indicates this issue is not of major significance in terms of public health and safety or management breakdown. Also, this issue appears to be a restatement of concerns identified and examined in allegation 61. The issue is a known issue and is being responsibly handled.

Staff Position

The issues of concern here do not appear to represent any new significant management or quality performance issues which have not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

2

#175

NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

RECEIVED
1984 JAN 27 PM 12 31
REGION V

January 23, 1984

MEMORANDUM FOR: Ben B. Hayes, Director
Office of Investigations

FROM: Jesse C. Ebersole, Chairman, ACRS

Jesse C. Ebersole

SUBJECT: ALLEGATIONS REGARDING CONSTRUCTION PRACTICES AT THE DIABLO CANYON NUCLEAR POWER STATION

This memorandum is to confirm conversations between you and Mr. Raymond F. Fraley, Executive Director, ACRS, regarding allegations received by me concerning the Diablo Canyon Nuclear Power Station.

On January 16, 1984, Dr. Henry Myers, Science Advisor to Congressman Morris K. Udall set up a conference call between himself, me, and an unnamed person who appeared to be a person knowledgeable with respect to electrical work at the Diablo Canyon Nuclear Station. He desired to bring to my attention various allegations which had been identified by this unnamed alleger. I am bringing them to your attention so that they may be considered and resolved with the numerous other allegations identified with respect to this project. It may be that you already have some of these allegations under consideration. The items discussed are as follows:

AS

175 (61)

• Changes from interim "as built" drawings to final drawings -- inadequate control has been exercised over the transition from interim drawings to final drawings of the station as actually constructed.

ATTACHMENT J

Concern #188

Task: Allegation or Concern No. 188

ATS No.: RV-84-A-0024 BN No.:

Characterization

QA breakdown at Pullman.

Assessment of Safety Significance

The staff's assessment of this issue is that the alleger has identified issues which have been addressed and extensively examined in previous allegations 57, 68, and 103-119.

Staff Position

The issue of concern here does not appear to represent a new significant management or quality performance issue which has not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide written response to their findings and corrective actions.

HC

REC'D FROM T. DEVINE (OF GAP.) on 2/3/84 5:20PM. — B

#188

AFFIDAVIT

My name is Harold Hudson. I am submitting this affidavit freely and voluntarily without any threats, inducements, or coercion, to Mr. Thomas Devine, who has identified himself to me as the Legal Director of the Government Accountability Project of the Institute for Policy Studies. I am submitting this statement to evidence my concern over a comprehensive quality assurance (QA) breakdown for the work of Pullman Power Products at the Diablo Canyon Nuclear Power Plant. There is no possible justification for allowing this nuclear power plant to go critical until the Nuclear Regulatory Commission (NRC) confirms the full scope of QA breakdown; identifies the causes; and monitors completion of a corrective action program, including a full reinspection of safety-related work at the plant. In many instances, the reinspection may be the first legitimate quality control coverage the hardware has had.

I base this conclusion on my four and a half years experience at Diablo Canyon in Pullman's quality assurance/quality control (QC) program, including two and a half years, through 1982, during which I was the Internal Auditor. The basic lesson I learned is that the conclusions of a Nuclear Service Corporation audit of Pullman are more true today than when first published in 1977--the program does not meet the requirements of 10C.F.R. 50, Appendix B; and it does not have an operative corrective action system. The latter has been demonstrated by the further deterioration in corrective action from 1979-1983. While before, the system was merely failing to identify and solve problems, now it is actively covering them up. This has been especially true with respect to welding, nondestructive examination procedures (NDE), and hydrostatic tests--all of which I learned were consistently uncontrolled, and that some of the procedures for the first two items were not qualified by a testing process which proves the procedures actually work as claimed.

The system also broke down for vendor quality assurance, where Pacific Gas and Electric (PG&E) management ordered Pullman inspectors to stop reporting cracked welds found in structural steel restraints supplied by vendors such as Boston Bergen and American Bridge.

As an auditor trying to work within the Pullman site and corporate QA system, I learned the cause of the QA breakdown and why it has not been corrected. Pullman QA Management does not want to know about QA/QC violations. Management's corrective action has been to harass, threaten, and intimidate QA/QC personnel who identify problems, and to dismiss those who persist. Although I exhaustively reported deficiencies, the major effect of my disclosures was to prompt orders from the QA manager to only look where I was told, and his angry threats to "get rid of me." During one such exchange, he exclaimed Pullman's bottom line: we're not committed to building this plant to 10 C.F.R. 50, Appendix B. In that case, I do not see any legal basis for the NRC to allow this plant to operate.

I am not opposed to nuclear power. Rather, I believe in the technology enough to insist that it receive the proper respect. I began working in the nuclear power industry in 1974 at the Trojan Plant and have worked at the Humboldt Bay Plant. With the exception of two months in 1979, I worked at Diablo Canyon for Pullman from September, 1978 until Friday the 13th, 1984, when I was laid off. The layoff occurred the day after I finished a two-month series of disclosures to the NRC.

For my first three to four months on site, I was a documents reviewer. For nineteen months I worked as a weld inspector in the pipe rupture restraint program. In August, 1980, I was promoted to QA Internal Auditor.

My responsibility was to evaluate and monitor the entire QA/QC program for compliance with our legal obligations. This is how I learned that Pullman does not consider 10 C.F.R. 50 a legal obligation for work at Diablo Canyon.

In January, 1983, I was removed as internal auditor, but remained in the QA program to help close out Discrepancy Reports (DR) and Deficient Condition Notices (DCN), as well as to complete my pending audits. QA Manager, Harold Karner, restricted me to carrying out his specific assignments. The harassment was so intense that in mid-May, I resigned. Through my union, the next day I return to Diablo Canyon as a pipefitter. There simply had been toc many headaches attempting to work within the corporate system. On my own time, at home, I finished organizing and summarizing my evidence of QA violations. In November, I completed an initial report. On November 28, I sent it to NRC Commissioner, Victor Gilinsky. On December 6, 1983, his office wrote that I would be contacted by the Office of Investigations (OI). Although OI never called, on January 6, 9, and 12, I was interviewed extensively by a series of NRC inspectors from Region V. On January 13, I was laid off.

This statement will summarize the information and list the allegations in three written reports already disclosed to the NRC. My affidavit also is to submit a written record for allegations which I have only described to the NRC in interviews and identify allegations not yet described to the NRC.

I. QUALITY ASSURANCE BREAKDOWN FOR WELDING

With a few exceptions, from the onset of construction, the welding program for structural steel essentially has been uncontrolled--in violation of legal requirements, as well as contract and design specifications. The techniques to circumvent quality assurance included unqualified welders;

unqualified welding procedures; use of welding procedures so irrelevant for the assigned work that, in effect, safety-related welding was widely conducted without procedures; reliance upon unqualified inspection procedures to check the quality of the welds; informal changes of contract specifications without the required administrative review or distribution; falsification of records; and harassment and intimidation of QA personnel who identified and attempted to obtain corrective action against the violations. The abuses occurred both during original construction, and during the current modifications due to the Bechtel/PG&E seismic design review program.

The list below represents a more detailed summary of the allegations and evidence that form the basis for the above conclusions.

1. Weld procedure Code 7/8 for piping and plates has been used improperly to weld numerous forms of structural steel on pipe supports. What happened is that Pullman substituted American Society of Mechanical Engineers (ASME) pipe welding procedures for the American Welding Society (AWS) structural steel procedures, as implemented. This practice exceeded the legally-approved limitations for use of the procedure. The limits were logical, since the two types of jobs have little in common. Pipe welding involves working around a circumference. In structural steel welding the axis of the weld is on a straight plane (Exhibit 1, at 2).

2. Code 7/8 has been used improperly to weld tube steel on pipe supports. Tube steel involves a different type of metal than the P-1 material covered by ASME procedures. This is significant, because the NRC has identified

use of the same metals as a precondition to use ASME procedures for AWS work. In fact, tube steel welding is so unique that the AWS Code has a special section for it (Id., at 2-3).

3. Code 7/8 was improperly used to weld threaded weld studs which bolt plates to civil steel on Class I safety-related pipe supports. The type of welding used for these studs is not listed within Code 7/8, and it bears almost no resemblance to the work legally covered by Code 7/8 (Id., at 2).

4. The welding for threaded studs did not even honor the requirements of Code 7/8, which calls for the use of a backing bar. Instead, process sheets operated by the construction department imposed backgrinding, which is a totally different operation (Id.).

5. Code 7/8 has been used to weld at least eight pipe support joint configurations, including flare bevel groove welds, and double bevel groove welds, not covered by Code 7/8. Each of these configurations represents a unique welding task and legally must have its own approved weld procedure specification detailing the joint configuration (Id., at 3).

6. Process sheets that guide quality control coverage did not consistently call for inspection to verify the fitup of flare bevel groove welds; one of the joint configurations not covered by the 7/8 procedure in the first place. That leaves the quality of the ensuing welds doubly unreliable. This uncontrolled work has been occurring as part of the current design modification construction work (Id.). I have read a PG&E memorandum asserting that QC fitup inspections are not required for flare bevel welds. That memorandum is not sufficient to overrule engineering

specification ESD 264, which requires inspections of groove welds and full penetration welds.

7. Code 7/8 has been improperly used on pipe rupture restraints to weld five types of metal different from the ASME approved P-1 material. These restraints prevent a pipe ruptured during an earthquake from whipping back and forth, which could damage the rest of the equipment (Id., at 4).

8. Code 7/8 was improperly used to weld two structural steel shapes on pipe rupture restraints that are not covered by the procedure--W shapes and tube steel (Id.).

9. Code 7/8 was improperly used for at least 11 joint configurations not covered by the procedure itself. These joint configurations were not generically prequalified per the AWS Code and were without Procedure Qualification Records and/or were not detailed on the Weld Procedure Specification (Id., at 4-5).

10. The result of the procedural breakdown was uncontrolled welding. To illustrate, in one example, pipe rupture restraint square groove welds were conducted without any established or documented procedure that applied to the work in question. In some instances, welds had been completely removed without any QC record of their disappearance. The records reflected QC accepted welds where none existed. For documented repairs, there was only erratic QC coverage due to unexplained procedural changes that deleted the requirement for nondestructive examinations (Id., Attachment 2).

7

11. Pullman has recognized the error of applying ASME welding procedures to AWS work in an uncontrolled manner and issued Welding Technique Specification No. AWS 1-1, in an attempt to clarify the proper use of Code 7/8 on AWS work. But the scope of corrective action was inadequate. It only covered the work in a weld crack repair program on pipe rupture restraints (Id., at 5-6). The misuse of Code 7/8 far exceeds the use of AWS 1.1. The crack repair program only covered about one-fourth of the pipe rupture restraints, and none of the pipe supports.

12. AWS 1-1 failed to fully correct the improper use of Code 7/8 for welding in the weld crack repair program. The procedure uses a steel not contained in the list of acceptable AWS base metals, without evidence that it had been individually qualified to prove its reliability (Id., at 6).

13. The above violation was approved on December 20, 1979, by V. J. Casey, who signed off as Cognizant Welding Engineer. Sixteen days earlier, however, he had been appointed Pullman's Assistant QA/QC manager, according to an interoffice memorandum. To my knowledge, Mr. Casey has never been listed on the Pullman organizational chart as a Cognizant Welding Engineer. The only way his approval would not represent a false statement is if he were simultaneously a construction and QA official. That would be a violation of the NRC's requirement for a QA program independent of construction (Id., at 6-7).

14. I also have serious reservations about Mr. Casey's qualifications, based on his judgment in the field.

He instructed me to measure fillet welds by the throat, when the AWS Code requires the measurements from the leg of the weld. For approximately two months, I inspected welds to the wrong standard, because Mr. Casey gave me a makeshift gauge not designed to measure fillet welds. Other inspectors informed me that Mr. Casey has changed the rules on the spot for equipment anchor modifications in the containment. They stated his instructions were to work to a "relaxed" engineering specification ESD 243.

15. Through loopholes in its Engineering Specification ESD 223, Pullman improperly exempted itself from AWS design, fabrication, and erection requirements for all structural steel pipe support welding. Writing off the rules in this fashion violated the PG&E contract specifications. To my knowledge, there is no documented authorization from PG&E to deviate from the Code requirement, which is still in the contract (Id., at 7-9).

16. PG&E contract specifications on welder qualifications were changed without required review and authorized approval. The rules were changed through a cryptic, unexplained note. The changes involved the qualifications standard for all rupture restraint welders before July 10, 1979. The use of ASME qualification standards for welders doing unrelated AWS work mirrors the breakdown in welding procedures. Again, however, the 1979 corrective action only applied to rupture restraints (Id., at 9-12).

17. The PG&E contract requirement for Charpy, or notch impact strength tests, was waived for Code 7/8 and other welding procedures. Charpy tests are necessary to be sure the welds installed under the procedure can meet relevant design and professional code requirements for strength. Deleting this requirement was a serious step, which should have gone through the Contract Specification Change Notice process to assure proper engineering review and approval. Instead, in January, 1974, a PG&E piping superintendent

removed this significant QA check with a one-word penciled response, "No", when Pullman asked in a letter if weld procedures for rupture restraints required Charpy impact tests (Id., at 12-13).

18. In violation of still unrevised contract specifications, specific corrective action commitments on relevant Nonconformance Reports (NCR), and relevant procedures for the weld crack repair program, none of the full penetration welds less than 9/16 in. thick among rupture restraints were ultrasonically tested. This means that the welds in rupture restraints since July, 1979, were not fully covered by quality control tests in a significant number of cases. PG&E engineers accepted the loopholes to Pullman's program in July, 1979, again without the required review and approval, and without revising the relevant contract specification that was being ignored (Id., at 13-15).

19.. Another weld procedure, Code 88/89 for carbon steel piping, has been used to weld pipe support structural steel shapes and plates during both original construction and repair work in the current design modifications. Structural steel shapes and plates are not covered by Code 88/89 (Id.,at 16).

20. In violation of the contract specification, Code 88/89 has been used to weld carbon steel plates and structural steel shapes to rupture restraints with two welding processes, Shielded Metal-Arc Welding (SMAW) and Gas Tungsten Arc Welding (GTAW). GTAW is not covered by the relevant AWS Code (Id.)

21. In August, 1979, PG&E issued Welding Technique Specification No. AWS 1-3 to clarify the use of Code 88/89 for AWS welding. Unfortunately, the "solution" again repeated the problem. AWS 1-3 covers a welding process, (GTAW) and a base metal (A-515) not covered by the relevant AWS code provision (Id., at 16-18).

22. Pullman also substituted welding procedure Code 92/93 for pipe rupture restraints when the process sheets specified that the work would be done to Code 7/8. The Pullman Assistant QA manager accepted the switch in an August 15, 1978, memorandum without changing the process sheets--which left a record of work to a different procedure than was actually used. (Id., at 18). The only records accurately reflecting the weld procedure used were the weld rod requisition forms (Id., at 21-22).

23. The informal approval of the welding procedure switch was based on a false premise--that both procedures were qualified to unlimited thickness and were technically equivalent. In fact, they only bear a passing resemblance. For example, Code 7/8 does not include a type of welding in Code 92/93 that is only universally approved by the AWS for welds up to 1/4 in. thickness. Nor did Code 92/93 have its own procedure qualification test to verify its reliability on the welds greater than 1/4 in. thick. In effect, that welding was uncontrolled and its quality is legally indeterminate. The two welding procedures are also different with respect to joint configurations, joint details, tacking the joints, weld processes to be used, backing bar requirements, and welding techniques, such as the allowable heat input from AMPS and maximum volts. The controls for clearly distinct special processes cannot be legally intermingled through a memorandum (Id., at 18-21).

24. Contrary to contract specifications, welders qualified to ASME-based Code 92/93 were used for structural steel welding without being properly qualified to the AWS Code. The switch was accepted on August 15, 1978, Interoffice Correspondence, rather than through an accountable procedure with review, authorized approval and a Contract Specification Change Notice (Id., at 20-21).

((

25. An April 14, 1983, Discrepancy Report on 1972 welding in the Spray Ring Piping System for the Unit No. 1 containment dome, DR #4713, failed to identify an organizational breakdown far more significant than the issue it disclosed (variations between the SMAW weld process used and the process reported in the process sheets). DR #4713 also revealed that the process sheets and rod requisition forms referenced different weld rods than had, in fact, been used. The response of the QA/QC manager was to accept the violation as is. The DR did not mention one of the most significant violations: the production department substituted an unauthorized, unapproved procedure and process for the procedure which had been properly selected and approved by the QA system and the third party authorized inspector from the State of California. This was done in order to avoid delays when QA issued the wrong weld rod for Weld Procedure 128. Production could not wait to correct the weld rods, so the foreman just changed the procedure. In other words, the production department's "solution" was to achieve compatibility by making the procedure as wrong as the weld rod. DR #4713 endorsed the procedure switch (Id., at 23-25). If production can overrule the QA system so easily on such casual grounds, it means that controlled welding procedures occurred only when tolerated by the construction department. Under the circumstances there can be no basis for confidence that the quality of the welding was controlled. Most significant, in April, 1983 Diablo Canyon management was still satisfied with this result.

26. DR #4713 missed another equally significant violation: QC inspectors had approved all the welds after visual examination, although the GTAW and SMAW welding procedures do not look the same. The 1972 failure raises serious questions about the reliability of QC inspections at the

time. The failure of DR #4713 to even note the QC inspection failure demonstrates that 11 years later, the acceptance standards have not yet become realistic. Significantly, before it was issued, this DR was reviewed three times by Bechtel and PG&E management, which must assume responsibility for a QA report that failed to disclose, at all, the most significant QA violations (Id., at 25-28).

27. The breakdown in records for the weld rod and weld process sheets render it impossible to verify the qualifications of early welders by reconstructing weld rod and process records, as asserted by Pullman in response to 1977 Nuclear Services Corporation findings that the qualifications could not be established for welders in late 1972. I demonstrated this effect of DR #4713 by applying its findings to a case study on a welder whose qualifications were challenged in the original NSC audit (Id., at 28-30).

28. My attempts to perform my audit duties on welding led to sustained management hostility, including restrictions on my organizational freedom, harassment and intimidation, and retaliation through personnel actions. On January 28, 1983, the harassment reached a climax. I had already been removed as internal auditor on pretextual grounds (infra, at 23-4) and was doing research for pending audit reports that I had issued, in this case Unscheduled Internal Audit #35 on pipe rupture restraings. I was at my desk reviewing the records on three full penetration welds that had been tested to the wrong nondestructive examination process. Mr. Karner approached and wanted to know what I was doing. When I told him, he asked if I had been directed to identify those problems. Because I was completing a pending audit of which Mr. Karner disapproved, I accurately answered, "No." He then shouted at me that I was no longer the internal auditor and could no longer identify

13

discrepancies unless he specifically ordered me to. At the time, I was still a quality assurance employee, helping to close out DCN's and DR's. Mr. Karner's orders to restrict my inquiries violated the requirement for organizational freedom in 10 C.F.R. 50, Appendix B.

29. During the January 28, 1983, confrontation, Mr. Karner also threatened that if I repeated this type of behavior, he would "get rid of me." From his demeanor, I was unsure whether he was referring to my presence on the job, or my presence--period. Mr. Karner's threats eventually convinced me to resign and to take a pipefitting job. The pervasive atmosphere of intimidation was too counter-productive for an employee to successfully uphold required QA/QC standards within Pullman's quality assurance program.

30. Although Pullman has gotten rid of me, the company has kept the problem of unqualified welding procedures. When I left in January, 1984, we were still working to the same welding procedures I had audited. Nothing has changed except that after all the notice, it is clear that Pullman and PG&E's violations are deliberate. There can be no excuse of ignorance. Corrective action has been nonexistent or ineffective. There were discussions on-site of attempting to qualify Code 7/8 after the fact, which would have been ineffective anyway since it was the sponsoring procedure for considerable work that it did not describe. As of my departure, however, even that halfway step had not occurred.

II. QUALITY ASSURANCE BREAKDOWN IN NONDESTRUCTIVE EXAMINATIONS

Nondestructive examinations to test the welds and other hardware were as unreliable as the procedures to conduct the welding in the first place. The indeterminate quality of the testing process leaves the quality of the hardware in the same status--indeterminate, at best. In some cases, NDE results were compromised due to simple manipulation at management direction. This phenomenan allegedly occurred when Bechtel and PG&E had the NDE personnel do certain ultrasonic tests (UT) over with a different approach, after the tests had identified a large number of rejectable welds.

A good illustration of the quality assurance breakdown involves 1972 tests used to measure Seismic Class I valves on the reactor coolant pressure boundary for minimum wall thickness in response to an Atomic Energy Commission (AEC) directive. The UT procedure was not qualified by tests to determine its reliability, which was questionable anyway, because the procedure did not measure the entire surface of the valves. There is serious question whether all relevant valves were examined, in part due to conflicting information in the records. Not all the equipment used to measure the valves was traceable and calibrated. The former violation invalidates usage of the equipment. The latter affects the accuracy of UT results by up to 48 percent, when the AEC required 98 percent accuracy. Informal changes of contract specifications, without the required review and approval, again facilitated the QA violations. To my knowledge, corrective action has not occurred.

The unreliability of valve measurements was representative of a general QA breakdown for nondestructive examinations. In Internal Audit 101, I checked 21 such procedures--seven were deficient, representing three forms of nondestructive exams To date, the most significant problem remain. The basic flaw was that records were not available to demonstrate that test procedures were qualified. After I traced the use of one procedure back to the steam generator feedwater nozzle, the QA manager ordered me not to find out where a related test procedure was used. The response to my disclosure of these problems was to sit on them for over a year. In some instances, there still has not been effective corrective action. QA management reneged on solutions to which we had agreed. The situation became so frustrating, that I conducted an audit on corrective action and sent the results to Pullman corporate headquarters. The response was to reprimand me for breaking ranks, while the QA violations continued to be ignored. Below is a more detailed listing of related allegations.

31. In some instances, the unreliability of nondestructive examinations is due to manipulation of the test results in order to mask deficiencies. This allegedly occurred in 1982, with respect to tests involving around 230 Unit I full penetration welds--some in the containment--where UT examinations revealed large numbers of rejectable conditions. Witnesses described the defects to me as voids, slag, and lack of fusion in the roots of the welds--which raise questions about weld bonding. I was also informed that Bechtel and PG&E management responded by manipulating the UT procedure in a manner that would lower the number of rejected indications. The welds were then "accept(ed) as is" (Id., at 15).

In other instances, the QA violations are more deeply rooted. The case of Engineering Specification ESD 234 for ultrasonic measurement of valves on the reactor coolant pressure boundary is a microcosm of the breakdown. On January 18, 1982, I initially reported QA violations through Internal Audit #101. I tried again in November, with unscheduled Internal Audit #34. On January 2, 1984, I finished a report to Commissioner Gilinsky on this still uncorrected problem, which I have since forwarded to the NRC inspectors at Diablo Canyon. It is enclosed as Exhibit 2.

32. There is no evidence that the ultrasonic thickness measurement

procedure was qualified through tests to demonstrate the 98 percent level of accuracy required by the AEC. The valve measurements were conducted with an uncontrolled procedure, and therefore cannot be accepted as the basis for conclusions about the quality of the valves. In my audit, I could neither find evidence of a Procedure Qualification Record (PQR), nor a Procedure Qualification Test (PQT) (Exhibit 2, at 2-3).

33. There is no evidence of "procedure verification tests," required by ESD 236 for the transducers, that take into account the curves, ridges, and irregularities that exist on every valve and significantly affect the measurements (Id., at 3).

34. Management appears to have conducted the measurements without any qualification test, despite prior warning that the procedure was too unreliable to support its findings. An April 17, 1973, "Interoffice Correspondence" had disclosed:

> 3. The transducers available are adequate for flat smooth surfaces. There are no adapters, shoes or wedges available should they become necessary.
>
> 4. At this time, it appears the transducers supplied may not be the correct type for thickness readings. If this is true, we will have to order new transducers.
>
> 5. The effect of surface contour and roughness must be tested prior to making any reportable results.
>
> 6. There is no available equipment on the U.T. equipment for review.
>
> It is doubtful that any meaningful results can be obtained at this time and it is definite that none can be reported until the above-mentioned problems are solved.

(Id., and related attachments)

35. Pullman QA manager Harold Karner improperly refused to take corrective action in January, 1982, when I disclosed the lack of procedure qualification records or tests for ESD 236 and ESD 244, the UT Thickness Gauge Procedure. The problem remains uncorrected. His excuse was that these procedures were only nondestructive measurements rather than nondestructive tests, and therefore did not represent "special processes" whose quality must be controlled (Id., at 4).

That semantic distinction is irrelevant. The reason to require reliable, controlled procedures is to assure the quality of sensitive, safety-related hardware. Indeed, in 10 C.F.R. 50, Appendix B, Criterion X, the terms "examinations, measurements, or tests" are used interchangeably. The safety-related purpose for qualified NDE procedures is magnified for ESD 236. ESD 236 was instituted in response to an AEC directive to the nuclear industry after discovery of valve problems at a series of plants.

36. Mr. Karner's manipulation of definitions is wrong. UT measurements constitute a special process which must be qualified. They are a special process because they are uniquely created to perform a specific quality-related function. Further, PG&E contract specifications and 10 C.F.R. 50, Appendix B, Criteria IX, "Control of Special Processes," identify nondestructive testing as an example of special processes, not as the boundary of the concept.

37. UIA #34 of 254 Valve Wall Thickness Data Reports demonstrated that the Data Reports are incomplete and, therefore, are not traceable, as required. For example, none listed the size, shape, or manufacturer's designation for the transducers that performed the wall thickness. The ESD

236 Documentation Packages do not provide any information on the testing equipment beyond the serial numbers. In some cases, there were not even serial numbers for the UT machines and the micrometers used as a mechanical backup measuring device (Id., at 5-6).

38. The Data Reports offered unreliable, inconsistent information. For instance, 19 reports listed two different UT machines as having conducted the same valve measurement. Serial numbers for UT thickness equipment and micrometers could not be verified independently. Ten percent of the valves checked physically had serial numbers different from those listed in the Data Reports. In many Data Reports, original information had been whited-out and altered without signature or explanation (Id., at 6).

39. Necessary records to demonstrate calibration of the measuring equipment were not consistently available. To demonstrate the potential effects, on three UT measurements whose accuracy was tested, the pre- and post-calibration checks showed variations of 10 percent, 48 percent, and 2.6 percent (Id., UIA #34, Attachment 5). The maximum error permitted by the AEC was 2 percent.

40. The AEC acceptance standards were violated when valve measurements from equipment that failed minimum reliability standards (#39, supra) were used to accept the valves as sufficiently thick (Id.).

41. Forty-two Data Reports disclosed that the valves were below the minimum thickness, but on the paperwork they were marked as "accepted" without explanation (Id.).

42. In 11 cases, the measurements were incomplete. The records simply skip results for required areas of the valve, such as the flat pad at the bottom (Id.).

43. In 14 valve locations, there was no documented evidence that the valves had been examined at all (Id.).

44. There was no documentation to indicate that weld repairs on the valves were controlled, as required by the AEC. To illustrate the absence of verifiable controls, the Data Reports do not have a requirement to list whether valves were weld-repaired, or the weld procedure used (Id., at 7).

45. During my research for UIA #34, I discovered that none of the valves meet AEC and PG&E design requirements. Westinghouse, the manufacturer, had explicitly declared that they "were not designed to meet the minimum wall thickness requirements of ANSI B16.5"--one of the relevant professional codes listed by the AEC in 1972. By comparing Westinghouse's communication with PG&E contract specifications, I learned that the valves also do not meet the design requirements in the contract (Id.).

46. To my knowledge, there still has not been any corrective action on this problem. If there had been good faith attempts, I should have been contacted as the originator of the audit. I remain available to help follow through.

47. Similar to UT thickness measurement procedures, nondestructive test procedures lacked documentation of Procedure Qualification Records or Tests. In IA #101, I found this flaw in seven procedures out of 21 examined. Beyond the UT thickness procedures, there were five cases where no evidence existed that NDE procedures had been qualified. As a result, the quality of work examined under those procedures remains indeterminate. These included: 1) ESD 234, for UT Inspection of Groove Welds on pipe rupture restraints prior to 1979; ESD 241, for UT examination of Safety Yoke Rods on Safety

Valves; ESD 246, for Magnetic Particle testing, with unknown use; ESD 247, for Magnetic Particle examination of welds in the crack repair program on Unit #1 Steam Generator Feedwater Nozzles; and ESD 270, for Liquid Penetrant examinations, with unknown use. On January 12, 1984, I completed and delivered to NRC inspectors, a draft report to Commissioner Gilinsky on IA 101. It is enclosed as Exhibit 3.

48. The corrective action for procedure ESD 234, consisted of unreliable, "after-the-fact" Procedure Qualification Tests, whose use was not controlled and accomplished using qualified procedures. Ironically, this is the same flaw the late PQT were supposed to correct. Further, there is no evidence that management reviewed and approved the procedures for the PQT (Id., at 2-3).

49. QA Manager Harold Karner improperly prevented any corrective action for the lack of procedure qualification records on ESD 270. Instead, he directed that the Procedure Qualification Records for a similar procedure, ESD 210, should be used for ESD 270. That is unacceptable. If the two procedures have separate numbers, there are at least some dissimilarities. Those unique features of ESD 270 inherently will not have a proven demonstration of their ability to identify defects. This QA violation remains ignored.

50. No investigation was performed to determine where ESD 270 was used. Instead, the QA manager told me to just write up what I had learned already as an audit finding.

51. ESD 241 for UT of the safety valve yoke rods involves the most significant violations. In addition to the lack of a PQR, the hardware was tested from December 17-20, 1973, before the UT procedure itself was even issued on December 26, 1973, and prior to approval of the UT procedure

21

by PG&E on February 12, 1974. The testing was totally uncontrolled for the yoke rods on these valves, which I believe control the release of radiation from the containment (Id., 8 at 4).

52. ESD 241 was deficient because it violated instrucsions from Dresser, the vendor for bolts and studs. The Dresser instructions required the rods to be examined prior to threading. At Diablo Canyon, the UT's were conducted after the threading. Further, ESD 241 did not use the Dresser instructions to determine the reference point for sensitivity and the criteria to report questionable items (Id., at 4-5).

53. The existing documentation for the tests fails to meet the standards both of ESD 241 and the Dresser Instructions. Required information on the testing surface and instrument calibration was not included (Id., at 5).

54. Both ESD 241 and the UT inspection records failed to reflect compliance with a PG&E-imposed requirement for backup inspection "with the liquid dye penetrant technique to check the yoke rod ends for indications of cracking that might extend into the threaded area of the yoke ends" (Id., at 5-6).

55. No DR was issued to PG&E on ESD 241, although this corrective action had been agreed to both by Mr. Karner and the NDE supervisor. Mr. Karner improperly reneged on the basis of a memorandum from John Guyler,

Mr. Guyler dismissed the detailed, documented DR which I had proposed with the following assertion: "PPP has accomplished this per instruction from PG&E. It is evident that a nonconformance does not exist and a DR is not necessary" (Id., at 3-4). Mr. Guyler's response was inadequate. First, the procedure violated PG&E instructions (see #54, supra). Second, even PG&E does not have the authority to validly instruct Pullman to violate 10 C.F.R. 50, Appendix B, Criterion IX--"Special Processes." Third, Mr. Guyler did not document his asserted conclusion.

56. Overall, Pullman violated NRC reporting requirements and PG&E contract specifications by only reporting the deficiencies for two out of the seven nondestructive procedures to PG&E on Discrepancy Reports (Id., at 6).

57. PG&E dispositioned the DR for ESD 246 "accept as is", although there is no information indicating where the nondestructive test was conducted. Since the identity of the affected hardware could also impact on the evaluation criteria, PG&E's acceptance was premature (Id., at 7).

58. The reason the location of work tested under ESD 246 could not be identified is that Mr. Karner improperly prevented me from looking. After I learned that ESD 247 was used for welds in the crack repair program on feedwater nozzles in the Unit I Steam Generator, he ordered me not to check where ESD 246 had been used (Id., at 6).

59. PG&E improperly dispositioned the DR on ESD 247 "accept as is", although the Magnetic Tests in the procedure were referenced to ANSI standards, rather than the relevant ASME Code Section I; and although the qualifications of the MT personnel conducting the test cannot be verified from the records available (Id.).

60. The corrective action for ESD 246 and 247 involved procedure qualifications after-the-fact (Id., at 7). After-the-fact procedure qualifications should not excuse PG&E from accountability under NRC rules. At best, it means that the damage has been minimized. But it also inherently means that

10 C.F.R. 50, Appendix B, was violated, because special processes were conducted under uncontrolled conditions.

61. Even if it is acceptable to conduct procedure qualification tests after the fact, the tardy test must be performed under controlled circumstances. In this case, PQT's were conducted with different equipment than had been used originally (Id.). No documentation was supplied to support the asserted Corrective Action Response that the new equipment made the results more conservative.

62. QA Manager Karner was responsible for the deliberate failure to provide reasonably prompt corrective action for IA 101. On January 18, 1982, I initially disclosed IA 101; on March 23, 1982, it was finalized after I provided Mr. Karner with additional information which he had requested. On April 6, 1982, corrective action for the first finding in the audit on lack of procedure qualification tests was approved. Before implementation, however, he changed his mind. Although the official time limit for corrective action is ten days, the audit was not closed out for over another year, despite my repeated memoranda and attempts to formally notify Mr. Karner of his obligation to address the issue of unqualified NDE procedures (Id., at 8-11).

63. Pullman corporate QA Director A. Eck was notified of the failure to take corrective action and improperly refused to help. Instead, he reprimanded me for bringing the matter to his attention. On June 14, 1982, I notified Mr. Eck, through an Interoffice Correspondence, of the overdue corrective action. He did not respond. On July 6, 1982, I performed and submitted Unscheduled Internal Audit #31 to Mr. Eck on the lack of corrective action required by ESD 263 within 10 days. This time I received a response. Both Mr. Eck and Mr. Karner reprimanded me for submitting the audit to Mr. Eck directly, rather than letting it proceed through the chain of command.

This violated ESD 263, they explained. My audit was voided. Both individuals neglected to mention the violation of ESD that I had raised - the QA violations were not getting fixed (Id., at 9-10).

64. In January 1983, I was further punished for Mr. Karner's improprieties. I was removed as internal auditor because only 5 instead of the required 18 audits had been closed out. Part of the problem was due to circumstances - beyond my control. Mr. Karner or supervisors were sitting on some of my audits beyond the required deadline. Mr. Karner also was loading me down with ancillary assignments and unscheduled audits were not counted.

65. On January 28, 1983, during the meeting in which Mr. Karner threatened to get rid of me for looking at quality -related issues without being assigned (Supra, Nos. 27-28), I informed Mr. Karner that he had violated 10 C.F.R. 50, Appendix B. He responded twice that we are not committed to 10 C.F.R. 50, Appendix B, and that it was "O.K." for him to violate the Code of Federal Regulations and related contract specifications.

III. BREAKDOWN IN QUALITY ASSURANCE FOR HYDROSTATIC TESTS.

Hydrostatic testing at Diablo Canyon from 1975 to 1978 does not have the necessary QA documentation to prove the reliability of the tests. In hydrostatic tests, water is run through the plant at higher pressures than normal to see if the piping is reliable.

In February 1981, I conducted Internal Audit 36, in which I learned that nearly all hydrostatic piping tests for a year, during 1980 and 1981 were conducted without required QC documentation. - In April 1982 NRC inspection identified that documentation problems identified

25

in Internal Audit 86 were not properly corrected. I became convinced that serious problems may exist with the hydrostatic tests. In March 1983 I completed Internal Audit 106, which examined the records for 79 original hydrostatic tests and 118 retests conducted from 1975 onward. I learned that the test documentation did not have evidence of required QC oversight, QA records, consistent procedures, or controlled test conditions. In short, there has been a generic breakdown in the QA requirements for hydrostatic tests. They must be redone. Internal Audit 106 is enclosed as Exhibit 4. My specific allegations follow.

66. The procedures for hydrostatic tests conducted before January 27, 1975 are fundamentally inadequate, due to their failure to include documentation requirements, and due to lost pages, the inability to even entirely reconstruct the procedure requirement.

67. Almost all hydrostatic tests and retests from 1975 onward lack required QA documentation. The most significant omission involves QC coverage documented on a piping system closeout - F98 Department Release. This activity is necessary to assure that departments performing the test comply with procedure checklists. Unfortunately, departments only complied sporadically with the requirement to complete and maintain the form which demonstrates compliance with the test procedure. In other cases, there is not necessary backup documentation to verify the conclusions in the release. (Exhibit 4, AAR #1).

68. From December 1977 - April 1978, in 28 cases Pullman test requirement forms did not have information necessary under the

procedure ESD 229. Fundamental data, such as the type of fluid, pressure and temperature, simply is missing (Id., AAR #2).

69. In 28 cases, Pullman's HT procedure data form does not match PG&E requirements. This form is the guide used to conduct the test, so the distinctions translated into different test conditions that disqualify the results from Pullman's hydrostatic test. To illustrate, in one test Pullman's procedure only had a pressure of 2485 PSIG, when PG&E's acceptable minimum was 2812 PSIG.

70. The absence of backup documentation continued after 1978. From March 1978 to April 1980, there were 14 hydrostatic retests without a signed QC field pipe release, dispite the conclusion by Quality Engineering in the test records that QC had verified the results (Id. AAR #3).

71. The problems with hydrostatic tests offer another example of management harassment of QA personnel. During the May 1982 NRC inspection, I spoke extensively with NRC representatives. After the interview Mr. Karner expressed anger at the length of the meeting. At a later meeting, during this general time frame, he threaten to get rid of me.

IV. BREAKDOWN IN VENDOR QUALITY ASSURANCE.

Although I was not as actively involved with vendor QA as with special process and hydrostatic test procedures, I observed the symptoms of a generic QA breakdown after becoming familiar with two examples of QA violations involving vendors. One case involved a vendor that calibrates micrometers, a precision measuring device for Pullman tools and the impact of weld repairs, among other functions. Although the vendor had a clean bill of health and was on the Approved Vendors

List (AVL) until my October 1981 audit, there was virtually no quality assurance program. Unfortunately, corrective action was solely prospective - to remove the firm from the AVL. The damage that already has been done will remain.

The second case involves 1980 and 1982 orders by PG&E for Pullman inspectors to stop reporting the large number of cracked shops welds found in Boston Bergen and American Bridge work. These hardware defects should have been reported on DR's, but instead were ordered to be ignored because they came from a vendor. Specific allegations follow.

72. The reliability of Pullman's Approved Vendors List is indeterminate, due to the inclusion of Microsurface Engineering. This firm only had a token quality assurance program, yet had been approved and passed previous vendor audits. My audit demonstrated that Microsurface did not conduct audits, did not have a written procedure for calibration, conducted uncontrolled inspections, lacked traceability for use on Pullman tools, failed to disclose laboratory standards for calibration, and did not have required documentation for training of laboratory personnel. The violations were so ingrained and pervasive that it is not credible to conclude they only sprang up since the vendor passed an audit the previous year.

73. Corrective action for the Miscrosurface QA violation improperly was restricted to the prospective step of removing the firm from the AVL This was inadequate, because the accuracy of measurements made with Microsurface tools is indeterminate. The effects of previous violations will remain undisturbed.

74. In July 1979 Pullman inspectors began finding significant quantities of cracks in welds received from two vendors, Boston Bergen and American Bridge. Until 1980 Pullman inspectors wrote 19 Discrepancy Reports on the welds, which displayed a consistent pattern of linear indication. The DR's are enclosed as Exhibits 5-24. On April 3, 1980, however, Mr. Marvin Leppke of PG&E issued a memorandum directing Pullman to stop issuing Discrepancy Reports on these "shop" welds. The memorandum is enclosed as Exhibit 25.

75. In 1982 PG&E repeated the improper restrictions on QA enforcement against the same shop welds. This time PG&E instructed Pullman to delete shop welds from the formal walkdown program that represents a final visual check on quality. Relevant supporting documentation is enclosed as Exhibit 26.

V. RECORDS FALSIFICATION

Beyond instances of contradictory and impossible information in the records, in some cases I am sufficiently familiar with the circumstances of false records to state that they were intentionally falsified. Examples involve the qualifications tests for QC inspectors. As a prospective welding inspector I failed one of my initial test and was then given a copy of the test to study to assure passing on the second attempt. Another inspector was certified after taking a test which upon review months later he was found to have failed. He was retested at that time and passed with the assistance of coaching. The test was backdated to the original test date to cover work performed during the intermin period. The latter example occured in 1980.

VI. CAUSES OF THE QUALITY ASSURANCE BREAKDOWN.

77. The most significant cause for the QA breakdown is the environment of repression and the predictable retaliation against QA personnel who diligently try to identify and correct QA violations. The problem goes well beyond the loss of organizational freedom. Upholding the Atomic Energy Act at Diablo Canyon can represent professional suicide. Most significant, the sacrifice is for nothing. The violations remain, uncorrected. My own experience is a case study. Mr. Karner threatened to "get rid of" me on three occassions when I persisted in attempts to obtain corrective action. Mr Karner restricted my freedom as an inspector until I could only look at specific problems assigned by him. I was reprimanded, verbally and in writing, for communicating with corporate QA management about such a fundamental violation as the failure to take corrective action against unqualified NDE procedures on safety related work. To add insult to injury, in January 1983 I was demoted for not finishing enough assignments. The demotion was due in part to Mr. Karner's refusal to act on my audits, which made it impossible in some cases for me to finish my assignments.

78. The final act of reprisal against me occurred on January 13, 1984. I was laid off from my job as a pipefitter, the day after making my third disclosure to the Nuclear Regulatory Commission. NRC inspectors already had told me that site management had a copy of my first report on welding procedures, and that Bechtel was studying it. On Friday, 50 pipefitters were laid off, supposedly due to a lack of parking space. The usual practice for these layoffs is to let workers from the local union stay until last. In this instance 46 out of the 50 employees laid off were "travel cards"

from out -of-town unions. Although more travelers were available, four employees from the local were swept out with the travelers. One of the four was having conflicts with his supervisor and one had an absenteeism problem. The other two were my partner and myself. My foreman protested to the supervisor not to lay off my partner and me, and asked for permission to pick someone else. The supervisor referred him to the resident construction manager, who refused the request and told the job steward that we had to be the ones laid off. My foreman and the job steward recounted these events to me on the day of the layoff. That day the job steward also informed me of the perception of site that my layoff was due to "politics" and was decided "higher up". On January 25, 1984, the day after retaliation was widely discussed at Congressional hearings, management called me back to work but not my partner. The pattern represented by my case illustrates why a significant number QA violations have gone unreported, and why the quality of Diablo Canyon is indeterminate. Those who persist in reporting the violations are dismissed, or harassed relentlessly until they resign, or give up and stop trying.

79. Another cause for the QA breakdown is subordination of PG&E's and Pullman's QA department to construction. Until recently, PG&E site QC did not review Pullman Discrepancy Reports. PG&E's Resident Mechanical Engineer, a construction offical, reviewed and approved corrective action to discrepancies. As of May 1983, Pullman Internal Audits were not submitted to PG&E site QC for review but instead submitted to the Resident Mechanical Engineer.

80. Another cause for the QA violations was lack of resources. To illustrate, from August 1980 to September 1982, Mr. Karner was the only permanent employee in the QA/QC site management. He did not have an assistant QA Manager, and the QC Supervisor was a temporary employee.

81. The QA breakdown was not due to PG&E ignorance. On

repeated occasions, I identified many of the issues in this affidavit to a variety of officials within the PG&E supervisory and management staff. Although some officials listened and expressed agreement and/or sympathy, none of the violations were corrected. I believe that PG&E and Pullman have been gambling that the NRC will not enforce the QA laws, even if they are caught. For the sake of the public's health and safety, I hope that the NRC calls their bluff.

I have read the above 31 page affidavit, and it is true, accurate and complete to the best of my knowledge and belief.

Harold C. Hudson

Harold Hudson

SUBSCRIBED AND SWORN this 1st day of February ~~January~~, 1984, in [illegible], California.

OFFICIAL SEAL
PEGGY M. ZATT
NOTARY PUBLIC — CALIFORNIA
SAN LUIS OBISPO COUNTY
My Commission Expires [illegible]

Peggy M. Zatt

NOTARY PUBLIC
My Commission Expires:

ATTACHMENT K

Concerns #189, #191, #192, #193, #194, and #195

Task: Allegation or Concern No. 189

ATS No.: RV-84-A-0025 **BN No.:**

Characterization

Magnaflux weld verification program accepted bad welds.

Assessment of Safety Significance

The staff's assessment of this issue is that the allegation is a known issue which has been responsibly handled in the past.

Staff Position

This allegation is an issue which appears to be a restatement of concerns identified in allegations 123 and 192. The issue of concern here does not appear to represent a new significant management or quality performance issue which has not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

Task: Allegation or Concern No. 191

ATS No.: RV-84-A-0025 BN No.:

Characterization:

PG&E has the attitude that QC finds too many problems. PG&E has directed that shop welds are not to be inspected. No specifics were provided.

Staff Position

This allegation is an issue which appears to be a restatement of concerns identified in the past. The issue of concern here does not appear to represent a new significant management or technical situation which has not been previously addressed.

Action Required

This allegation will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

2

Task: Allegation or Concern No. 192

ATS No.: RV-84-A-0025 **BN No.:**

Characterization

Acceptance criteria changed to decrease weld failure rate.

Assessment of Safety Significance

The staff's assessment of this issue is that the allegation is a known issue which is being responsibly handled.

Staff Position

This allegation is an issue which appears to be a restatement of concerns identified in allegations 123 and 189. The issue of concern here does not appear to represent a new significant management or quality performance issue which has not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

Task: Allegation or Concern No. 193

ATS No.: RV-84-A-0025 BN No.:

Characterization

Poor QC inspector selection and training

Staff Position

This allegation is an issue which appears to be a restatement of concerns identified in the past and also identified and extensively reviewed in allegations 57 and/or 58. The issue of concern here does not appear to represent a new significant management or technical situation which has not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

Task: Allegation or Concern No. 194

ATS No.: RV-84-A-0025 **BN No.:**

Characterization

Document control is informal (rules made up as they go along).

Staff Position

This allegation is an issue which appears to be a restatement of concerns identified in the past and also identified and extensively reviewed in allegations 61 and 102. The issue of concern here does not appear to represent a new significant management or technical situation which has not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

5

Task: Allegation or Concern No. 195

ATS No.: RV-84-A-0025 **BN No.:**

Characterization

Document control stamps are not controlled.

Staff Position

This allegation is an issue that is vague and is one of minor significance in terms of the health and safety of the public. It does not represent a new significant management or technical situation which has not been previously addressed.

Action Required

This issue will be turned over the PG&E for response. The licensee will be required to provide written response to their findings and corrective actions.

189, 191-195

AFFIDAVIT

My name is I am giving this affidavit freely, without threats or inducements, to John Clewett, who has identified himself to me as a lawyer with the Government Accountability Project (GAP) of the Institute for Policy Studies (IPS) in Washington D.C. I am making this statement because I believe there are widespread quality control/quality assurance (QC/QA) deficiencies in the QC/QA Program as it now exists at the Pullman Power Products Company at the Diablo Canyon Nuclear Power Plant, and because this raises serious questions about the overall level of quality required by the owner of the plant, Pacific Gas and Electric (PG&E) and by the Bechtel Company. I am concerned that this QA/QC breakdown may affect the public health and safety if the plant is allowed to go critical.

I am currently employed by the Pullman Power Products Corporation, one of PG&E's primary subcontractors, as a QC Inspector, Level II. I have worked for

My concerns about the quality control program at Diablo Canyon fall into several main categories, including inadequate training, lack of support of QC inspectors by QC management, actual threats and intimidation of QC inspectors by construction personnel and by our own management, and reprisals against those QC inspectors who follow the code too closely.

was held by John Ryan until last summer, and is now held by Paul Steiger) in terms of deadlines by which QC must finish its work.

Similarly, when Mr. Karner's assistant, Frank Lyautey, gave merit raises to almost everyone in the fall of 1983, he bypassed a few individuals. One of the ones who didn't get a merit raise was Craig Meagher, our Union Steward, a very competent and thorough worker. Craig told me that when he asked Mr. Lyautey why he hadn't gotten a merit raise, Mr. Lyautey said that it was because the production foremen had complained that he was holding them up in their work, and not being "cooperative" enough with the craft workers. From incidents like this, it is clear that Pullman's QA/QC department wants us to give the production workers the benefit of all possible doubts, perhaps in the belief that if QC finds too many problems with production, it might affect Pullman's contract with PG&E.

19) This attitude toward quality is not limited to Pullman, though, and is shared by PG&E. There has for a long time been a problem with welds in structures supplied by vendors. These "shop welds" are often very poorly done, in a fashion where no QC Inspector could possibly accept the work if done on site. In particular, some of the earlier work supplied by Bostrom/Bergmen Co. and by American Bridge Co. is truly abominable. Some of the welds are so ragged that they will tear your clothing if you get too close.

In response to a series of questions about this situation, PG&E sent a memorandum in 1982 saying that we were not supposed to inspect shop welds at all. The memo said that since the plant was "over-designed", welds that looked defective were not a problem, and had in fact already been accepted, and so we should ignore them. PG&E said we are not supposed to grind, weld, inspect or otherwise be concerned with shop welds, without specific PG&E approval.

This situation has caused some friction with the craft workers, who resent being told by QC that they have to meet standards that are much higher than those of the shop welds on a structure immediately next to the work they are doing. And the QC Inspectors feel as though we're expected to put on our "QC blinders" when we go out to inspect work, so we don't notice a non-conforming condition that we're not supposed to.

192 I also question how "over-designed" the plant is, based on an incident involving an ultrasonic test that the Magnaflux Corporation did about a year ago on some welding in Unit 1. From discussions with Magnaflux employees while the testing was occurring, I learned that approximately 90% of the welds were failing. In response to that, Bechtel employees directed Magnaflux to change the "acceptance criteria" on which the welds were to be accepted or rejected. That dropped the failure rate to 40%, after which Bechtel changed the acceptance criteria again, lowering the rejected welds to 10%. When they got it down to 10%, they took those welds and put them into production to be fixed.

In my opinion, for QC to improve at Pullman, the focus on schedule rather than quality must change, QC inspectors shouldn't be bullied and retaliated against by either the production workers or the QA/QC management, and the managers at Pullman and at PG&E must become much more willing to be told about the actual QA/QC problems we see. In addition, other changes need to be made, in training and in document control.

197 The selection and training process for QC Inspectors is very poor. Most newly-hired QC Inspectors (roughly 2/3 to 3/4 of them) have no previous experience in welding inspection. A new QC inspector is given a crash course that takes about a week. This course doesn't even cover how to write a DCN. There are, however, some written materials that say how to prepare a DCN. On the other hand, we have never been told, orally or in writing, about how to fill out a Non-Conformance Report (NCR), nor would I have any idea where to get a blank form for an NCR. Until the NRC came out to interview people last week, I didn't even know, after

being a Pullman QC Inspector for that QC Inspectors had the right to prepare an NCR.

When training <u>is</u> given on some subject, it is done by handing the individual some written materials, and then having him sign a statement that he has read them. Unfortunately, very often the individuals will sign these statements without having read the materials very thoroughly.

194 Another major problem is document control. The idea behind building a nuclear power plant is that you design it first, and then build it to those specifications, using controlled documents. But at Diablo Canyon they seem to be making up the rules as they go along. With the pipe supports, for example, there are more than 80 pages of ESD's with various acceptance criteria, but then there are a whole series of totally uncontrolled memoranda that we get through Mr. Karner that tell us to disregard certain portions of the ESD's and work to different standards. And in addition, because the ESD's and the design drawings sometimes conflict, Pullman's ESD's specify that the design drawing takes precedence over the ESD's. But the design drawings themselves have many hand-drawn changes that used to be called "Quick Fixes" and now are called "Design Tolerance Clarifications". These Quick Fixes are done by a Field Engineer if there is a problem doing the work as it was originally designed. The Quick Fixes are very poorly controlled, are often voided or removed from the work packages we get. The idea behind the quick fixes, which have not been analyzed before they are implimented, is that subsequent re-analysis of the whole structure will catch any problems that exist. I feel that the situation with the quick fixes is one of the worst aspects of the whole system at Diablo Canyon.

195 Another problem that I am personally aware of that has impact on document control is the control of the various stamps that must be stamped onto drawings

to show approvals. These are not systematically controlled for access. I once saw an abandoned desk that had a whole set of stamps lying on top of it, where anyone could have used them to make a drawing look more official than it really was.

I want to clarify that I am not making these statements because I am in any way anti-nuclear. I believe that nuclear power can be a viable source of energy if nuclear plants are built with strict compliance to QA/QC principles, and with a desire to do the job well. But with Diablo Canyon, being built the way it is, I seriously doubt that it will ever be safe to operate, at least in the absence of a complete investigation into the QA/QC breakdown that now exists at Diablo Canyon.

I have read the above 10-page affidavit, and it is true and correct to the best of my knowledge and belief.

Subscribed and sworn before me
on this 12th day of January, 1984.

Holly Larson
Notary Public

My Commission expires 9-5-87.

HOLLY LARSON
NOTARY PUBLIC
SAN LUIS OBISPO COUNTY
CALIFORNIA
My Commission Expires on September 5, 1987

AFFIDAVIT

My name is I am giving this sworn statement freely, without any threat or inducement, to John Clewett, who has identified himself to me as an attorney working with the Government Accountability Project (GAP) of the Institute for Policy Studies (IPS) in Washington, D.C. I have decided to speak openly about the safety-related problems at Diablo Canyon because I fear that the Nuclear Regulatory Commission may otherwise take the premature action of allowing the startup of Diablo Canyon before it has been shown to be safe to operate.

I am currently working at Diablo Canyon for Pullman Power Products as a Quality Control Inspector, Level II.

As an individual trained and experienced in quality control inspection, I have found serious quality-control problems at Diablo Canyon. These QC failures affect safety-related structures and systems that are crucial to the safe operation of the Diablo Canyon nuclear reactors.

My particular concerns include the following practices:

189 1. In October or November of 1982, while I was working for Pullman Power Products as a QC inspector, Magnaflux Corporation was brought in by Bechtel/PG&E for a weld reverification program on butt welds on Unit 1 ruprture restraints using ultrasonic testing. It was apparent after the testing was done, that an unacceptable percentage of the welds were bad.

There were some truly pathetic welds. In one particularly vivid case, I observed a butt weld, which is required by professional welding codes to incorporate a backing bar as an integral part of the welded joint. However, the backing bar was only held on in this case by the tack-welds meant to hold the bar in position while the weld itself is completed. It was on so weakly (no penetration) that a light tap with a hammer knocked it off completely. This weld was on a steel ruptrue restraint that was probably also structural, holding up a pipe rack at Unit 1.

Later, I was told by one of the Magnaflux inspectors that a a PG&E engineer from San Francisco declared that in spite of the ultrasonic testing results, the welds were acceptable, on a volumetric basis.— What this means is that the number of defects in the welds doesn't matter because the remaining acceptable weld volume is sufficient. The problem with this analysis is that ultrasonic testing is unable to determine what type of discontinuity exists in the weld. For certain discontinuities, such as trapped gas or slag, the volumetric size can be a valid consideration. But if the weld is internally cracked, there is a good chance that the crack will propogate, causing the weld to fail. For this reason, the acceptance of these welds on a volumetric basis is completely improper, because the welds could still be bad.

I am concerned that the specific welding of the rupture restraints and pipe supports may not be adequate to insure safety. But beyond that I am concerned that the actions of the Bechtel/PG&E officials who tampered with the ultrasonic testing showed contempt for the very concept of quality assurance, which presupposes reliable testing of components, systems and structures so that they have been honestly shown to comply with applicable principles of quality assurance.

Exhibit 1
(34 pages)

1842 Johnson Avenue
San Luis Obispo, CA 93401

January 2, 1984

Mr. Mark Padovan
Resident USNRC
P. O. Box 369
Avila Beach, CA 93424

Dear Mr. Padovan:

This letter is the information we discussed in my Dec. 23 phone conversation with you. I was a quality control inspector for Pullman Power Products, Diablo Canyon from July 25 to Dec. 15 of 1983. During this time I worked in the rupture restraint and piping support programs performing visual, dimentional, and welding inspections in unit 1 and unit 2.

Dates mentioned in this report before Dec. are approximate because all paperwork including personal notes, inspection logs and memos were confiscated by Pullman. Information copies of the documents that I needed to properly make this report were flatly denied by Pullman. However, should you find that this report has no legal standing without that data: could the NRC make those papers available to me so that I may assemble a legal report?

The allegations in this report have serious consequences. The incidents are presented in a chronology to show how Pullman provided for evaluation of deviations presented by myself and others.

Sept 20

1. Deviation from the requirements of contract specification 8711
2. Failure to notify purchaser (PG&E) of past and present deviations.
3. Failure to notify the Commission as required by 10 CFR 21.21 b)

Addressed memo to Harold Karner. Pullman's QA manager, regarding PG&E's contract specification 8711, Sec. 1, Para 7. 10.1. The contract stated that all GTAW shall be performed with a power supply equiped with 1) High frequency for arc initiation, 2) Rheostat for stepless control of current.

15

Research indicated that in the 1977 revision of weld procedures Pullman had failed to include this requirement in their updated Weld Procedure Specifications, WPSs. Further, PG&E approved of the Pullman changes to the weld procedures and in effect ceased to enforce PG&E's own procurement document.

In verbal discussion with Harold Karner I informed him that none of Pullman's GTAW machines could presently meet the specifications of 8711. Harolds reply was " if PG&E doesn't enforce the contract Pullman doesn't intend to." I then informed Harold that in lieu of the high frequency the welders were scratch starting each time the arc had to be initiated thus contaminating the weld with tungsten. I also told him of the defects I was seeing as a result of no current control devices and no off/on switch on the power supplies Pullman was using. The defects occur at the end of the weld cycle when the welder tries to extinguish the arc by pulling the tungsten electrode directly out of the area over the weld pool. The weld pool is kept molten as the arc elongates but then starts to freeze as the arc and magnetic field collapse, oscillating the still liquid pool, and creating a hole at the center point of the weld pool.

PG&E's contract writers were aware of these types of defects typical to GTAW when they wrote 8711 specifying the type of equipment to be used. Certainly a higher level of quality is obtained when using the proper equipment and if this higher level of quality was thought to be obtained when documents such as the FSAR were written: then a problem has occured.

No reply to my memo has been recorded as of my termination date 12/15/83.

<u>Sept 22</u>

1. Failure to impliment the quality assurance program as specified in 10 CFR 50, appendix B, criteria II & X.

A welder was going to start welding when I asked him to attach an argon flow meter near the torch in his GTAW process. The welder refused to cooperate saying that as long as there wasn't a holdpoint on the process sheet for it the inspector didn't have to check it. The welder's foreman and my QC supervisor were called in to mediate. The QC supervisor, Merle Edgerton, said he thought my inspection was a bit excessive. I reminded Merle that a 20 CFH flow rate was specified by the WPS and that if I was not allowed to check it, when I thought it necessary, then he could get someone else to do the job.

I was requested to perform inspections elsewhere and left.

Sept 26

1. Failure to issue and maintain adequate document control as required in 10 CFR 50, appendix B, criteria VI.

I requested a copy of Pullman's welding procedures at least five times from my superiors Gary Sawer, Jim Cunningham, Russ Nole, Pat Watson, and Harold Karner. Mr. Karner's response was that too many copies of the weld procedures had already been issued and that the logistics of controling them had become unmanagable.

Oct. 4

1. Failure to provide adaquate control over inspection and process monituring as required in 10 CFR 50, appendix B, criteria X.

I was requested to inspect a full penetration weld attaching a stanchion to a pipe. Upon arriving I found the craft had welded the cover plate on the free end of the stanchion. I didn't accept the work because I was not given an opportunity to evaluate the profile of the back side of the weld. QC supervisor, Russ Nolle, instructed me to accept the work. I protested that the cover should be removed by breaking the tack welds and the back side of the weld inspected. Russ would not permit the cover to be removed saying that the visual inspector had limitations that sometimes did not allow the inspector to view the back side of full penetration welds.

Started to notice that the welding machines were not calibrated on a regular basis and that tong type portable amp meters were not issued and were rarely seen in the field.

Oct 6

1. Over-extention of weld procedure to situation outside scope of original qualification limits. Violation of 10 CFR 50, appendix B, criteria IX.

I was asked to inspect the fit-up of a threaded stud being welded to the containment liner. After looking at the weld procedure being used I determined that welding small diameter studs was not included in the scope of the procedure. I called Harold Karner and pointed out that there was almost no similarity between the original procedure qualified on pipe and the present application.

Harold assured me that the 7/8 procedure was qualified for the situation and that they had welded thousands of the studs using that procedure. I replied to Harold that if Pullman had intended welding thousands of them perhaps a procedure should have been qualified which specifically included the solutions to problems unique to welded studs. It was decided that since I had such deep reservations about the procedure being used another inspector was asked to perform the inspection.

Later, QC supervisor Russ Nolle came out to explain how WPS 7/8 was used to weld studs. Russ told me that the backing strip could be deleted provided a back grind was used. I countered Russ by pointing out that if back grinding was intended then the procedure would have included direction as to what the requirements of the back grind would be.

Further research on this subject has shown that the stud material most often being used by Pullman is a bolt material, A 307. The stud is made by taking an A 307 bolt and cutting off the head, then the bolt is cut with a chisel point and subsequently called a stud. The problem is that A 307 is not a P1 material and can not be used in the present Pullman welding procedure 7/8. (See attachments 1 & 2 for information copy of part of WPS 7/8.)

Further, bolting material A 307 was never intended as a welded stud because the only chemical limitations on the product are phosphorus and sulfur contents. Lastly, the material can not be traced because individual heats of steel are not identified in the finished product. (See attachments 3,4,&5)

<u>Oct. 10</u>

1. Work performed without instructions, procedures, or drawing control in violation of 10 CFR 50, appendex B, criterias V & VI.

I had noted that in the rupture restraint work in unit two fillet welds originally performed by American Bridge had enchroached on the areas around bolt holes that resulted in many bolts not seating properly. As a solution the fillet welds were ground back. However, I asked the RR engineer if measures were being taken to revise the weld sizes in the area of the bolts on the weld sheets. RR engineer, Dale Warren, replied that to his knowledge the drawings were not being revised.

Oct 12

1. Failure to update procedures to current criteria as required in procurement document 8833-XR, violation of 10 CFR 50, appendix B, criteria VI.

Upon rejection of out of tolerance washers to criteria set forth in ESD 243 pertaining to hardened steel washers, Dale Warren, the unit two RR engineer found that the information presented in the ESD was out of date. I relayed the information to Harold Karner, the QA manager, who then failed to notify other inspectors that the ESD was out of date and that new criteria was in effect. As of Dec. 15 ESD 243 had still not been revised and the other inspectors still did not know of the new criteria.

Oct. 17

1. Failure to provide for inspector evaluation of defects found in items verses the requirments of the procurement documents.
2. Misdirection to inspector by QC supervisor, denial to procurement documents, and itimidation for performing inspection activities as described in 10 CFR 50, appendix B, criteria I.

I had found defects in A-490 bolts sent to the field for installation in Rupture Restraint work being performed in unit two. The bolts had forging laps visable on the head and I had occasionally seen longitudnal quench cracks on the shaft. I consulted the procedures, ESD 243, and found that the ESD had no rejection criteria for the bolts.

I rejected the bolts and then proceeded to search for the procurements referenced in the ESD to find the proper status of the items in question. While making copies of an ASTM standard in the office Russ Nolle asked me outside for a discussion. Russ said that I would no longer be allowed to look at or make copies of: the AISC Construction Manual, the [illegible] or ASTM Standards, or the ASME Codes. By seeking information in those documents you are beyond your scope as an inspector, "you have your ESDs."

I replied that ESD 243 did not address inspection criteria for A-490 bolts. Russ said to me "any conditions found outside of the scope of the ESDs shall be accepted." I told Russ that I would not be able to abide by that and if the ESDs did not cover the situation, then, I would seek inspection criteria elsewhere. Russ got pissed and said that he and Harold Karner have "had it up to here," pointing to his neck. "You got one foot out the door, Mr. Lockert, one more wrong move and you're gone."

Oct 20

1. Deviation from the technical requirements included in the procurement documents 8833-XR and AWS D1.0-69. —
2. Failure of both PG&E and Pullman to regularly review the status and adequacy of the QA program in violation of 10 CFR 50, appendix B, criteria II.

I had reviewed Pullman's ESD 202, Welding Electrode Control, verses my own copy of AWS D1.1-83, Structural Welding Code. In the area of storage of low-hydrogen electrodes I had found a discrepency in that Pullman's requirements were below those specified in the code.

I sent a memo to Frank Lyautey, assistant QA manager, telling him what I had found and asking him to check his copy of AWS D1.0-69, the document referenced in 8833-XR, to see if we really had a problem. Pullman's ESD stated that the minimum required storage temperature for low-hydrogen electrodes was 225° F while I had noticed that AWS required 250° F.

Some time later I was contacted by Frank and informed that I was correct in that the 69 version of the code also required the higher temperature. Frank went on to assure me that he had personaly checked the logs and that no violations had occured and that he was issuing a memo immediately to notify all other concerned parties.

Oct. 24

1. Over-extension of welding procedures outside the scope of original qualification limits. Misuse of prequalified procedures per AWS in violation of 10 CFR 50, appendix B, criteria IX.

I examined the procedure qualification requirements of AWS D1.1 and compared them to Pullman's Rupture Restraint welding program. It appeared to me that Pullman had taken a WPS qualified under the ASME Sec. IX criteria and transfered the qualification to the AWS criteria. To my knowledge this is permissible in that the mechanical requirements of the PQR (tension and bend tests) are transferable to both codes.

However, one of the main points in the application of the WPS to field welding is that joint design is an essential variable in the AWS D1.1 code while in ASME it is not. I started to look at the process sheets coming out to the field and noticed that

20

Pullman was welding a variety of seven different joint designs and calling it all out as one WPS 7/8.

A closer examination of Pullman's RR welding program revealed that they were working with two documents: WPS 7/8 and a Welding Technique Specification called AWS 1.1 (see attachments 6 thru 11 and 12 thru 14.) The welding procedure 7/8 when applied to AWS welding only qualifies the original joint design used in the PQR because joint design is an essential variable. The Welding Technique Specification AWS 1.1 has been used as some kind of prequalified procedure not able to stand on its own but in some way attached to WPS 7/8.

A close look at AWS 1.1 will show how the nature of this document changes:

1. The title of the document says "Welding Technique Specification" but notice that it also called a WPS on pages 2 & 3 (upper right corner).

2. Note that the supporting PQRs are prequalified. Why would a technique specification require any qualification record? A technique specification has no legal bearing under any code but a WPS surely would.

3. The permissible base metals listed include A-515 and A-588. The former is not listed under the steel specification requirements of AWS D1.1, Table 4.1.1 and the latter requires special welding procedures for impact loading or weathering applications (see note 6 of Table 4.1.1.)

In order for Pullman to use prequalified joint designs for its use in rupture restraints all mandatory code requirments must be met as shown in AWS D1.1, Table E1, not to mention the least of which is a written WPS. Pullman can not use prequalified joint designs because "Welding Technique Specification AWS 1.1" is not a WPS nor does WPS 7/8 extend into the realm of prequalified procedures because it does not incorporate all aspects of D1.1 either.

My first comments on the apparent discrepency were with Russ Nolle. Russ said not to get excited because someone had already caught it in an audit. (Could Russ be refering to audit # 35 performed by Harold Hudson back in March of 83?)

21

Oct. 25

1. Attempt to decieve Pullman QC inspector of PG&E's violation of its own procurement documents.
2. Failure to notify the Commission of deviation from procurement document 8711, violation of 10 CFR 21.21.

I was still concerned that work was being performed outside the scope of 8711, PG&E's contract with Pullman for piping and pipe supports. Recently, I had heard of 200 welds in schedule 10 stainless steel pipe that had failed to meet radiographic standards. I researched the problem by asking the reader of the radiographs, Pullman's Level III NDT Mike Mckray, what types of defects he was seeing. Mike told me that many of the defects appeared to be grouped either at the start or end of weld passes and that because of the thickness of the pipe defects (porosity mostly) larger than the head of a pin had to be rejected.

Thinking that the lack of dated GTAW equipment might be contributing to the problem I called PG&E's NPO Welding Engineer Dave Stupi. Dave had asked for several days to research the 8711 contract himself so that this was my second contact with him. Dave told me that 8711 was a very old document written at least ten years ago and that I had probebly stumbled on an old copy that had never been updated. Dave refered me to another PG&E engineer and said I was not to include him in any more discussions on the matter.

Nov 2

Presented Harold Karner, Pullman QA Manager, written notification of my finding with regards to rupture restraint welding with the WPS 7/8 & AWS 1.1 combination.

Nov. 8

1. Failure to recognize a significant condition adverse to quality, failure to take corrective action, violation of 10 CFR 50, appendix B, criteria XVI.

I performed an inspection directly underneath the unit two pressurizer in which I observed old work that would be absolutely unacceptable under any code. Welds were on Rupture Restraints

22

originally built by another contractor, American Bridge, with the manual SAW or, possibly, FCAW process. I brought my concerns to Russ Nolle but he said no, nothing can be done about it because it was another contractor and already accepted.

Nov. 16

1. Failure to take corrective action to preclude repetition of significant condition adverse to quality in violation of 10 CFR 50, appendix B, criteria XVI.
2. Failure to provide evaluation in a timely manner and coercion to perform inspections to procedures shown to reasonably questionable, violation of 10 CFR 50, appendix B, criteria II.

Two weeks before I had informed Harold Karner the problems I was having justifying the welding being performed on rupture restraints. Now I was being asked to inspect again to procedures I had shown were questionable.

I told my leadman, Jim Cunningham, what I had found and that I had not received a proper response from Mr. Karner. Untill I get one I don't feel I should go inspect. Jim told Russ Nolle and Russ acompanied me to Harold's office.

I explained to Harold my situation. Harold said I was entitled to my opinion but that PG&E had already approved the present procedures. Further, he said I had a choise: I could go out and inspect or I could look for a new job. I informed Harold that I had done everything in my power to get a quality problem corrected and that if he was going to threaten me with my job then I had no real choise but to go and inspect.

Dec. 8

Temporarily assigned to the area 10 fab shop. The area 10 fab shop also houses the welder qualification test bay so that I had the opportunity to witness some of the welders as they performed their tests. After some questions I had directed at the the welders, I noticed that there were perhaps six or seven welders proceding through the activities of the test with no QC interaction.

Later on, in the afternoon, after observing more testing with no QC participation I walked into the small office area and struck up a conversation with the production foreman, Art Savacou. I asked Art where the QC inspector was at. Art replied they didn't have one at the moment but that he and Pat Watson had "an understanding." I thought that was pretty interesting so I asked Art if he was qualified as an inspector. Art replied no.

Dec. 9

1. Failure to provide for assurance that all prerequisites for testing have been met, violation of 10 CFR 50, appendix B, criteria XI.

I learned this morning that the QC normally assigned to the welder qualification tests had quit on Dec. 7 at 09:00. After further observance of tests being performed with no QC interaction, I checked the requirements of Pullman's Quality Assurance Manual and reviewed the statements in ASME, Sec III.

Wrote memo to Pat Watson, the area 10 leadman/welding qualification supervisor, noting that Bill Bailey was gone and that I had observed an apparent lack of QC participation in the testing. I reminded Pat that the QA Manual's paragraph KFP 15.2 specifically stated that a field inspector shall be assigned to the test shop and that ASME, Sec III, paragraph NA 3764.1 d would not allow a production foreman to determine the quality of production welders.

When Pat came on his walk through the fab shop I handed him the memo. Pat after reading the memo would not accept it and walked off. Sometime later Pat returned and finally accepted the memo.

At approximately 14:00, Frank Lyautey and Chris Neary appeared and wanted to know what was going on. Frank is the assistant QA manager and Chris is Pullman's welding engineer from Williamsport, PA. I related the story and told Frank that I had notified the proper person in the chain of command about the apparent discrepency. Frank explained that Bill Bailey had quit and that a new inspector was scheduled to start in the welder qualifications on the 12th. In the absence of either inspector, Pat Watson was performing duties as field inspector in the test shop.

I admitted to Frank that I had seen Pat Watson in the test bay twice on Thursday, the 8th, but that for the majority of the time I had noted no QC at all. Frank assured me there

24

was no problem and then Pat Watson joined us and he assured me the inspections had been performed. I asked Pat what his intensions were regarding the welders I had seen qualifying with no QC around. Pat said he had no requalification tests in mind because there was no quality problem. Frank then asked me to join Chris Neary and add any comments I had to Chris' revision of Pullman's rupture restraint welding.

My discussion with Chris covered his intensions to:

1. Restrict application of WPS 7/8 to the original joint design shown in the PQR. (Note that there is no joint shown in the PQR but only a reference to sheet 2 of 10 ?)

2. Use of prequalified procedures for all other applications.

After examination of Chris' notes I brought up the point that he intended to use the same eight or nine prequalified joint designs they had been using before but that he was still grouping them all under one procedure number, AWS 1.1. I said this could be confusing and that it did not appear to satisfy the requirement of a written procedure for each procedure. For instance, how can a single bevel corner joint have the same written procedure and number as a double V butt weld that requires back grinding and welder access from both sides?

I reminded Chris that under AWS joint design is considered an essential variable. Chris did not see that this was a problem.

Dec. 12

I reviewed the events leading up to the confrontation on the 9th and determined that there still existed some doubt as to wether the qualification tests had been performed properly. Frank Lyautey and Pat Watson had personally assured me that there was no problem, yet, they had not willingly showed me evidence of the inspection records. In my own mind several questions remained to be answered:

1. Why had I observed the qualification tests being performed with no QC including Pat Watson present?

2. Why did Art Savacou the production foreman who had appeared to be running the show refer to an "understanding" with Pat Watson.

3. Did Harold Karner know of the problems I had witnessed in the test shop.

25

I refered to the QA Manual and found instructions that said the QA manager was to be informed of problems affecting quality. I initiated DCN 1/1640-021 that told of what I had observed and that it appeared Pullman was performing work outside the scope of its own QA Manual. The Deficient Condition Notice required an engineers signature to be submitted so I asked Mike, the area 10 engineer, to cosign the DCN.

Mike declined to sign the DCN because it showed no hard evidence of a hold point being passed. Mike did say, however, that if I did provide evidence then he would sign the DCN.

Dec.13

1. Failure to provide inspector access to records showing that a function pertaining to quality was adequately performed, in violation of 10 CFR 50, appendix B, criteria I.

After informing RR engineer Dale Warren that I would not accept their previous performance of a stich weld observed on the construction of square beams, I decided that I would inspect the records of the test shop du ing the time of Bill Bailey's absence.

I went to the test bay and explained to Art Savacou that I had reason to doubt that the welder qualification test surviellance inspections i.e. materials, process, position, fitup, rootpass, WPS parameter verification, final visual, bend tests had been performed.

Art refused me access to the records saying that only his direct supervision could look at the records. I informed Art that by doing so he was denying a QC inspector the right to inspect records. Art's reply was "what are they going to do - put me in jail?"

I left the test bay and contacted Pat Watson asking to see his records for Dec. 7,8,&9 concerning welder qualifications. After some discussion Pat showed me what he had, the records showed a summary of the welders who had qualified, who passed, who failed. I told Pat that this was just a summary and that the records did not show wether the required inspections had been performed. Upon leaving, I reminded Pat that I was still waiting for a written response to the memo.

Dec 14

1. Failure to notify authorized personnel of changes in Quality Assurance Program in violation of 10 CFR 50, appendix B, criteria VI.

For the events of the morning supposedly causing my termination see Pullman's Termination Notice to Payroll Dept., pages 1 and 2 and my grievance addressed to Mr. Stieger, pages 1-5. (Attachments 15 through 21)

In the afternoon after checking a portable rod oven that had yielded repeated violations of the minimum temperature allowable for low-hydrogen electrode storage, I asked the welder to get another rod can because this one appeared defective. The QA rod room attendent came over after checking the can and asked what the problem was. I replied that it was below the 250 F min. required by AWS D1.1.

He said that the ESD only required 225 F. I replied that ESD 202 had been changed back in October. The QA rod room attendant didn't believe me because he had n't recieved a memo on the subject. I showed him my copy of D1.1 and he agreed that was what the code read but that he couldn't change the rod oven temperatures until he recieved word from his supervisor.

Dec. 15

See page four of grievance (attachment number 21.)

The events I have presented have been shown to be in disregard of procurement documents, codes and standards, and Federal Regulations. Of course, only the Commission has the right to interpretation of the Federal Regulations but that does not mean that each person involved in the nuclear industry is denied their own inference.

I have provided what documentation I could and I ask that the NRC provide me access to the records on site so that I may provide you with the necessary hanger and rupture restraint numbers for your own investigation. All events and conversations are true and accurate to the best of my knowledge.

Respectfully,

E M. W. KELLOGG COMPANY
Division of Pullman Incorporated
ping Fabrication
illiamsport, Pa. 17701

Weld Procedure Code No. 7/8
Spec. No. P1-8R-F4-SMAW-2G-5G
Date 11/25/69
Revision Dates: 11/20/70 6/11/71
Retyped 6/19/73 Retyped 11/28/73
Rev. 10/15/76 9-31-77

OCEDURE SPECIFICATION FOR: ~~Carbon Steel ng. and plate with backing ring or bar butt~~ fillet welds. SMAW

SE METAL: The base metal shall conform to specifications for ASME, Section IX, P-1 rials.

LLER METAL: ~~The filler metal shall con~~ n to ASME Filler Metal Specification Number -5.1 for ferrous filler metal in Group Num- F-4.

he chemcial composition of the weld deposit ll fall within the limits of weld metal lysis, Number A-1.

AS FOR TORCH SHIELD: None

S FOR BACK-UP PURGE: None

ACK WELDS FOR SET-UP: Same as for weld (see e 2).

OSITION: The welding may be done in all itions.

REHEAT & INTERPASS: 50° F minimum. 175° F inimum for material that has a carbon content excess of 0.30% and 1" thickness. (See ESD 3 for AWS Welding).

POST HEAT TREATMENT: 1100°-1200° F, 1 hour r inch minimum (see Job specifications for cle and thicknesses requiring post heat eatment).

BACKING STRIP: The welded joints shall util- e a backing strip.

RAVEL SPEED: SMAW — 1" - 8" per minute.

WELDING PROCESS: The welding shall be done the SMAW process with a backing strip, us- g manual equipment.

A BASE METAL THICKNESS: This procedure is qualified to allow welding of unlimited thickness on structural members under AWS requirements. When welding to ASME requirements the maximum qualified thickness shall be 3.18". For PWHT, the applicable code standard shall govern maximum thickness in the as welded condition.

PREPARATION OF BASE MATERIAL: The edges or surfaces of the parts to be joined by welding shall be prepared by flame cutting, plasma arc, grinding, machining, or any combination of methods to essentially form the geometry of the weld shown on Page 2 as detailed on the attached sketches and shall be cleaned of all oil or grease and excessive amounts of scale or rust.

ELECTRICAL CHARACTERISTICS: The current used shall be DC SMAW — Reverse Polarity

JOINT WELDING PROCEDURE: The welding technique, such as electrode sizes, and voltages and currents for each electrode, size of the welding tip and filler rods, shall be substantially as shown on Page 2.

APPEARANCE OF WELDING LAYERS: The welding current and manner of depositing the weld metal shall be such that there shall be practically no undercutting on the side walls of the welding groove or the adjoining base material. See job specifications for specific undercutting limitations.

CLEANING: All slag or flux remaining on any bead of welding shall be removed before laying down the next successive bead of welding.

DEFECTS: Any cracks or blow holes that appear on the surface of any bead of welding shall be removed by chipping, grinding, or gouging before depositing the next successive bead of welding.

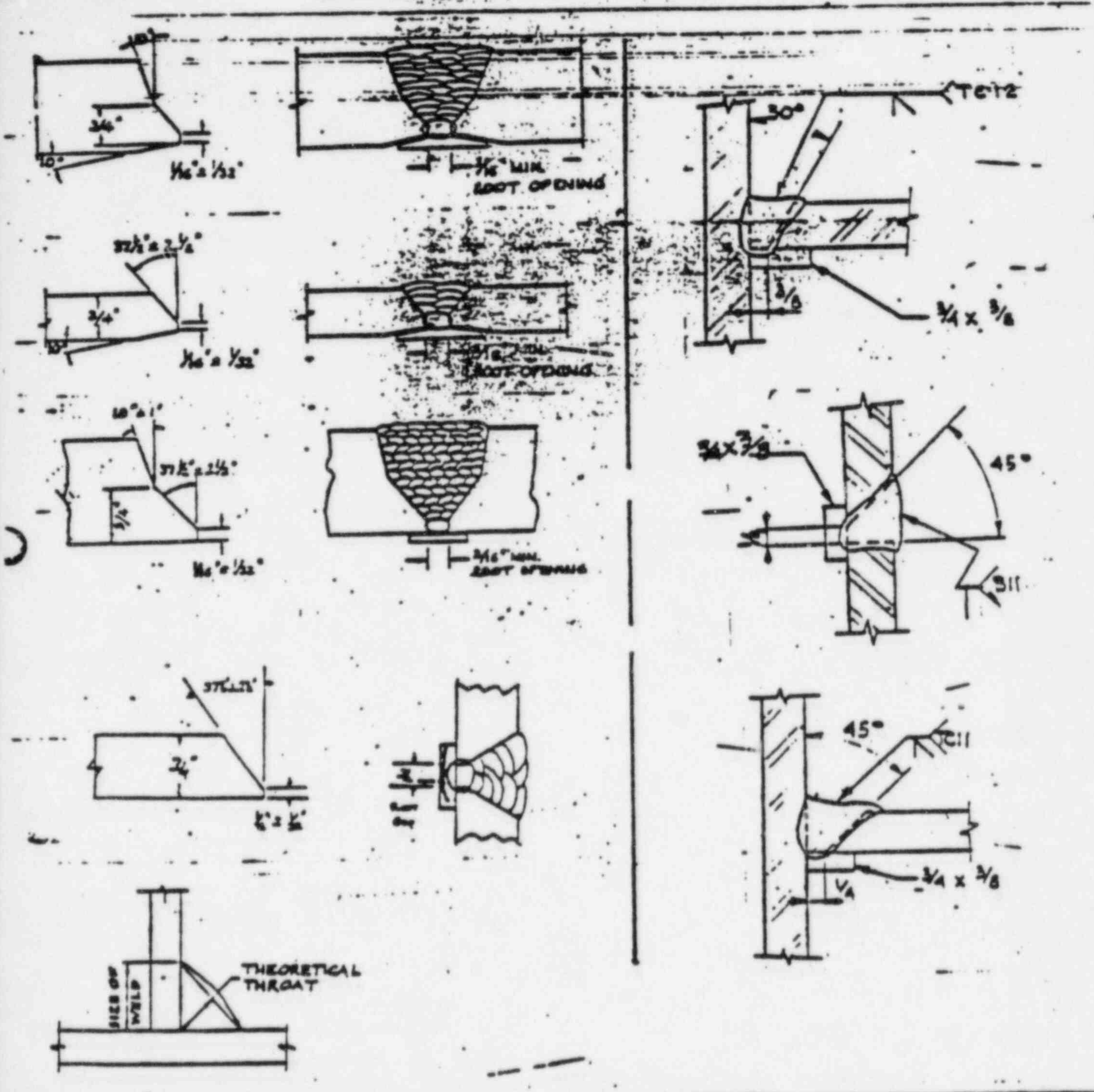
This procedure is a rewrite of and combines:
CODE NO. 7, P1-8R-F4-SMAW-12-2G
CODE NO. 8, P1-8R-F4-SMAW-12-5G

ATTACH 1

THE M.W. KELLOGG COMPANY
A Division of Pullman Incorporated
Piping Fabrication
Williamsport, Pa. 17701

Page 2 of 6
Weld Procedure Code No. 7/8
Spec. No. P1-8R-F4-SMAW-2G-5G
Date 11/25/69
Revision Dates: 11/20/70 6/11/71
6/19/73 1/25/74
8-31-77

JOINT DETAIL AND WELDING TECHNIQUES



PASS NO. AND PROCESS	FILLER METAL TYPE OPTIONAL	FILLER METAL SIZE	AMPS	VOLT RANGE	POLARITY	TORCH SHIELD & FLO RATE (MIN.)	TUNGSTEN SIZE AND POLARITY
All SMAW	E7015, 16, or 18	3/32 1/8 5/32 3/16	65-110 90-165 140-180 180-275	26-34	Reverse	—	—

Attach. 2

SPECIFICATION FOR LOW-CARBON STEEL EXTERNALLY AND INTERNALLY THREADED STANDARD FASTENERS

SA-307

(Identical with ASTM Specification A 307-74 except that Grade A Bolts and Nuts have been deleted)

Scope

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

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

(b) Nonheaded anchor bolts, either straight or bent, to be used for structural anchorage purposes, shall conform to the requirements of the Specification for Structural Steel (ASTM Designation: A 36), with tension tests to be made on the bolt body or on the bar stock used for making the anchor bolts.

Materials and Manufacture

2. (a) Steel for bolts shall be made by the open-hearth, basic-oxygen, or electric-furnace process.

(b) Steel for nuts shall be made by the open-hearth, basic-oxygen, electric furnace, or bessemer process.

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

(d) Bolt threads may be rolled or cut.

(e) Nuts may be produced by hot pressing, cold punching, cold forging, or machining from bar stock.

Chemical Requirements

* 3. (a) Steel for bolts and nuts shall conform to the following chemical requirements:

	Grade B	
	Bolts	Nuts
Phosphorus, max, per cent	0.04	0.12
Sulfur, max, per cent	0.05	0.15

(b) Resulfurized material is not subject to rejection based on check analysis for sulfur.

(c) Bolts and nuts are customarily furnished from stock, in which case individual heats of steel cannot be identified.

Mechanical Requirements

4. (a) Bolts shall meet the hardness requirements specified in Table I. This shall be the only requirement for bolts which are too short or which have insufficient threads for tension testing or which have drilled or undersize heads that are weaker than the threaded portion of the bolt.

TABLE I.—HARDNESS REQUIREMENTS FOR BOLTS

Bolt Size, in.	Grade	Hardness			
		Brinell		Rockwell B	
		Min	Max	Min	Max
All	B	121	[illegible]	[illegible]	95

Attach. 3

30

(*b*) Bolts, other than those excepted in Paragraph (*a*), shall be subject to a tension test as specified in Section 6. Where both hardness and tension tests are performed, acceptance on the basis of the tensile requirements shall take precedence where the minimum requirements are the subject of controversy.

(*c*) Bolts 1¼ in. and under in diameter when tested in full size shall meet the requirements for tensile strength specified in Table II.

(*d*) Bolts 1½ to 3 in. in diameter, inclusive, shall be tested preferably in full size and shall meet the requirements for tensile strength specified in Table II. But when equipment of sufficient capacity for such tests is not available, they

TABLE II—TENSILE REQUIREMENTS FOR FULL SIZE BOLTS.

Bolt Size, in.	Threads per inch	Stress Area, sq in.*	Tensile Strength, lb	
			Grade B min[a]	Grade B max[b]
1/4	20	0.0318	1 900	3 180
5/16	18	0.0524	3 100	5 240
3/8	16	0.0775	4 650	7 750
7/16	14	0.1063	6 350	10 630
1/2	13	0.1419	8 500	14 190
9/16	12	0.182	11 000	18 200
5/8	11	0.226	13 550	22 600
3/4	10	0.334	20 050	33 400
7/8	9	0.462	27 700	46 200
1	8	0.606	36 350	60 600
1 1/8	7	0.763	45 800	76 300
1 1/4	7	0.969	58 150	96 900
1 3/8	6	1.155	69 300	115 500
1 1/2	6	1.405	84 300	140 500
1 3/4	5	1.90	114 000	190 000
2	4 1/2	2.50	150 000	250 000
2 1/4	4 1/2	3.25	195 000	325 000
2 1/2	4	4.00	240 000	400 000
2 3/4	4	4.93	295 800	493 000
3	4	5.97	358 200	597 000
3 1/4	4	7.10	426 000	710 000
3 1/2	4	8.33	499 800	833 000
3 3/4	4	9.66	579 600	966 000
4	4	11.08	664 800	1 108 000

* Area calculated from the formula:

$$A_s = 0.7854\left(D - \frac{0.9743}{n}\right)^2$$

where:

A_s = stress area,

D = nominal diameter of bolt, and

n = threads per inch.

[a] Based on 60 000 psi.

[b] Based on 100 000 psi.

shall meet the following requirements on machined specimen tension tests:

	Tensile Strength, psi	Elongation in 2 in., per cent
Grade B bolts	60 000 min	18 min
	100 000 max	...

(*e*) Nuts shall meet the hardness requirement specified in Table III. Hardness shall be the only requirement for jam, slotted and castle nuts and for nuts larger than 1½ in. in size.

(*f*) Nuts 1⅛ in. and under in size shall meet the proof loads specified in Table III.

(*g*) Nuts 1¼ to 1½ in., inclusive, in size shall preferably meet the requirements for proof load specified in Table III, but when equipment of sufficient capacity for such tests is not available they shall meet the hardness requirements specified in Table III.

Dimensions

5. (*a*) Unless otherwise specified, threads shall be the Course Thread Series as specified in the latest issue of the USA Standard for Unified Screw Threads (USAS B1.1), having a class 2A tolerance for bolts and class 2B tolerance for nuts.

(*b*) Unless otherwise specified, Grade B bolts shall be Heavy Hex Bolts with dimensions as given in the latest issue of USA Standard B18.2.1.

TABLE III.—HARDNESS AND PROOF LOAD REQUIREMENTS FOR NUTS.

Nut Size, in.	Threads per Inch	Proof Load, lb[a]	Brinell Hardness, min
1/4	20	2 850	...
5/16	18	4 700	...
3/8	16	7 000	...
7/16	14	9 550	...
1/2	13	12 750	...
9/16	12	16 400	...
5/8	11	20 350	...
3/4	10	30 050	...
7/8	9	41 600	...
1	8	54 550	...
1 1/8	7	68 650	...
1 1/4	7	87 200	104
1 3/8	6	103 950	104
1 1/2	6	126 450	104
1 5/8 to 4, incl.	...	...	104

[a] Based on 90,000 psi mandrel stress for nut sizes 1/4 to 2 3/4 in., inclusive; 77,000 psi for 3 in.; and 67,000 psi for 3 1/4 to 4 in., inclusive.

(*c*) Unless otherwise specified, nuts for Grade B bolts shall be Heavy Hex Nuts with dimensions as given in the latest issue of USA Standard for Square and Hex Nuts (USAS B18.2.2).

Methods of Test

6. (*a*) The material shall be tested in accordance with Supplement III of the Methods and Definitions for Mechanical Testing of Steel Products, (ASTM Designation: A 370).

(*b*) Standard square and hexagon bolts only shall be tested by the wedge tension method. Fracture shall be in the body or threads of the bolt without any fracture at the junction of the head and body. Other headed bolts shall be tested by the axial tension method.

(*c*) Nuts shall be tested by the axial proof load method.

(*d*) Speed of testing as determined with a free running crosshead shall be a maximum of 1 in. per min for the tensile strength tests of bolts and the proof load determination on nuts.

Number of Tests and Retests

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

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

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

(*1*) One type of item, that is, bolts or nuts,

(*2*) One nominal size, and

(*3*) One nominal length of bolts.

(*d*) From each lot, the number of tests for each requirement shall be as follows:

Number of Pieces in Lot	Number of Samples
800 and under	1
801 to 8 000	2
8 001 to 22 000	3
Over 22 000	5

(*e*) If any machined test specimen shows defective machining it may be discarded and another specimen substituted.

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

Marking

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

Inspection

9. (*a*) If the inspection described in Paragraph (*b*) is required by the purchaser it shall be specified in the inquiry, order, or contract.

(*b*) The inspector representing the purchaser shall have free entry, at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works that concern the manufacture of the material ordered. The manufacturer shall afford the inspector all reasonable facilities, without charge, to satisfy him that the material is being furnished in accordance with these specifications. All tests (except check analysis) and inspection shall be made at the place of manufacture prior to shipment, unless otherwise specified, and shall be so conducted as not to interfere unnecessarily with the operation of the works.

Rejection

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

Attach. 5

THE M. W. KELLOGG COMPANY
A Division of Pullman Incorporated
Piping Fabrication
Williamsport, Pa. 17701

Weld Procedure Code No. 7/8
Spec. No. P1-8R-F4-SMAW-2G-5G
Date 11/25/69
Revision Dates: 11/20/70 6/11/71
Retyped 6/19/73 Retyped 11/28/73
Rev: 10/15/76 9-31-77

PROCEDURE SPECIFICATION FOR: Carbon Steel piping and plate with backing ring or bar butt and fillet welds. SMAW

BASE METAL: The base metal shall conform to the specifications for ASME, Section IX, P-1 materials.

FILLER METAL: The filler metal shall conform to ASME Filler Metal Specification Number SFA-5.1 for ferrous filler metal in Group Number F-4.

The chemcial composition of the weld deposit shall fall within the limits of weld metal analysis, Number A-1.

GAS FOR TORCH SHIELD: None

GAS FOR BACK-UP PURGE: None

TACK WELDS FOR SET-UP: Same as for weld (see page 2).

POSITION: The welding may be done in all positions.

PREHEAT & INTERPASS: 50° F minimum. 175° F minimum for material that has a carbon content in excess of 0.30% and 1" thickness. (See ESD 243 for AWS Welding).

POST HEAT TREATMENT: 1100°-1200° F, 1 hour per inch minimum (see Job specifications for cycle and thicknesses requiring post heat treatment).

BACKING STRIP: The welded joints shall utilize a backing strip.

TRAVEL SPEED: SMAW --- 1" - 8" per minute.

WELDING PROCESS: The welding shall be done by the SMAW process with a backing strip, using manual equipment.

BASE METAL THICKNESS: This procedure is qualified to allow welding of unlimited thickness on structural members under AWS requirements. When welding to ASME requirements the maximum qualified thickness shall be 3.18". For PART, the applicable code standard shall govern maximum thickness in the as welded condition.

PREPARATION OF BASE MATERIAL: The edges or surfaces of the parts to be joined by welding shall be prepared by flame cutting, plasma arc, grinding, machining, or any combination of methods to essentially form the geometry of the weld shown on Page 2 as detailed on the attached sketches and shall be cleaned of all oil or grease and excessive amounts of scale or rust.

ELECTRICAL CHARACTERISTICS: The current used shall be DC SMAW — Reverse Polarity

JOINT WELDING PROCEDURE: The welding technique, such as electrode sizes, and voltages and currents for each electrode, size of the welding tip and filler rods, shall be substantially as shown on Page 2.

APPEARANCE OF WELDING LAYERS: The welding current and manner of depositing the weld metal shall be such that there shall be practically no undercutting on the side walls of the welding groove or the adjoining base material. See job specifications for specific undercutting limitations.

CLEANING: All slag or flux remaining on any bead of welding shall be removed before laying down the next successive bead of welding.

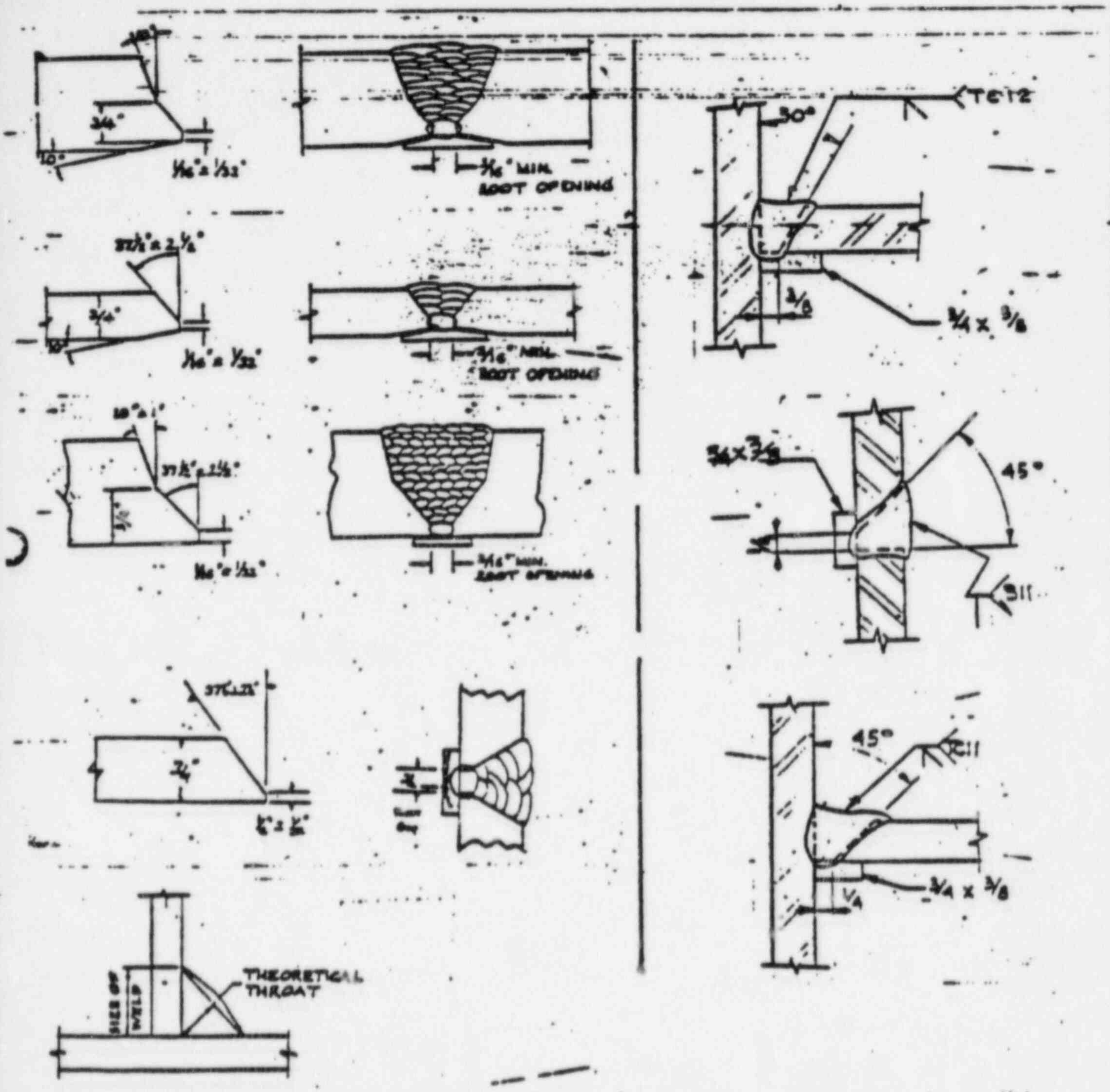
DEFECTS: Any cracks or blow holes that appear on the surface of any bead of welding shall be removed by chipping, grinding, or gouging before depositing the next successive bead of welding.

This procedure is a rewrite of and combines:
CODE NO. 7, P1-8R-F4-SMAW-12-2G
CODE NO. 8, P1-8R-F4-SMAW-12-5G

THE M.W. KELLOGG COMPANY
A Division of Pullman Incorporated
Piping Fabrication
Williamsport, Pa. 17701

Weld Procedure Code No. 7/8
Spec. No. P1-8R-F4-SMAW-2G-5G
Date 11/25/69
Revision Dates: 11/20/70 6/11/71 6/19/73 1/25/74 8-31-77

JOINT DETAIL AND WELDING TECHNIQUES



PASS NO. AND PROCESS	FILLER METAL TYPE OPTIONAL	FILLER METAL SIZE	AMPS	VOLT RANGE	POLARITY	TORCH SHIELD & FLO RATE (MIN.)	TUNGSTEN SIZE AND POLARITY
All SMAW	E7015, 16, or 18	3/32 1/8 5/32 3/16	65-110 90-165 140-180 180-275	26-34	Reverse	—	—

Attach. 7

RECOMMENDED FORM Q-1 MANUFACTURER'S RECORD OF WELDING PROCEDURE QUALIFICATION TESTS

AS WELDED

Specification No. P1-8R-Fl-SMAW-2G
Date 11/25/69, Revised 6/11/71 8/31/77

Welding Process SMAW
Manual or Machine Manual

Material Specification A-106-B to A-106-B of P-No. 1 to P-No. 1

Thickness (if pipe, diameter and wall thickness) 6" Sch. 160 (.718)

Thickness Range this test qualifies 3/16" thru .720"

Filler Metal Group No. F- 4

Weld Metal Analysis No. A- 1

Describe Filler Metal if not included in Table Q-11.2 or QN-11.2

For oxyacetylene welding—State if Filler Metal is rimmed or aluminum killed.

FLUX OR ATMOSPHERE

Flux Trade Name or Composition ——
Inert Gas Composition ——
Trade Name —— Flow Rate ——
Is Backing Strip used? Yes
Preheat Temperature Range 50° F. Min.
Interpass Temperature Range "
Postheat Treatment None

WELDING PROCEDURE

Single or Multiple Pass Multiple
Single or Multiple Arc Single
Position of Groove Horizontal(2G pos.) (See Pars. & Figs. Q-2 & Q-3, or QN-2 & QN-3)
(Flat, horizontal, vertical, or overhead; if vertical, state whether upward or downward)

FOR INFORMATION ONLY

Filler Wire—Diameter 1/8" and 5/32"
Trade Name Atom arc 7018
Type of Backing ring
Forehand or Backhand ——

WELDING TECHNIQUES

Joint Dimensions According to Sheet 2 of 10
amps 90-180 volts 26-34 inches per min. ——
Current D.C. Polarity Reverse

REDUCED SECTION TENSILE TEST (Figs. Q-6 and QN-6)

Specimen No.	Dimensions Width	Dimensions Thickness	Area	Ultimate Total Load, lb.	Ultimate Unit Stress, psi	Character of Failure and Location
39-2-1	.561	.744	.417	29,000	69,500	Broke in Base Metal
39-2-2	.561	.741	.416	29,600	71,200	Broke in Base Metal

GUIDED BEND TESTS (Figs. Q-7.1, Q-7.2, QN-7.1, QN-7.2, QN-7.3)

Type and Figure No.	Result	Type and Figure No.	Result
SIDE BEND SB-1	180° O.K.	" SB-3	180° O.K.
SIDE BEND SB-2	180° O.K.	" SB-4	180° O.K.

Results of Filletweld Tests, Fig. Q-9(e)

Welder's Name E. Carns Clock No. Stamp No. AW

Who by virtue of these tests meets welder performance requirements.

Test Conducted by M.W. KELLOGG LAB Laboratory—Test No. ML 9-39

per J. Williams

We certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

Signed THE M.W. KELLOGG COMPANY
(Manufacturer)

Date 11/25/69

By F.J. Richards

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code. Recommended Form Q-1 is available for purchase at ASME Headquarters.)

NOTE: Any essential variables in addition to those above shall be recorded.

RECOMMENDED FORM Q-1 MANUFACTURER'S RECORD OF WELDING PROCEDURE QUALIFICATION TESTS

8/31/77 ▲

Specification No. P1-BR-F4-SMAW-2G
Date 7/12/64, Revised 6/11/71
Welding Process SMAW
Manual or Machine Manual
Material Specification A-106-C to A-106-C
of P-No. 1 to P-No. 1
Thickness (if pipe, diameter and wall thickness) 16" Sch. 160 (1.594)
Thickness Range this test qualifies 3/16" thru 3.188
Filler Metal Group No. F- 4
Weld Metal Analysis No. A- 1
Describe Filler Metal if not included in Table Q-11.2 or QN-11.2
For oxyacetylene welding—State if Filler Metal is rimmed or aluminum killed.

FLUX OR ATMOSPHERE

Flux Trade Name or Composition —
Inert Gas Composition —
Trade Name — Flow Rate —
Is Backing Strip used? Yes
Preheat Temperature Range 50 F. MIN.
Interpass Temperature Range " "
Postheat Treatment 1100°F-1200°F. w/1 hr.-hold

WELDING PROCEDURE

Single or Multiple Pass Multiple
Single or Multiple Arc Single
Position of Groove Horizontal (2G pos.) (See Pars. & Figs. Q-2 & Q-3, or QN-2 & QN-3)
(Flat, horizontal, vertical, or overhead; if vertical, state whether upward or downward)

FOR INFORMATION ONLY

Filler Wire—Diameter 1/8" and 5/32"
Trade Name atom arc 7018
Type of Backing ring
Forehand or Backhand —

WELDING TECHNIQUES

Joint Dimensions Accord with Sheet 2 of 10
amps 90-180 volts 26-34 inches per min. —
Current D.C. Polarity Reverse

REDUCED SECTION TENSILE TEST (Figs. Q-6 and QN-6)

Specimen No.	Dimensions Width	Dimensions Thickness	Area	Ultimate Total Load, lb.	Ultimate Unit Stress, psi	Character of Failure and Location
TT-2-1	0.755	.997	.7527	58,820	76,820	Broke in Weld
TT-2-2	0.755	.997	.7527	56,600	75,200	Broke in weld

GUIDED BEND TESTS (Figs. Q-7.1, Q-7.2, QN-7.1, QN-7.2, QN-7.3)

Type and Figure No.	Result	Type and Figure No.	Result
Side Bend 2-1	O.K.	2-3	O.K.
Side Bend 2-2	O.K.	2-4	O.K.

Results of Fillerweld Tests, Fig. Q-8(c)
Welder's Name R. Peterson Clock No. Stamp No. CD
Who by virtue of these tests meets welder performance requirements.
Test Conducted by M.W.K. Lab Laboratory—Test No. P1-F4-BR-2G
per C. Diehl

We certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

Signed THE M.W. KELLOGG COMPANY
(Manufacturer)

Date 6/17/71 By F.J. Richards

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code. Recommended Form Q-1 is available for purchase at ASME Headquarters.)

NOTE: Any essential variables in addition to those above shall be recorded.

THE M.W. KELLOGG COMPANY
A DIVISION OF PULLMAN INCORPORATED
PIPING FABRICATION

RECOMMENDED FORM Q-1 MANUFACTURER'S RECORD OF WELDING PROCEDURE QUALIFICATION TESTS

AS WELDED

8/31/77

Specification No. P1-8R-F4-SMAW-5G Date 11/25/69, Revised 6/11/71

Welding Process SMAW Manual or Machine Manual

Material Specification A-106-B to A-106-B of P-No. 1 to P-No. 1

Thickness (if pipe, diameter and wall thickness) 6" Sch. 160 (.718)

Thickness Range this test qualifies 3/16" thru .750"

Filler Metal Group No. F-4

Weld Metal Analysis No. A-1

Describe Filler Metal if not included in Table Q-11.2 or QN-11.2

For nonferrous welding—State if Filler Metal is silicon or aluminum killed.

FLUX OR ATMOSPHERE

Flux Trade Name or Composition —

Inert Gas Composition —

Trade Name — Flow Rate —

Is Backing Strip used? Yes

Preheat Temperature Range 50 F. min.

Interpass Temperature Range 50 F. min.

Postheat Treatment none

WELDING PROCEDURE

Single or Multiple Pass Multiple

Single or Multiple Arc Single

Position of Groove Vertical 5G Upward (See Para. & Figs. Q-2 & Q-3, or QN-2 & QN-3)
(Flat, horizontal, vertical, or overhead; if vertical, state whether upward or downward)

FOR INFORMATION ONLY

Filler Wire—Diameter 1/8 and 5/32

Trade Name Atom Arc #7018

Type of Backing Ring

Forehand or Backhand —

WELDING TECHNIQUES

Joint Dimensions Accord with Sheet 2 of 6

amps 90-130 volts 26-34 inches per min. —

Current D.C. Polarity Reverse

REDUCED SECTION TENSILE TEST (Figs. Q-6 and QN-6)

Specimen No.	Dimensions Width	Dimensions Thickness	Area	Ultimate Total Load, lb.	Ultimate Unit Stress, psi	Character of Failure and Location
39-6-1	.561	.745	.418	38,300	70,600	Broke in Base Metal
39-6-2	.561	.744	.417	43,700	69,800	Broke in Base Metal

GUIDED BEND TESTS (Figs. Q-7.1, Q-7.2, QN-7.1, QN-7.2, QN-7.3)

Type and Figure No.	Results	Type and Figure No.	Results
Side Bend SB-1	180° O.K.	SB-3	180° O.K.
Side Bend SB-2	180° O.K.	SB-4	180° O.K.

Results of Fillet-weld Tests, Fig. Q-8(a)

Welder's Name J. Butler Clock No. Stamp No. 9V

Who by virtue of these tests meets welder performance requirements.

Tests Conducted by M.W. K LAB. Laboratory—Test No. M19-19

per J. Williams

We certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

Signed THE M.W. KELLOGG COMPANY
(Manufacturer)

Date 6/17/71 By F.J. RICHARDS

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code. Recommended Form Q-1 is available for purchase at ASME Headquarters.)

NOTE: Any essential variables in addition to those above shall be recorded.

RECOMMENDED FORM Q-1 MANUFACTURER'S RECORD OF WELDING PROCEDURE QUALIFICATION TESTS

HEAT TREATED

Specification No. P1-8R-Fb-SMAW-5G . Date 8/3/64, Revised 6/11/71 8/31/77
Welding Process SMAW Manual or Machine Manual
Material Specification A-106-C to A-106-C of P-No. 1 to P-No. 1
Thickness (if pipe, diameter and wall thickness) 18" Sch. 160 (1.594)
Thickness Range this test qualifies 3/16" thru 3.188
Filler Metal Group No. F- 4
Weld Metal Analysis No. A- 1
Describe Filler Metal if not included in Table Q-11.2 or QN-11.2
For oxyacetylene welding—State if Filler Metal is rimmed or aluminum killed.

FLUX OR ATMOSPHERE

Flux Trade Name or Composition —
Inert Gas Composition —
Trade Name — Flow Rate —
Is Backing Strip used? Yes
Preheat Temperature Range 50°F. min.
Interpass Temperature Range " "
Postheat Treatment 1100°F-1200°F, w/1hr. hold

WELDING PROCEDURE

Single or Multiple Pass Multiple
Single or Multiple Arc Single
Position of Groove Vertical 5G Upward (See Pars. & Figs. Q-2 & Q-3, or QN-2 & QN-3)
(Flat, horizontal, vertical, or overhead; if vertical, state whether upward or downward)

FOR INFORMATION ONLY

Filler Wire—Diameter 1/8" and 5/32"
Trade Name Atom Arc 7018
Type of Backing Ring
Forehand or Backhand —

WELDING TECHNIQUES

Joint Dimensions Accord with Sheet 2 of 10
amps 90-130 volts 26-34 inches per min. —
Current D.C. Polarity Reverse

REDUCED SECTION TENSILE TEST (Figs. Q-6 and QN-6)

Specimen No.	Dimensions Width	Dimensions Thickness	Area	Ultimate Total Load, lb.	Ultimate Unit Stress, psi	Character of Failure and Location
TT-5-1	.760	.996	.7669	57,670	75,200	Broke in Weld
TT-5-2	.760	.996	.7669	56,400	73,540	Broke in Weld

GUIDED BEND TESTS (Figs. Q-7.1, Q-7.2, QN-7.1, QN-7.2, QN-7.3)

Type and Figure No.	Result	Type and Figure No.	Result
Side Bend 5-1	O.K.	Side Bend 5-3	O.K.
Side Bend 5-2	O.K.	Side Bend 5-4	O.K.

Results of Fillet-weld Tests, Fig. Q-8(a)
Welder's Name R. Peterson Clock No. Stamp No. CD
Who by virtue of these tests meets welder performance requirements.
Test Conducted by M.W. K. LAB. Laboratory—Test No. P1-Fb-8R-5G
per C. Dieni

We certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

Signed THE M.W. KELLOGG COMPANY
(Manufacturer)

Date 6/17/71 By F.J. Richards

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code. Recommended Form Q-1 is available for purchase at ASME Headquarters.)
NOTE: Any essential variables in addition to those above shall be recorded.

Printed in U.S.A. (11/66) This Form is obtainable from the ASME, 345 E. 47th St., New York, N.Y. 10017

Attach. 11

WELDING TECHNIQUE SPECIFICATION NO. AWS 1-1

This document has been formulated to clarify the technique for applications of Weld Code 7/C procedures as applied to AWS welding only. This technique will be used in accordance with Pullman Power Products Process Sheet.

DATE: 5/17/79

REVISION: 4 DATE: 12-20-79

SUPPORTING PQR(s): Prequalified

Technique Specification for: Shielded Metal Arc Welding of ASTM A-36, A-441, A-572 GR. 50, A-588, A-515 and A-516 in any applicable combination in accordance with AWS D1.1-79.

Base Metal: The base metal shall conform to those listed above. Other materials may be substituted with the approval of the Cognizant Welding Engineer.

Base Metal Thickness: This technique is qualified for welding of materials of unlimited thickness in accordance with AWS D1.1-79.

Filler Metal: The filler metal shall conform to AWS SFA 5.1, Type E-7018.

Position of Welding: Welding will be done in all positions. Weld progression will be vertical - up.

Preheat and Interpass Temperature: Preheat and interpass temperature shall conform to those specified below:

BASE METAL THICKNESS (Actual)	MINIMUM PREHEAT °F	MAXIMUM INTERPASS °F
Up to 3/4"	50°F.	500°F.
Over 3/4" through 1 1/2"	150°F.	500°F.
Over 1 1/2" through 2 1/2"	225°F.	500°F.
Over 2 1/2" — —	300°F.	500°F.

When metal temperature is below 70°F, material will be flame dried. The preheat requirement of a joint is established by the thickest member being joined. The preheat applies to both sides of the joint and to the entire length of the joint a minimum distance as shown below:

TYPE OF WELD	MATERIAL THICKNESS (t)	MINIMUM DISTANCE FROM POINT OF WELD DEPOSIT
Fillet, Partial Pen. $\leq$ 1/4 t, and Base Metal Repairs 1/4 t	$\leq$3 Inches	3 Inches
	>3 Inches	(t) thickness of part
Full Penetration, Partial Pen. > $\frac{1}{4}$ t, Base Metal Repairs > $\frac{1}{4}$ t.	All Thickness	2 t

39

Cleanliness: All weld preps will be free of rust, scale, grease, and other contaminants for at least 1" from the weld prep edge.

Weld Parameters: Welding parameters are specified in the table on page 3 of 3.

Welding Technique: The welding technique shall be as follows:

A) BEAD WIDTH - All welding will be accomplished using the stringer bead technique. Weaving is allowed on the cover pass only to a maximum of 5 times the electrode diameter.

B) INTERPASS CLEANING - All weld beads will be free of all slag prior to continuation of welding. NEEDLE GUNS shall not be used for any cleaning operation.

C) DEFECTS - All visable defects, i.e., porosity, crater cracks, cold lap, shall be removed prior to the continuation of welding by grinding or or filling.

D) RUN-OFF TABS AND BACKING STRAPS - Run-off tabs and backing straps will be used whenever possible. Run-off tabs should be removed. Backing straps need not be removed unless specified by the owner or his designated representative. Removal of run-off tabs shall be accomplished by thermal cutting within 1/8" of the weldment and then blended into the base metal by grinding. Alternatively, removal may be entirely accomplished by grinding. Removal of backing straps will be accomplished by grinding or gouging to sound metal, and then back welded as needed. When any thermal process is used, the applicable preheat requirements are mandatory. Preheat may be maintained during grinding as desired.

E) BASE METAL BUILD-UPS - Base metal build-ups will conform in all aspects to this procedure.

F) WELD PROFILES - Weld profiles will be as follows:

   1) Groove Welds - maximum reinforcement of 1/8" and shall blend smoothly into the base metal in accordance with the typical joint details and weld profiles, page 3 of 3.

   2) Fillet Welds - size in accordance with the field drawing (+1/8, -1/16 for 10% of weld length) and profile in accordance with the typical joint details and weld profiles, page 3 of 3.

   3) The final surface will be smooth enough as not to interfere with N.D.E. operations. Preheat may be maintained during final surface conditioning operations.

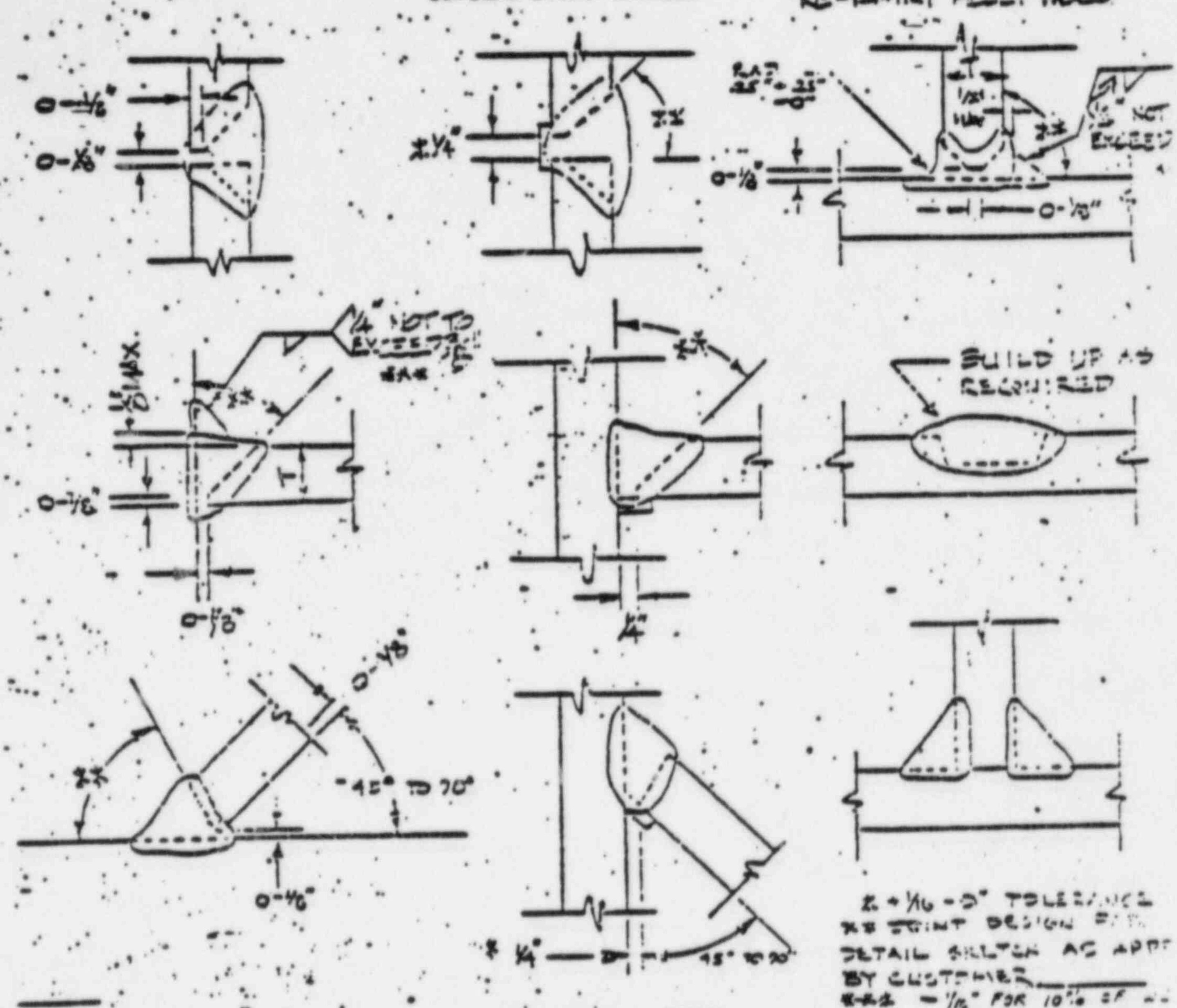
   4) T-Joints and Corner Joints Groove Welds - maximum reinforcement of 1/8" and shall blend smoothly into the base metal with reentrant configurations in accordance with the typical joint details and profiles, page 3 of 3.

Attach. 13

Pullman Power Products

WPS No. AWS 1-1
PAGE 2 of 2
DATE: 12-20-79

TYPICAL JOINT DETAILS



WELDING PARAMETERS

WELD LAYER OR PASS	PROCESS	FILLER METAL CLASS.	FILLER METAL DIA.	CURRENT TYPE POLA.	CURRENT AMP. RANGE	VOLT RANGE *	TRAVEL SPEED RANGE **	
All	SMAW	E7018	3/32	DCRP	65-120	27	2	
			1/8		100-165	31	2	
		—	5/32		140-220	34	3	** Minimum
			3/16		180-275	36	3	* Maximum

APPROVALS:

Prepared by: [signature] 12-20-79 Cognizant Welding Engineer

Approved by: [signature] 12/20/79 Q. A. Manager

Approved by: [signature] DCC 12/27/79 P.G.& E. Representative

Attach. 14

41

ATTACHMENT L

Concern #198

Task: Allegation or Concern No. 198

ATS No.: RV-84-A-0027 **BN No.:**

Characterization

Foley QC person incorrectly handles work packages.

Staff Position

This allegation is an issue which appears to be a one of minor significance in terms of the health and safety of the public. It does not represent a new significant management or technical situation which has not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

198 Squireshides Work Packages in file cabinets, causing QC items to be overlooked. (This may not have been passed-on on the hotline)

ATTACHMENT M

Concerns #200 and #201

Task: Allegation or Concern No. 200

ATS No: RV-84-A-030 BN No:

Characterization:

NDE reports inconsistent with contractors inspection reports of welds.

Staff Position

This allegation is an issue which appears to be a restatement of concerns identified in the past. The issue of concern here does not appear to represent a new significant management or quality performance issue which has not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

Task: Allegation or Concern No. 201

ATS No: RV-84-A-030 **BN No:**

Characterization:

NDE reports improperly changed without proper approvals.

Staff Position

This allegation is an issue which appears to be a restatement of concerns identified in the past. The issue of concern here does not appear to represent a new significant management or quality performance issue which has not been previously addressed.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

CONFIDENTIAL SOURCE: YES [X] NO [ ]

DIABLO CANYON

SUMMARY OF SPECIAL INSP. -RELATED INFORMATION

ISSUE: DOCUMENTS INCONSISTENT & RECORD FALSIFICATION.

DATE 12/7/84 | TIME INITIATED 4 30 Pm | TIME COMPLETED 5:15 Pm

TYPE
( ) MEETING
( ) INTERVIEW
(X) TELEPHONE CALL
COLLECT ( )YES ( )NO
( ) OTHER

PARTICIPANTS NRC:
OTHER: NAME

NAME	ORGANIZATION	YES. ON SITE
ANNONAMUS	?	?

LOCATION

CALLED NO. LOCAL | CALLING NO. N/A

SUMMARY:

STANDARD QUESTION: ARE YOU, OR ARE YOU AWARE OF, IMPROPER MANAGEMENT PRESSURES TO "CUT CORNERS" (i.e. sacrifice safety to meet schedule's, etc) ?:

CONCERNED INDIVIDUAL WANTS US TO EXAMINE A SITUATION WITHOUT INDICATING IT IS AN ALLEGATION - CONCERNED FOR FUTURE EMPLOYMENT.

00→ CONCERN IS THAT NDE REPORTS OF WELDS ARE INCONSISTENT WITH CONTRACTORS INSPECTION REPORTS AND THAT CONTRACTOR
01→ PERSONNEL CHANGED NDE REPORTS WITHOUT CONSENT OF ORGANIZATION COMPLETING NDE. OUR ATTENTION IS DIRECTED TO FOLEY NCRs 8833XR 60 AND 8833XR75 AND DWGS. (FOLEY)
6180 F1-13-001, CONNECTION BH, DETAIL 2-006 (REV 7)
6180 F2-13-002, CONNECTION CF & FG
WE SHOULD ALSO LOOK AT NCRs 8833XR 66 AND 8833XR81 FOR SIMILIAR SITUATIONS.

WRITTEN BY

DATE 12/7/84 | PAGE 1 OF 1

INFORMATION ... BY ... 15 USC 552 ...

REGION V FORM: 113

NONCONFORMANCE REPORT

Page 1 of 2 [redacted]

DESCRIPTION: 153' Elevation Hot Shop Connections ET,EU,EV,BP,BQ,BR,BS

ATTACHMENTS: Yes [X] No [ ]

Date: 4-12-83

REF. HPF. IR NUMBER N/A

HOLD TAG [ ] REMOVED BY [signature] DATE 1/83

UNIT I [X] UNIT II [ ] / LOCATION

CLASS I [X] NON-CLASS I [ ]

INSPECTION CRITERIA: DRAWING [X] SPECIFICATION [X] PROCEDURE [X]

DOCUMENT TITLE AND NUMBER: 6180-F1-13-~~010~~ 006-007 QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including Cause) Results on nondestructive testing U.T. (ultrasonic test) on the foregoing connections revealed flaws. (See attached examination records.)

Cause:

1. Improper interpass cleaning and/or back gouging. May also involve improper technique for depositing root side pass after back gouging.

INITIATED BY	DATE	QUALITY MANAGER	DATE	PROJECT MANAGER	DATE
Robert A. Cates	4/12/83	Robert A. Cates	4/14/83	James J. Robinson	4-12-83

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE: Repair weld per QCP-5A. Remove weld metal a minimum of 2" each side of the indication. Reweld and reinspect visually and ultrasonically.

Means to prevent recurrence: 1. Hold training meeting with production supervision regarding welding technique as well as proper interpass weld cleaning and back gouging. (CONTINUED NEXT PAGE)

DISPOSITION BY [signature] DATE 4-12-83

PROJECT MANAGER James J. Robinson DATE 4-12-83

QUALITY MANAGER Robert A. Cates DATE 4/12/83

PACIFIC GAS AND ELECTRIC CO. [signature] DATE 4-12-83

DISPOSITION ACCOMPLISHED

Work has been accomplished in accordance with Disposition above and training meetings have been held

FOR INFORMATION ONLY

VERIFIED BY	DATE	SUPERINTENDENT	DATE	QUALITY MANAGER	DATE
[signature]	6/..83	[signature]	6/..83	Robert A. Cates	6/../83

THE HOWARD P. FOLEY CO. ACCEPTANCE

PROJECT MANAGER [signature] DATE 6-28-83

PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE

[redacted]

INFORMATION ONLY

SIGNATURE [signature] DATE 6-27-83

HPF/NCR 5-14-82

4

ORIGINAL

THE HOWARD P. FOLEY COMPANY
NONCONFORMANCE REPORT - CONTINUATION SHEET

NO. 8833NR-66

CONTINUATION OF: DESCRIPTION OF NONCONFORMANCE ☐
PROPOSED DISPOSITION ☒
DISPOSITION ACCOMPLISHED ☐

PAGE 2 OF 2

DATE 4-12-83

MEANS TO PREVENT RECURRENCE:

2. Hold training meeting with Q.C. supervision to discuss nondestructive testing requirements and interpass weld cleaning.

FOR INFORMATION ONLY

INFORMATION ONLY

5

10CFR21 NONCONFORMANCE REPORT

Pacific Gas and Electric Company has reviewed The Howard P. Foley Company Nonconformance Report Number 8833XR-75 △1 in accordance with the requirements of the U.S. Nuclear Regulatory Commission's Code of Federal Rules and Regulations, Title 10, Part 21 and determines it

☐ is

Initiating Document

☒ is not

reportable to the U.S. Nuclear Regulatory Commission.

THE
HOWARD P. FOLEY
COMPANY
P. O. BOX 327
AVILA BEACH CALIF.
93424
805-595-2322

Offices
ALLENTOWN PENNSYLVANIA
BALTIMORE MARYLAND
CHICAGO ILLINOIS
DALLAS TEXAS
HARRISBURG PENNSYLVANIA
HOUSTON TEXAS
LOS ANGELES CALIFORNIA
MARTINEZ CALIFORNIA
MEMPHIS TENNESSEE
NEW ORLEANS LOUISIANA
PHILADELPHIA PENNSYLVANIA
PHOENIX ARIZONA
PITTSBURGH PENNSYLVANIA
RICHMOND VIRGINIA
SALT LAKE CITY UTAH
TAMPA FLORIDA
TUCSON ARIZONA
WASHINGTON D.C.
ANCHORAGE ALASKA

Canadian Subsidiary
EDMONTON ALBERTA

Forrest M. Russell
The Pacific Gas and Electric Company

5-12-83
Date

FOR INFORMATION ONLY

PG&E G.C.
QUALITY CONTROL
REVIEWED
D Bell
DATE 5/12/83

HPF/10CFR21

6

NIGHT SHIFT

THE HOWARD P. FOLEY COMPANY

NONCONFORMANCE REPORT **Original**

Page 1 of 2

Number: 8833XR-75 REV. 1

DESCRIPTION: Fuel Handling Building
Weld repair per NCR 8833XR-66
CONN. BR (Weld #3) WPS-19

W.R. #6180

YES [X] NO [ ] ATTACHMENTS

Date: 5-5-83

HOLD TAG # 8833XR-75 REV. 1
[X] REMOVED
BY for L. Fidler B... DATE 8-1-83

REF. HPF/IR NUMBER

UNIT I [X] UNIT II [ ] / LOCATION FHB Elev. 153' S9 16.7 CLASS I [X] NON-CLASS I [ ]

INSPECTION CRITERIA: DRAWING [X] SPECIFICATION [ ] PROCEDURE [X]

DOCUMENT TITLE AND NUMBER: 6180-F1-13-007 REV. 7; 6180-F1-13-001 REV. 12 QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

There is a crack at the end of Weld #3 that extends into adjacent Weld #1 and base metal. Weld #1 has been Q.C. accepted.

INITIATED BY	DATE	QUALITY MANAGER	DATE	PROJECT MANAGER	DATE
A. Dube FOR R. SEITZ	5-10-83	[signature]	5-10-83	[signature]	5-11-83

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

1. Remove defined crack by mechanical means per QCP-5A.
2. M.T. Welds and/or base metal at excavated area to assure crack removal.

(CONTINUED ON PAGE 2)

DISPOSITION BY	DATE	PROJECT MANAGER	DATE
Dennis Hurlbut	MAY 11 1983	[signature]	5-12-83

QUALITY MANAGER	DATE	PACIFIC GAS AND ELECTRIC CO.	DATE
[signature]	5-11-83	[signature]	5-12-83

DISPOSITION ACCOMPLISHED.

Weld #1 repaired per Disposition, and Weld #3 repaired per Disposition - MT, UT, VT were all acceptable.

FOR INFORMATION ONLY

VERIFIED BY	DATE	SUPERINTENDENT	DATE	QUALITY MANAGER	DATE
D. Tingley	7-26-83	[signature]	7-27-83	R.A. Cat	7/27/83

THE HOWARD P. FOLEY CO. ACCEPTANCE

PROJECT MANAGER [signature] DATE 7-30-83

PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE

SIGNATURE [signature] DATE 7-28-83

HPF/NCR 5-14-82

Close to File (date) 8-1-83

7

THE HOWARD P. FOLEY COMPANY
NONCONFORMANCE REPORT - CONTINUATION SHEET

Original

NO.	8833XR-75 REV.1
PAGE 2 OF 2	
DATE	5-5-83

CONTINUATION OF: DESCRIPTION OF NONCONFORMANCE ☐
PROPOSED DISPOSITION ☒
DISPOSITION ACCOMPLISHED ☐

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE: (CONTINUED FROM PAGE 1)

3. Weld up excavation to meet original base metal and weld requirements per current revision of design detail.
4. Perform Visual Inspection on repaired area. Provide final NDE on Welds 1 & 3 (M.T. for Weld #1, and M.T. & U.T. for Weld #3).

FOR INFORMATION ONLY

HPF/NCR

8

WELD INSPECTION SHEET

WELD NO.: 1,2 CONN BR   WELD PROC. SPEC(S) USED ____   LOC/COORD 16 ⁷ & S ⁹

DRAWING: 6180E113007 R2   QCP-5A, WPS-10   UNIT I   ELEV. 153'7"

INSPECTOR: B BERG   TYPE OF WELDING ELECTRODE   PIECE C006 TO D006

DATE: 12-22-82   USED E7018   INITIATING DOC.: WR6180 R1

ACPT	RJCT	EDGE PREP AND FITUP
BB		edge preparation
BB		fitup
N/A		N.D.E. (where applicable)

ACPT	RJCT	TACKING
BB		Rod heat # 32682
BB		Rod diameter 1/8
BB		Fitup
BB		Welder ID CQ
BB		Preheat

ACPT	RJCT	ROOT PASS INSPECTION
BB		Rod heat # 32682
BB		Rod diameter 1/8
BB		Visual inspection
N/A		N.D.E. type
BB		Welder ID CQ
BB		Preheat

ACPT	RJCT	FINAL PASS INSPECTION
RDM		Rod heat # 32682
RDM		Rod diameter 1/8" Ø
RDM		Visual inspection
NA	NA	N.D.E. type
RDM		Welder ID CQ
RDM		Preheat 70°

MULTIPASS 10% INSPECTION ☑ ACCEPT ☐ REJECT ☐ N/A

MATERIAL P.O. or HEAT NUMBER C006 Ht. 210147 to D006 Ht. 3250653

ADDITIONAL REMARKS: WELDS 1,2 CONNECTION BR

WELDER OF ... ESTES ...

REF. NCR BE33X2 ...

FOR INFORMATION ONLY

INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and the Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE: 12-28-82   Q.C. INSPECTOR Roger D. Meek

HPF/WIS 12/10/81

Q.C. CLERICAL: ____

9

WELD INSPECTION SHEET

WELD NO. (3)4 conn BR WELD PROC. SPEC(S) USED ____ LOC/COORD ¼ 7 & S 9

DRAWING: 6180F113007 R2 QCP-5A, WPS-19 UNIT I ELEV. 153'7"

INSPECTOR: B BEAG TYPE OF WELDING ELECTRODE PIECE C006 TO EXISTING

DATE: 12-22-82 USED E7018 INITIATING DOC.: WR 6180 R1

ACPT	RJCT	EDGE PREP AND FITUP
BB		edge preparation
BB		fitup
N/A		N.D.E. (where applicable)

ACPT	RJCT	TACKING
BB		Rod heat # 32682
BB		Rod diameter 1/8
BB		Fitup
BB		Welder ID CQ
BB		Preheat

ACPT	RJCT	ROOT PASS INSPECTION
RDM		Rod heat # 32682
RDM		Rod diameter 1/8
RDM		Visual inspection
N/A		N.D.E. type
RDM		Welder ID CQ
RDM		Preheat

ACPT	RJCT	FINAL PASS INSPECTION
RDM		Rod heat # 32682
RDM		Rod diameter 1/8
RDM		Visual inspection
N/A		N.D.E. type
RDM		Welder ID CQ
RDM		Preheat

MULTIPASS 10% INSPECTION ☑ ACCEPT ☐ REJECT ☐ N/A

MATERIAL P.O. or HEAT NUMBER C006 Ht 210147 to EXISTING

ADDITIONAL REMARKS: WELDS 34 CONNECTION BR

WELDER - J. ESTES

REF. NCR 8853 XR 75 & 52683

FOR INFORMATION ONLY

INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and the Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE: 12-28-82 Q.C. INSPECTOR Roger D. Mack

HPF/WIS 12/10/81

Q.C. CLERICAL: ____

10

DE 70-132 (11/82)

PG and E

NONDESTRUCTIVE EXAMINATION MANUAL

Page 1 of 1

Form N-MT-1A

Revision 0

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Location DCPP Unit I Procedure N-MT-1 Revision 0 Revision Date 1-1-83

Examiner [illegible] Level II Examiner O'Conner Level II Exam'n Date 7-25-83

Surface Temperature Ambient Surface Prep. Used Grinder Demag. Req'd NA

Technique Used Prods AC ___ HWAC X Magnetic Part. Type 8A Red Mfr Magnaflux

Magnetizing Unit P-90 S.N. 751847 Last Calibration 5-5-83 Calibr Due 11-5-83

Test Block S.N. NA Weight NA

Acceptance Criteria Appendix B

Light Level N. G. C.

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

WELD # ~~Component~~	T	Prod/Leg Spacing	Current	Indication Description	Accept Yes	Accept No	Remarks
3		5"	500 Amps	Per NCR8833X-R-75	✓		
1		5"	500 Amps	NRI on Weld #3	✓		
				and repair area of			
				Weld #1			

FOR INFORMATION ONLY

INFORMATION ONLY

M.T. Level III Review ________ Date ________

PG&E

NONDESTRUCTIVE EXAMINATION MANUAL

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Form N-MT-1A

Revision 0

Location DCPP Unit Two Procedure N-MT-1 Revision 0 Revision Date 1-1-83
Examiner D Lee Level II Examiner J. Eblen Level I Exam'n Date 5-31-83
Surface Temperature 85° Surface Prep. Used Wire Wheel Demag. Req'd N/A
Technique Used PRODS AC HWAC X Magnetic Part. Type red 8A Mfr Magnaflux
Magnetizing Unit Magnaflux S.N. 751847 Last Calibration 5-5-83 Calibr Due 11-5-83
Test Block S.N. N/A Weight N/A
Acceptance Criteria APPENDIX B
Light Level N.G.C.

Batch # 82H050

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	Indication Description	Accept Yes	Accept No	Remarks
#3		5"	500 amps	Indication was at end of weld #3 that extended into weld #1 and base metal. Indication was removed and re-examed. (Ref. N.C.R. #8833XR-75 Rev 1) Base Metal Exam only	X		NRI

FOR INFORMATION ONLY

INFORMATION ONLY

M.T. Level III Review ______ Date ______

12

RASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD IV-- Rev 0

GENERAL				Date 6-2-83	Ref. Dwg. No. 0180-F2-13-001
Plant DCPP	Unit I	Component Seismic Mods	Location Fuel Handling Bldg.		Cal. Proc/Rev. Date N-UT-5/0/4-4-83
Block Type/No. DC-5 IIW-2 #783.64	S.U. Cable Type/Length Panc. Bnc/Bnc. Micro; 6'0"L	Couplant Type/Visc. Ultragel II #7226			Exam. Proc/Rev. Date N-UT-5/0/4-4-83

Instrument Nortec-131D		Straight Beam	Straight Beam	Angle Beam 70° Nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. D-271	Search Unit	Aerotech Gamma	N/A	A'Tech Gamma	N/A	N/A	(L) 1010
Rej. off Damp. off	Serial No.	D11949		F05944			(S) in 1015
Rep. Rate 1K	S.U. Size	.75" ø		.50" ø			(S) out 1030
Filter (+)	S.U. Freq.	2.25 MHz		2.25 MHz			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/Mode	0° L-WAVE		70° meas. S-WAVE			
Basic Ref. Level, Amp. (% Screen)/Db		50 db @ 70% FSH		60 db @ 90% FSH			
Scan Sensitivity, Db		50 db		74 db 79 db			
Screen Distance, in.		2.5"		5"			
Calib. Blocks, Type/No.		Base metal		DC-5 IIW-2 # 783.64			

Noise, Linearity, and Resolution Verification BW

0180-F1-13-007 BR / Col. 167 Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
[redacted]	153' el.	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70° [redacted]	N/A
4 Dibw 6-2-83	153' el.	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A

FOR INFORMATION ONLY

INFORMATION ONLY

Continuation Sheets	Cal By: B. Welch I, R. Gchingame III (Level)	Exam By: B. Welch I, R. Gchingame III (Level)	Data Reviewed By: (Level)

13

WELD INSPECTION SHEET

INFORMATION ONLY

CONN. NO. BR

WELD NO. 1+3 WELD PROC. SPEC(S) USED WPS19 LOC/COORD. 167 & 59

DRAWING 6180-F1-13-007 QCP 5A UNIT I ELEV. 153

INSPECTOR D. Tingley TYPE OF WELDING ELECTRODE PIECE D006 TO Existing

DATE 6/2/83 USED E7018 INITIATING DOC. C 6180

ACPT	RJCT	EDGE PREP AND FIT-UP 6/2/83	ACPT	RJCT	TACKING
DJT		Edge preparation	n/a		Rod heat #
DJT		Fit-up			Rod diameter
n/a		N.D.E. (where applicable)			Fit-up
Material P.O.&HT#		Existing steel			Welder I.D.
					Preheat

ACPT	RJCT	ROOT PASS INSPECTION 6/2/83	ACPT	RJCT	FINAL PASS INSPECTION 6/2/83
DJT		Rod heat # 2AC2	DJT		Rod heat # 2AC2
DJT		Rod diameter 1/8	DJT		Rod diameter 1/8
DJT		Visual Inspection	DJT		Visual Inspection
DJT		N.D.E. type mt OK	DJT		N.D.E. type UT OK
DJT		Welder I.D. QB	DJT		Welder I.D. QB
DJT		Preheat 50°	DJT		Preheat 50°

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT ☐ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: Welder "QB" Is Ramirez

weld Repaired per R-25

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE 6/2/83 Q.C. INSPECTOR Donald J. Tingley

HPF/WIS 3-31-83

14

NIGHT SHIFT NONCONFORMANCE REPORT **Original**

DESCRIPTION: Fuel Handling Building Weld repair per NCR 8833XR-66 CONN. BR (Weld #3) WPS-19 W.R. #6180	Page 1 of 2 YES [X] NO [ ] ATTACHMENTS	8833XR-75 REV. 1 Date: 5-5-83
REF. HPF/IR NUMBER	HOLD TAG # 8833XR-75 REV. 1 [ ] REMOVED BY ______ DATE ______	

UNIT I [X] UNIT II [ ] / LOCATION FHB Elev. 153' S[9] 16.7 CLASS I [X] NON-CLASS I [ ]

INSPECTION CRITERIA: DRAWING [X] SPECIFICATION [ ] PROCEDURE [X]

DOCUMENT TITLE AND NUMBER: 6180-F1-13-007 REV. 7; 6180-F1-13-001 REV. 12 QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

There is a crack at the end of Weld #3 that extends into adjacent Weld #1 and base metal. Weld #1 has been Q.C. accepted.

For R. Seitz 5-10-83 — 5-10-83 — 5-11-83

INITIATED BY DATE QUALITY MANAGER DATE PROJECT MANAGER DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

1. Remove defined crack by mechanical means per QCP-5A.
2. M.T. Welds and/or base metal at excavated area to assure crack removal.

(CONTINUED ON PAGE 2)

Dennis Hurlbut May 11 1983 — 5-12-83

DISPOSITION BY DATE PROJECT MANAGER DATE

5-11-83 — 5-12-83

QUALITY MANAGER DATE PACIFIC GAS AND ELECTRIC CO. DATE

DISPOSITION ACCOMPLISHED.

Weld #1 repaired per Disposition, and Weld #3 repaired per Disposition - MT, UT, VT were all acceptable.

FOR INFORMATION ONLY

D. Tinkley 7-26-83 — 7-27-83 — R. A. Cots 7/27/83

VERIFIED BY DATE SUPERINTENDENT DATE QUALITY MANAGER DATE

THE HOWARD P. FOLEY CO. ACCEPTANCE	PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE
PROJECT MANAGER DATE	SIGNATURE DATE

HPF/NCR 5-14-82

15

THE HOWARD P. FOLEY COMPANY
NONCONFORMANCE REPORT - CONTINUATION SHEET

Original

CONTINUATION OF: DESCRIPTION OF NONCONFORMANCE ☐ PROPOSED DISPOSITION ☒ DISPOSITION ACCOMPLISHED ☐	NO. 8833XR-75 REV.1 PAGE 2 OF 2 DATE 5-5-83

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE: (CONTINUED FROM PAGE 1)

3. Weld up excavation to meet original base metal and weld requirements per current revision of design detail.
4. Perform Visual Inspection on repaired area. Provide final NDE on Welds 1 & 3 (M.T. for Weld #1, and M.T. & U.T. for Weld #3).

FOR INFORMATION ONLY

INFORMATION ONLY

HPF/NCR

16

FOLEY
ELECTRICAL CONTRACTORS

10CFR21 NONCONFORMANCE REPORT

Pacific Gas and Electric Company has reviewed The Howard P. Foley Company Nonconformance Report Number 8233XC-75 (1) in accordance with the requirements of the U.S. Nuclear Regulatory Commission's Code of Federal Rules and Regulations, Title 10, Part 21 and determines it

☐ is ______________ Initiating Document

☒ is not

reportable to the U.S. Nuclear Regulatory Commission.

[signature]
The Pacific Gas and Electric Company

5-12-83
Date

PG&E G.C. QUALITY CONTROL
REVIEWED D Bell
DATE 5/12/83

FOR INFORMATION ONLY

INFORMATION ONLY

THE HOWARD P. FOLEY COMPANY
P. O. BOX 327
AVILA BEACH CALIF
93424
805-595-2222

Offices
ALLENTOWN PENNSYLVANIA
BALTIMORE MARYLAND
CHICAGO ILLINOIS
DALLAS TEXAS
HARRISBURG PENNSYLVANIA
HOUSTON TEXAS
LOS ANGELES CALIFORNIA
MARTINEZ CALIFORNIA
MEMPHIS TENNESSEE
NEW ORLEANS LOUISIANA
PHILADELPHIA PENNSYLVANIA
PHOENIX ARIZONA
PITTSBURGH PENNSYLVANIA
RICHMOND VIRGINIA
SALT LAKE CITY UTAH
TAMPA FLORIDA
TUCSON ARIZONA
WASHINGTON D.C.
ANCHORAGE ALASKA

Canadian Subsidiary
EDMONTON ALBERTA

HPF/10CFR21

WELD INSPECTION SHEET

WELD NO.: 12 CONN BR WELD PROC. SPEC(S) USED ____ LOC/COORD 16-7 & S-9

DRAWING: 6180E113007 R2 QCP-5A, WPS-10 UNIT I ELEV. 153'7"

INSPECTOR: B BERG TYPE OF WELDING ELECTRODE PIECE C006 TO D006

DATE: 12-22-82 USED E7018 INITIATING DOC.: WR6180 R1

ACPT	RJCT	EDGE PREP AND FITUP
BB		edge preparation
BB		fitup
N/A		N.D.E. (where applicable)

ACPT	RJCT	TACKING
BB		Rod heat # 32682
BB		Rod diameter 1/8
BB		Fitup
BB		Welder ID CQ
BB		Preheat

ACPT	RJCT	ROOT PASS INSPECTION
BB		Rod heat # 32682
BB		Rod diameter 1/8
BB		Visual Inspection
N/A		N.D.E. type
BB		Welder ID CQ
BB		Preheat

ACPT	RJCT	FINAL PASS INSPECTION
RDM		Rod heat # 32682
RDM		Rod diameter 1/8"Ø
RDM		Visual Inspection
NA	NA	N.D.E. type
RDM		Welder ID CQ
RDM		Preheat 70°

MULTIPASS 10% INSPECTION ☑ ACCEPT ☐ REJECT ☐ N/A

MATERIAL P.O. or HEAT NUMBER C006 Ht 210147 to D006 Ht 3250653

ADDITIONAL REMARKS: WELDS 1,2 CONNECTION BR

WELDER - J. ESTES

REF. NCR FE30XR 75 ...

FOR INFORMATION ONLY

INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and the Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE: 12-28-82 Q.C. INSPECTOR Roger D. Meek

HPF WIS 12/10/81

Q.C. CLERICAL: ____

18

WELD INSPECTION SHEET

WELD NO. (3)4 conn BR   WELD PROC. SPEC(S) USED ____   LOC/COORD $\frac{7}{6}$: S 9
DRAWING: 6180F113007 R2   QCP-5A, WPS 19   UNIT I   ELEV. 153'7"
INSPECTOR: B Berg   TYPE OF WELDING ELECTRODE   PIECE C006 TO EXISTING
DATE: 12-22-82   USED E7018   INITIATING DOC.: WR 6180 R1

ACPT	RJCT	EDGE PREP AND FITUP
BB		edge preparation
BB		fitup
N/A		N.D.E. (where applicable)

ACPT	RJCT	TACKING
BB		Rod heat # 32682
BB		Rod diameter 1/8
BB		Fitup
BB		Welder ID CQ
BB		Preheat

ACPT	RJCT	ROOT PASS INSPECTION
RDM		Rod heat # 32682
RDM		Rod diameter 1/8
RDM		Visual inspection
N/A		N.D.E. type
RDM		Welder ID CQ
RDM		Preheat

ACPT	RJCT	FINAL PASS INSPECTION
RDM		Rod heat # 32682
RDM		Rod diameter 1/8
RDM		Visual inspection
N/A		N.D.E. type
RDM		Welder ID CQ
RDM		Preheat

MULTIPASS 10% INSPECTION ☑ ACCEPT ☐ REJECT ☐ N/A

MATERIAL P.O. or HEAT NUMBER C006 Ht 210147 to EXISTING

ADDITIONAL REMARKS: WELDS 34 CONNECTION BR

WELDER - J. ESTES

REF. NCR 8853 R.P. 73

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and the Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE: 12-28-82   Q.C. INSPECTOR Roger D. Meek

HPF-WIS 12/10/81

Q.C. CLERICAL: ____

19

PG&E

NONDESTRUCTIVE EXAMINATION MANUAL

Form N-MT-1A

Revision 0

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Location DCPP Unit I Procedure N-MT-1 Revision 0 Revision Date 1-1-83

Examiner [illegible] Level II Examiner O'Conner Level II Exam'n Date 7-25-83

Surface Temperature Ambient Surface Prep. Used Grinder Demag Req'd NA

Technique Used Prods AC HWAC X Magnetic Part. Type 8A Red Mfr Magnaflux

Magnetizing Unit P-90 S.N. 751847 Last Calibration 5-5-83 Calibr Due 11-5-83

Test Block S.N. NA Weight NA

Acceptance Criteria Appendix B

Light Level N.G.C.

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld # ~~Component~~	T	Prod/Leg Spacing	Current	Indication Description	Accept Yes	Accept No	Remarks
3		5"	500 Amps	Per NCR8833X-R-75	✓		
1		5"	500 Amps	NRI on Weld #3	✓		
				and repair area of			
				Weld #1			

INFORMATION ONLY

FOR INFORMATION ONLY

INFORMATION ONLY

M.T. Level III Review ____________ Date ____________

20

NONDESTRUCTIVE EXAMINATION MANUAL

Form N-MT-1A

Revision 0

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Location DCPP Unit Two Procedure N-MT-1 Revision 0 Revision Date 1-1-83
Examiner D. Lee Level II Examiner J. Eblen Level I Exam'n Date 5-31-83
Surface Temperature 85° Surface Prep. Used Wire Wheel Demag. Req'd N/A
Technique Used Prods AC ___ HWAC X Magnetic Part. Type red 8A Mfr Magnaflux
Magnetizing Unit Magnaflux S.N. 751847 Last Calibration 5-5-83 Calibr Due 11-5-83
Test Block S.N. N/A Weight N/A
Acceptance Criteria APPENDIX B
Light Level N.G.C.

Batch # 82H050

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	Indication Description	Accept Yes	Accept No	Remarks
#3		5"	500 amps	Indication was at end of Weld #3 that extended into Weld #1 and base metal. Indication was removed and re-examed. (Ref. N.C.R. # 8833XR-75 Rev. 1)	X		NRI
				Base Metal Exam only			

FOR INFORMATION ONLY

INFORMATION ONLY

INFORMATION ONLY

M.T. Level III Review ____________ Date ____________

21

ULTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD No. [illegible]

GENERAL

Flant DCPP	Unit I	Component Seismic Mods	Location Fuel Handling Bldg	Date 6-2-93	Ref. Dwg. No. [illegible]
Block Type/No. DC-5 IIW-2 #783-64	S.U. Cable Type/Length [illegible]		Couplant Type/Visc. Ultragel II #7220		Cal. Proc/Rev. Date [illegible]
					Exam. Proc/Rev. Date [illegible] 4-4-93

Instrument Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° Nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. D-271	Search Unit	Aerotech Gamma	N/A	Aerotech Gamma	N/A	N/A	
Rej. off Damp. off	Serial No.	D11949		F05744			(L) 1010
Rep. Rate 1K	S.U. Size	.75" Ø		.50 Ø			(S) in 1015
Filter (+)	S.U. Freq.	2.25 MHz		2.25 MHz			(S) out 1030
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/Mode	0° L-WAVE		70° Meas. S-WAVE			
Basic Ref. Level, Amp. (% Screen)/Db		50 db @ 70% FSH		60 db @ 90% FSH			
Scan Sensitivity, Db		50 db		74 db 79 db			
Screen Distance, in.		2.5"		5"			
Calib. Blocks, Type/No.		Base metal		DC-5 IIW-2 # 783-64			

Noise, Linearity, and Resolution Verification BW

6180-FL-13-007
BR / Col. 167

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
~~3~~ D.L. 6-2-93	153'21	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A
4 D.L. 6-2-93	153'21	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A

FOR INFORMATION ONLY

INFORMATION ONLY

INFORMATION ONLY

Continuation Sheets	Cal By: B. Welch I Level; R. Gushwgame III	Exam By: B. Welch I Level; R. Gushwgame III	Data Reviewed By: Level

WELD INSPECTION SHEET

INFORMATION ONLY

CONN. NO. BR

WELD NO. 1 & 3 WELD PROC. SPEC(S) USED WPS19 LOC/COORD. 167 . 59

DRAWING 6180-F1-13-007 R QCP 5A UNIT I ELEV. 153

INSPECTOR D. Tingley TYPE OF WELDING ELECTRODE PIECE Do-6 TO Existing

DATE 6/2/83 USED E7018 INITIATING DOC. C 6150

ACPT	RJCT	EDGE PREP AND FIT-UP 6/2/83	ACPT	RJCT	TACKING
DT		Edge preparation	n/a		Rod heat #
DT		Fit-up			Rod diameter
n/a		N.D.E. (where applicable)			Fit-up
Material		Existing steel			Welder I.D.
P.O.&HT#					Preheat

ACPT	RJCT	ROOT PASS INSPECTION 6/2/83	ACPT	RJCT	FINAL PASS INSPECTION 6/2/83
DT		Rod heat # 2AC2	DT		Rod heat # 2AC2
DT		Rod diameter 1/8	DT		Rod diameter 1/8
DT		Visual Inspection	DT		Visual Inspection
DT		N.D.E. type mt OK	DT		N.D.E. type UT OK
DT		Welder I.D. QB	DT		Welder I.D. QB
DT		Preheat 50°	DT		Preheat 50°

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT ☐ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☑ N/A

ADDITIONAL REMARKS: Welder "QB" Is Ramirez

Weld 1 & 3 Were Repaired NR 8873R-75

FOR INFORMATION ONLY

INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE 6/2/83 Q.C. INSPECTOR Donald L. Tingley

HPF/QCIS 3-31-83

NIGHT SHIFT NONCONFORMANCE REPORT **Original**

DESCRIPTION: Fuel Handling Building Weld repair [redacted] CONN. BR (Weld #3) WPS-19 W.R. #6180	YES [X] NO [ ] ATTACHMENTS	Page 1 of 2 8833XR-75 REV. 1 Date: 5-5-83
REF. HPF/IR NUMBER	HOLD TAG # 8833XR-75 REV. 1 [ ] REMOVED BY ____ DATE ____	

UNIT I [X] UNIT II [ ] / LOCATION FHB Elev. 153' S9 16.7 CLASS I [X] NON-CLASS I [ ]

INSPECTION CRITERIA: DRAWING [X] SPECIFICATION [ ] PROCEDURE [X]

DOCUMENT TITLE AND NUMBER: 6180-F1-13-007 REV. 7; 6180-F1-13-001 REV. 12 QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

There is a crack at the end of Weld #3 that extends into adjacent Weld #1 and base metal. Weld #1 has been Q.C. accepted.

WORK COPY

QCE:

FOR R. Seitz 5-10-83 | 5-10-83 | 5-11-83

INITIATED BY DATE QUALITY MANAGER DATE PROJECT MANAGER DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

1. Remove defined crack by mechanical means per QCP-5A.
2. M.T. Welds and/or base metal at excavated area to assure crack removal.

(CONTINUED ON PAGE 2)

May 11 1983 | 5-12-83

DISPOSITION BY DATE PROJECT MANAGER DATE

5-11-83 | 5-12-83

QUALITY MANAGER DATE PACIFIC GAS AND ELECTRIC CO. DATE

DISPOSITION ACCOMPLISHED

~~Weld #1 Repaired per Disposition~~

Weld #1 & 3 were Repaired per This Disposition mt, ut, vt were all acc.

FOR INFORMATION ONLY

VERIFIED BY DATE SUPERINTENDENT DATE QUALITY MANAGER DATE

THE HOWARD P. FOLEY CO. ACCEPTANCE	PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE
PROJECT MANAGER DATE	SIGNATURE DATE

HPF/NCR 5-14-82

THE HOWARD P. FOLEY COMPANY
NONCONFORMANCE REPORT - CONTINUATION SHEET

Original

NO. 8833XR-75 REV.1

CONTINUATION OF: DESCRIPTION OF NONCONFORMANCE ☐
PROPOSED DISPOSITION ☒
DISPOSITION ACCOMPLISHED ☐

PAGE 2 OF 2

DATE 5-5-83

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE: (CONTINUED FROM PAGE 1)

3. Weld up excavation to meet original base metal and weld requirements per current revision of design detail.
4. Perform Visual Inspection on repaired area. Provide final NDE on Welds 1 & 3 (M.T. for Weld #1, and M.T. & U.T. for Weld #3).

WORK COPY QCE:

FOR INFORMATION ONLY

HPF/NC

25

Recurrence By NCR8833XR-75

NONCONFORMANCE REPORT

123' Elevation Hot Shop Connections ET, EU, EV, BP, BQ, BR, BS	1 2	[redacted]	4-12-83
N/A			
6180-F1-13-~~016~~ 006-007			QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including Cause) Results on nondestructive testing U.T. (ultrasonic test) on the foregoing connections revealed flaws. (See attached examination records.)

Cause:

1. Improper interpass cleaning and/or back gouging. May also involve improper technique for depositing root side pass after back gouging.

Robert A. Cote 4/12/83	Robert A. Cote 4/12/83	James J. Robinson 4-12-83
INITIATED BY / DATE	QUALITY MANAGER / DATE	PROJECT MANAGER / DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE: Repair weld per QCP-5A. Remove weld metal a minimum of 2" each side of the indication. Reweld and reinspect visually and ultrasonically.

Means to prevent recurrence: 1. Hold training meeting with production supervision regarding welding technique as well as proper interpass weld cleaning and back gouging. (CONTINUED NEXT PAGE)

4-12-83 DISPOSITION BY / DATE	James J. Robinson 4-12-83 PROJECT MANAGER / DATE
Robert A. Cote 4/12/83 QUALITY MANAGER / DATE	Forrest M. Russell 4-12-83 PACIFIC GAS AND ELECTRIC CO. / DATE

DISPOSITION ACCOMPLISHED

Work has been accomplished in accordance with Disposition above, and Training meeting has been held.

FOR INFORMATION ONLY

ACCEPTANCE	PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE
6-28-83	[redacted] F. M. Russell 6-27-83

INFORMATION ONLY

26

THE HOWARD P. FOLEY COMPANY
NONCONFORMANCE REPORT - CONTINUATION SHEET

CONTINUATION OF: DESCRIPTION OF NONCONFORMANCE ☐ PROPOSED DISPOSITION ☐ DISPOSITION ACCOMPLISHED ☐	NO. [illegible]
	[illegible]
	4-1[illegible]-82

MEANS TO PREVENT RECURRENCE:

2. Hold training meeting with Q.C. supervision to discuss nondestructive testing requirements and interpass weld cleaning.

FOR INFORMATION ONLY

INFORMATION ONLY

This NCR Is Referenced By NCR8833XR-75 ⚠1

NONCONFORMANCE REPORT

PAGE 1 OF 2 [redacted]

153' Elevation Hot Shop Connections
ET, EU, EV, BP, BC, [redacted] BS

☒ NO ☐ DATE: 4-12-83

HOLD TAG ☐ REMOVED Referenced By NCR 8833XR-75

REF. HPF/IR NUMBER N/A

UNIT I ☒ UNIT II ☐ LOCATION

CLASS I ☒ NON-CLASS ☐ 21

INSPECTION CRITERIA: DRAWING ☒ SPECIFICATION ☒ PROCEDURE ☒

DOCUMENT TITLE AND NUMBER: 6160-F1-13-01 ← 575 007 QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including cause) Results on nondestructive testing U.T. (ultrasonic test) on the foregoing connections revealed flaws. (See attached examination records.)

Cause:

1. Improper interpass cleaning and/or back gouging. May also involve improper technique for depositing root side pass after back gouging.

Robert A. Cote 4/12/83 — INITIATED BY / DATE
Robert A. Cote 4/12/83 — QUALITY MANAGER / DATE
James J. Robinson 4-12-83 — PROJECT MANAGER / DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE: Repair weld per QCP-5A. Remove weld metal a minimum of 2" each side of the indication. Reweld and reinspect visually and ultrasonically.

Means to prevent recurrence: 1. Hold training meeting with production supervision regarding welding technique as well as proper interpass weld cleaning and back gouging. (CONTINUED NEXT PAGE)

4-12-83 — DISPOSITION BY / DATE
James J. Robinson 4-12-83 — PROJECT MANAGER / DATE
Robert A. Cote 4/12/83 — QUALITY MANAGER / DATE
4-12-83 — PACIFIC GAS AND ELECTRIC CO. / DATE
TZB

DISPOSITION ACCOMPLISHED

Repaired per Disposition weld Is acc

FOR INFORMATION ONLY

6/1/83 — VERIFIED BY / DATE — SUPERINTENDENT / DATE — QUALITY MANAGER / DATE

INFORMATION ONLY

THE HOWARD P. FOLEY CO. ACCEPTANCE — PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE

WORK COPY

INFORMATION ONLY

PROJECT MANAGER / DATE — QCE / DATE

HPF NCR 5-1-82

28

THE HOWARD P. FOLEY COMPANY
NONCONFORMANCE REPORT - CONTINUATION SHEET

CONTINUATION OF: DESCRIPTION OF NONCONFORMANCE ☐ PROPOSED DISPOSITION ☒ DISPOSITION ACCOMPLISHED ☐	NO. 8833XR-66 PAGE 2 OF 2 DATE 4-12-83

MEANS TO PREVENT RECURRENCE:

2.Hold training meeting with Q.C. supervision to discuss nondestructive testing requirements and interpass weld cleaning.

FOR INFORMATION ONLY

WORK COPY QCE

INFORMATION ONLY

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Form N-MT-1A

Revision O

Location DCPP Unit TWO Procedure N-MT-1 Revision O Revision Date 1-1-83
Examiner D. Lee Level II Examiner J. Elkin Level I Exam'n Date 6-1-83
Surface Temperature 70° Surface Prep. Used Wire Wheel Demag. Req'd N/A
Technique Used PRODS AC ___ HWAC X Magnetic Part. Type red 8A Mfr Magnaflux
Magnetizing Unit Magnaflux S.N. 751847 Last Calibration 5-5-83 Calibr Due 11-5-83
Test Block S.N. N/A Weight N/A
Acceptance Criteria APPENDIX B
Light Level N.G.C. Batch # 82H050

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	Indication Description	Accept Yes	Accept No	Remarks
#4		5"	500 amps	Tested Back gouge of Weld #3	X		NRI

FOR INFORMATION ONLY

M.T. Level III Review ______________ Date ______ INFORMATION ONLY

30

RASONIC EXAMINATION OF GROOVE WELDS   EXAMINATION RECORD   Rev. 0   Page 1 of 1

GENERAL			Date 6-2-93	Ref. Dwg. No. [illegible]
Plant DCPP	Unit I	Component Seismic Mods	Location Fuel Handling Bldg.	Cal. Proc/Rev. Date N-UT-5 / 6 / 4-4-93
Block Type/No. DC-5 IIW-2 #78764	S.U. Cable Type/Length [illegible] 6'		Couplant Type/Visc. Ultragel II #7226	Exam.Proc/Rev. Date N-UT-5 / 0 / 4-4-93

Instrument Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° Nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. D-271	Search Unit	Aerotech Gamma	N/A	Aerotech Gamma	N/A	N/A	(L) 1010
Rej. off Damp. off	Serial No.	D11949		F05944			(S) in 1015
Rep. Rate 1K	S.U. Size	.75" ø		.50 ø			(S) out 1030
Filter (+)	S.U. Freq.	2.25 MHz		2.25 MHz			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/ Mode	0° L-wave		70° meas. S-wave			
Basic Ref. Level, Amp. (% Screen)/Db		50 db @ 70% FSH		60 db @ 90% FSH			
Scan Sensitivity, Db		50 db		74 db 79 db			
Screen Distance, in.		2.5"	L	5"			
Calib. Blocks, Type/No.		Base metal		DC-5 IIW-2 #78764			

Noise, Linearity, and Resolution Verification [BW]

UPO-F1-13-007 BR / Col. 167

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
3 fw	153'41.	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A
4 fw	153'41.	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A

FOR INFORMATION ONLY

Continuation Sheets	Cal By: B. Welch I; R. [illegible] III (Level)	Exam By: B. Welch I; R. [illegible] III (Level)	Data Reviewed By: (Level)

INFORMATION ONLY

31

PG&E

NONDESTRUCTIVE EXAMINATION MANUAL

Page 1 of 1

Form N-MT-1A

Revision

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Location DCPP Unit 1 Procedure N-MT-1 Revision 0 Revision Date 1-1-83

Examiner [illegible] Level II Examiner E. Petero Level I Exam'n Date 9-21-83

Surface Temperature 64°F Surface Prep. Used Grinding wheel Demag. Req'd N/A

Technique Used Prod AC HWAC ✓ Magnetic Part. Type 8A Red Mfr Magnaflux

Magnetizing Unit Magnatech S.N. 71120 Last Calibration 11-19-82 Calibr Due 5-19-83

Test Block S.N. N/A Weight N/A

Acceptance Criteria Appendix B

Light Level N.G.C.

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	~~Indication~~ Description	Accept Yes	Accept No	Remarks
1 & 2		4"	500 Amps	Base Metal Exam After UT defect removal	✓		NRI

FOR INFORMATION ONLY

M.T. Level III Review ____________ Date INFORMATION ONLY ____________

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Form N-MT-1A

Revision 0

Location DCPP Unit II Procedure N-MT-1 Revision 0 Revision Date 1-1-83
Examiner M. Wah Level II Examiner T. O'Conn Level I Exam'n Date 4-25-83
Surface Temperature N/A Surface Prep. Used wire wheel Demag. Req'd N/A
Technique Used Yoke AC ✓ HWAC N/A Magnetic Part. Type Red 8A Mfr Magnaflux
Magnetizing Unit Parker S.N. 7707 Last Calibration 4-25-83 Calibr Due N/A
Test Block S.N. N-MT-1 Weight 10 lbs.
Acceptance Criteria Appendix B
Light Level NGC

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	~~Indication~~ Description	Accept Yes	Accept No	Remarks
3		5"	N/A	EXCAVATION	✓		NRI
3		5"	N/A	ROOT PASS	✓		NRI

FOR INFORMATION ONLY

M.T. Level III Review ________ Date INFORMATION ONLY

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Form N-MT-1A

Revision O

Location DCPP Unit Two Procedure N-MT-1 Revision O Revision Date 1-1-83
Examiner D.Lee Level II Examiner J.Ehlen Level I Exam'n Date 5-31-83
Surface Temperature 85° Surface Prep. Used Wire Wheel Demag. Req'd N/A
Technique Used PRODS AC HWAC X Magnetic Part. Type red 8A Mfr Magnaflux
Magnetizing Unit Magnaflux S.N. 751847 Last Calibration 5-5-83 Calibr Due 11-5-83
Test Block S.N. N/A Weight N/A
Acceptance Criteria APPENDIX B
Light Level N.G.C. Batch # 82H050

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	Indication Description	Accept Yes	Accept No	Remarks
#3		5"	500 amps	Indication was at end of Weld #3 that extended into Weld #1 and base metal. Indication was removed and re-examed. (Ref. N.C.R. # 8833XR-75 Rev1)	X		NRI
				Base Metal Exam only			

FOR INFORMATION ONLY

INFORMATION ONLY

M.T. Level III Review ______ Date ______

NONDESTRUCTIVE EXAMINATION MANUAL

Form N-MT-1A

Revision 0

DRY POWDER MAGNETIC PARTICLE
EXAMINATION DATA SHEET

Location DCPP Unit TWO Procedure N-MT-1 Revision 0 Revision Date 1-1-83
Examiner D.Lee Level II Examiner J. Ehlen Level I Exam'n Date 6-1-83
Surface Temperature 70° Surface Prep. Used Wire Wheel Demag. Req'd N/A
Technique Used PRODS AC ___ HWAC X Magnetic Part. Type red 8A Mfr Magnaflux
Magnetizing Unit Magnaflux S.N. 79/847 Last Calibration 5-5-83 Calibr Due 11-5-83
Test Block S.N. N/A Weight N/A
Acceptance Criteria APPENDIX B
Light Level N.G.C.

Batch # 82H050

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	Indication Description	Accept Yes	Accept No	Remarks
#4		5"	500 amps	Tested Back gouge of Weld #3	X		NRI

FOR INFORMATION ONLY

M.T. Level-III Review ______________ Date ______________

INFORMATION ONLY

35

WELD INSPECTION SHEET

CONN. NO. BR

WELD NO. 4-3 WELD PROC. SPEC(S) USED WPS-15 LOC/COORD. 16^7 & 5^9

DRAWING 6180-F1-13-07 10 6-1-83 GCO [illegible] UNIT I ELEV. 153'

INSPECTOR Dale TYPE OF WELDING ELECTRODE PIECE Existing TO Existing

DATE 6/1/83 USED E7018 INITIATING DOC. C6180

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
NA		Edge preparation	NA		Rod heat #
↓		Fit-up			Rod diameter
		N.D.E. (where applicable)			Fit-up
Material					Welder I.D.
↓			↓		Preheat

ACPT	RJCT	ROOT PASS INSPECTION 6-1-83	ACPT	RJCT	FINAL PASS INSPECTION 6/1/83
Dale		Rod heat # 2AC2	DT		Rod heat # 2AC2
Dale		Rod diameter 1/8	DT		Rod diameter 1/8
Dale		Visual Inspection	DT		Visual Inspection
Dale		N.D.E. type MT OK	DT		N.D.E. type UT OK
Dale		Welder I.D. KG	DT		Welder I.D. KG
Dale		Preheat 225°	DT		Preheat 225°

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT ☐ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: Welder Khastain KG

Field weld of final & root on 354 & [illegible] 6-1-83

Re-Paired Per NCR 8873 R-CC

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per The Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE 6/2/83 Q.C. INSPECTOR Don T. Tergley

HPF WIS- 3-31-83

INFORMATION ONLY

WELD NO.: 34 conn. BR WELD PROC. SPEC. USED ____ LOC/COORD 16-7 5-9

DRAWING: 6180F113007 R2 GCP-54, WPS-19 UNIT 1 ELEV. 653'7"

INSPECTOR: B BERG TYPE OF WELDING ELECTRODE PIECE C00G TO EXISTING

DATE: 12-22-82 USED E7018 INITIATING DOC.: WR 6180 R1

ACPT	REJCT	EDGE PREP AND FITUP	ACPT	REJCT	TACKING
BB		edge preparation	BB		Rod heat # 32682
BB		Fitup	BB		Rod diameter 1/8
N/A		N.D.E. (where applicable)	BB		Fitup
			BB		Welder ID CG
			BB		Preheat

ACPT	REJCT	ROOT PASS INSPECTION	ACPT	REJCT	FINAL PASS INSPECTION
RDM		Rod heat # 32682	RDM		Rod heat # 32682
RDM		Rod diameter 1/8	RDM		Rod diameter 1/8
RDM		Visual inspection	RDM		Visual inspection
N/A		N.D.E. type	N/A		N.D.E. type
RDM		Welder ID CG	RDM		Welder ID CG
RDM		Preheat	RDM		Preheat

MULTIPASS FOR INSPECTION ☑ ACCEPT ☐ REJECT ☐ N/A

MATERIAL P.O. or HEAT NUMBER C00G Ht 21C172 to EXISTING

ADDITIONAL REMARKS: WELDS 34 CONNECTION BR

WELDER - C. ESTES

FOR INFORMATION ONLY

FOR INFORMATION ONLY

FOR INFORMATION ONLY

INFORMATION ONLY

DATE: 12-28-82 QC INSPECTOR Roger D. Melk

37

N-UT-5
Rev 0

TRASONIC EXAMINATION OF GROOVE WELDS   EXAMINATION RECORD

GENERAL				Date 4-7-83	Ref. Dwg. No. 6180-F1-13-001 Rev.10
Plant Diablo Canyon	Unit 1	Component Seismic Mods	Location Hot Shop ~~Fuel Handling Bldg~~		Cal. Proc/Rev. Date N-UT-5 4/4/83
Block Type/No. IIW-2 and DC	S.U. Cable Type/Length BNC-Mdot / BNC-BNC 6 ft		Couplant Type/Visc. Ultragel II #8226		Exam. Proc/Rev. Date N-UT-5 4/4/83

Instrument Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1425 (L) D.J.
Rej. off / Damp. off	Serial No.	D11949		A20738			1434 (S) D.J.
Rep. Rate 1K	S.U. Size	3/4" ϕ		1/2" ϕ			1449 D.J.
Filter (+)	S.U. Freq.	2.25		2.25			
Temp. not applicable	Wedge Type	none		Lucite			
	Beam Angle/ Mode	Contact 0° Longitud.		70° meas. shear			
Basic Ref. Level, Amp. (% Screen)/Db		70% 42db		80% 59db			
Scan Sensitivity, Db		42db		73db			
Screen Distance, in.		2 1/2"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 IIW-2-789168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007 BR Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI Straight Beam Face a or b	Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
BR-4	153'-7"						NRI		A/70/RI	1
BR-3	153'-7"						NRI		A/70/RI	2

FOR INFORMATION ONLY

Continuation Sheets	Cal By: [signature] Level	Exam By: [signature] Level	Data Reviewed By: Level

INFORMATION ONLY

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level a	Decibels: Reference Level b	Decibels: Attenuation Factor c	Decibels: Indication Rating d	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70°	\	62	59	0	3	0.0 12.0	A	1.25	0.40	A	7.0	1.3			BR-4
2	70	\	62	59			0.0 12.0	A								BR-3

Indication 2 intermittant high amplitude (Class A)

depth varies 0.37-0.5'

B-side inaccessible for accurate measurement.

FOR INFORMATION ONLY

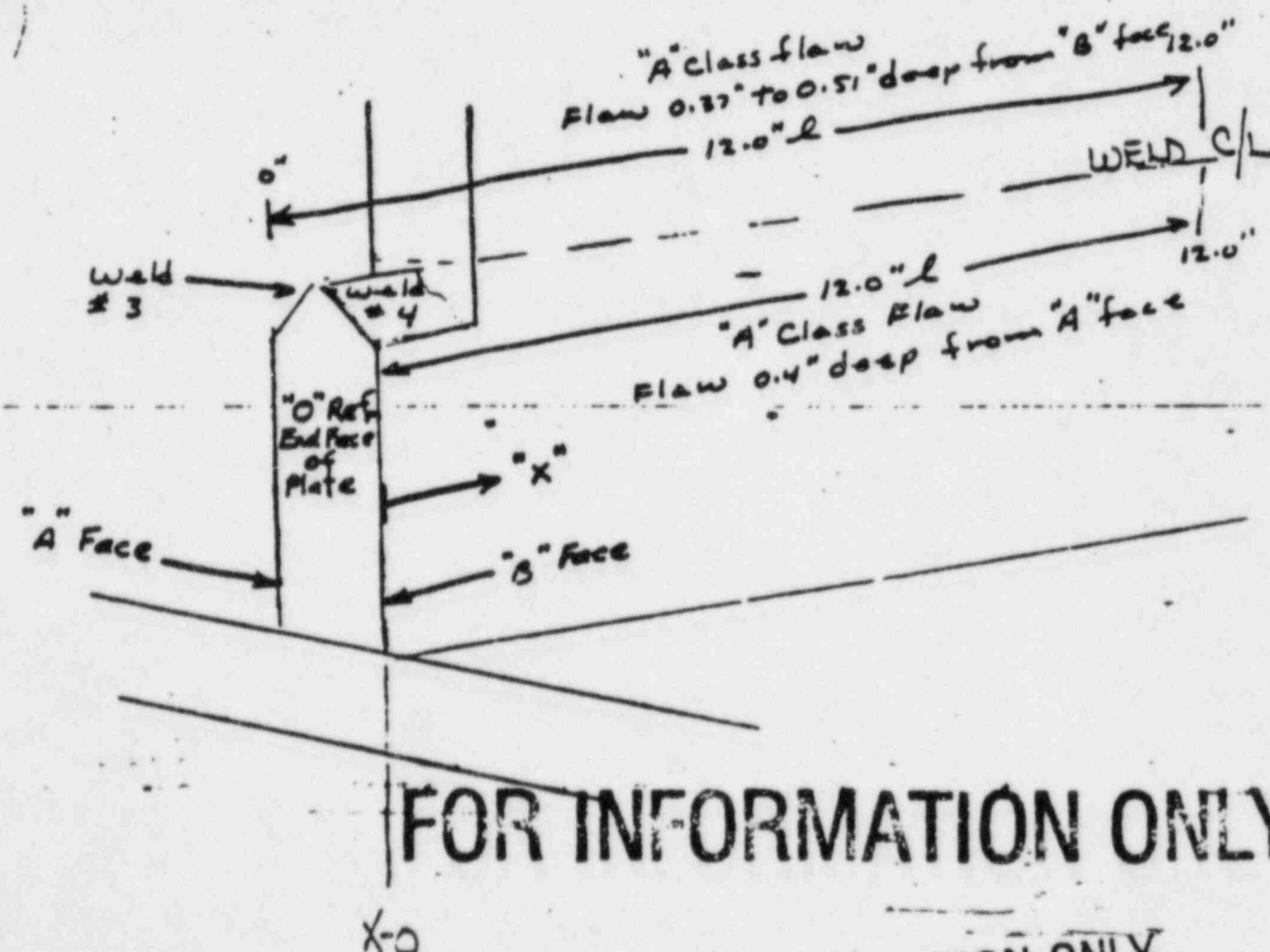
INFORMATION ONLY

J W 4-7-83

Date 4-7-83

Package No. BR

Detail Drawing No. 6180-F1-13-007



GENERAL

Plan	Unit	Component	Location	Date	Ref. Dwg. No.
CPP	II	Seismic Mods	Fuel Handling Bldg.	6-2-93	6180-F2-13-001

Blk. Type/No.	S.U. Cable Type/Length	Couplant Type/Visc.	Cal. Proc/Rev. Date	Exam. Proc/Rev. Date
DC-5 IIW-2 #783164	[illegible]	Ultragel II #7226	N-UT-5 / 6 / 4-4-93	N-UT-5 / 6 / 4-4-93

Instrument: Nortec 131D

		Straight Beam	Straight Beam	Angle Beam 70° Nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. -271	Search Unit	Aerotech Gamma	N/A	Aerotech Gamma	N/A	N/A	(L) 1010
Rej. Off / Damp. Off	Serial No.	D11949	↓	F05944	↓	↓	(S) in 1015
Rep. Rate 1K	S.U. Size	.75 ∅	↓	.50 ∅	↓	↓	(S) out 1030
Filter (+)	S.U. Freq.	2.25 MHz	↓	2.25 MHz	↓	↓	
Temp. N/A	Wedge Type	N/A	↓	Lucite	↓	↓	
	Beam Angle/ Mode	0° L-WAVE	↓	70° meas. S-WAVE	↓	↓	
Basic Ref. Level, Amp. (% Screen)/Db		50 db @ 70% FSH	↓	60 db @ 80% FSH	↓	↓	
Scan Sensitivity, Db		50 db	↓	74 db 79 db	↓	↓	
Screen Distance, in.		2.5"	↓	5"	↓	↓	
Calib. Blocks, Type/No.		Base metal	↓	DC-5 IIW-2 #783164	↓	↓	

Noise, Linearity, and Resolution Verification [RW]

6180-F1-13-007
BR / Col. 167

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
BR 1	153 el.	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A
BR 2	153' el.	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A

INFORMATION ONLY

FOR INFORMATION ONLY

Continuation Sheets	Cal By / Level	Exam By / Level	Data Reviewed By: / Level
	B. Welch I; R. Gahungama III	B. Welch I; R. Gahungama III	

41

ULTRASONIC EXAMINATION OF GROOVE WELDS — EXAMINATION RECORD Rev 0 — Page 1 of 1

GENERAL			Date	Ref. Dwg. No.
			6-2-93	U1&2-F2-13-051
Plant DCPP	Unit I	Component Seismic Mods	Location Fuel Handling Bldg.	Cal. Proc/Rev. Date N-UT-5 / 0 / 4-4-93
Block Type/No. DC-5 IIW-2 #783.69	S.U. Cable Type/Length		Couplant Type/Visc. Ultragel II #7226	Exam. Proc/Rev. Date N-UT-5 / 0 / 4-4-93

Instrument: Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° Nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. D-271	Search Unit	Aerotech Gamma	N/A	Aerotech Gamma	N/A	N/A	(L) 1010
Rej. off / Damp. off	Serial No.	D11949		F05744			(S) in 1015
Rep. Rate 1K	S.U. Size	.75" ø		.50" ø			(S) out 1030
Filter (+)	S.U. Freq.	2.25 MHz		2.25 MHz			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/Mode	0° L-wave		70° Meas. S-wave			
Basic Ref. Level, Amp. (% Screen)/Db		50 db @ 70% FSH		60 db @ 90% FSH			
Scan Sensitivity, Db		50db		74 db 79 db			
Screen Distance, in.		2.5"		5"			
Calib. Blocks, Type/No.		Basematal		DC-5 IIW-2 # 783.69			

Noise, Linearity, and Resolution Verification [B.W.]

U1&2-F1-13-057 BR / Col. 167

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
~~3 BW~~	153'-91	FP	butt	3/4	12"	N/A	A / NRI	N/A	A70° / NRI	N/A
4 BW	153'-91	FP	butt	3/4	12"	N/A	A / NRI	N/A	A70 / NRI	N/A

Examination Results: NRI or RI

INFORMATION ONLY

INFORMATION ONLY

FOR INFORMATION ONLY

Continuation Sheets	Cal By: B. Welch II / R. Gishingame III	Exam By: B. Welch II / R. Gishingame III	Data Reviewed By: Level

42

RASONIC EXAMINATION OF GROOVE WELDS — EXAMINATION RECORD Rev 0 — Page 1 of 1

GENERAL				Date 6-2-93	Ref. Dwg. No. 6180-F2-13-001
Plant DCPP	Unit I	Component Seismic Mods	Location Fuel Handling Bldg		Cal. Proc/Rev. Date N-UT-5/0/4-4-93
Block Type/No. DC-5 IIW-2 #783.64	S.U. Cable Type/Length		Couplant Type/Visc. Ultragel II #7220		Exam. Proc/Rev. Date N-UT-5/0/4-4-93

Instrument Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° Nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. D-271	Search Unit	Aerotech Gamma	N/A	Aerotech Gamma	N/A	N/A	(L) 1010
Rej. Off Damp. off	Serial No.	D11949		F05944			(S) in 1015
Rep. Rate 1K	S.U. Size	.75" ⌀		.50 ⌀			(S) out 1030
Filter (+)	S.U. Freq.	2.25 MHz		2.25 MHz			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/ Mode	0° L-wave		70° Meas. S-wave			
Basic Ref. Level, Amp. (% Screen)/Db		50 db @ 70% FSH		60 db @ 80% FSH			
Scan Sensitivity, Db		50 db		74 db 79 db			
Screen Distance, in.		2.5"		5"			
Calib. Blocks, Type/No.		Base metal		DC-5 IIW-2 #783.64			

Noise, Linearity, and Resolution Verification [BR]

6180-F1-13-007 BR / Col. 167

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
3	153' 81.	FP	Butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A
4	153' 81.	FP	Butt	3/4	12"	N/A	B/NRI	N/A	A70°/NRI	N/A

Examination Results NRI or RI

INFORMATION ONLY

INFORMATION ONLY

FOR INFORMATION ONLY

Continuation Sheets	Cal By	Level	Exam By	Level	Date	Reviewed By	Level

PG&E

NONDESTRUCTIVE EXAMINATION MANUAL

Form N-MT-1A

Revision 0

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Location DCPP Unit TWO Procedure N-MT-1 Revision 0 Revision Date 1-1-83
Examiner D. Lee Level II Examiner J. Elkin Level I Exam'n Date 6-1-83
Surface Temperature 70° Surface Prep. Used Wire Wheel Demag. Req'd N/A
Technique Used PRODS AC HWAC X Magnetic Part. Type red 8A Mfr Magnaflux
Magnetizing Unit Magnaflux S.N. 731847 Last Calibration 5-5-83 Calibr Due 11-5-83
Test Block S.N. N/A Weight N/A
Acceptance Criteria APPENDIX B
Light Level N.G.C. Batch # 82H050

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	Indication Description	Accept Yes	Accept No	Remarks
#4		5"	500 amps	Tested Back gouge of weld #3	X		NRI

FOR INFORMATION ONLY

INFORMATION ONLY

N.T. Level III Review ____________ Date ____________

ULTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD Rev 0 Page 1 of 1

GENERAL						Date 6-2-93	Ref. Dwg. No. 0180-F2-13-001
Plant DCPP	Unit I	Component Seismic Mods	Location Fuel Handling Bldg.				Cal. Proc/Rev. Date N-UT-5 / 0 / 4-4-93
Block Type/No. DC-5 IIW-2 #783-69	S.U. Cable Type/Length		Couplant Type/Visc. Ultragel II #7226				Exam. Proc/Rev. Date N-UT-5 / 0 / 4-4-93

Instrument Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° Nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. D-271	Search Unit	Aerotech Gamma	N/A	Aerotech Gamma	N/A	N/A	(L) 1010
Rej. off Damp. off	Serial No.	M11949		F05944			(S) in 1015
Rep. Rate 1K	S.U. Size	.75" ø		.50" ø			(S) out 1030
Filter (+)	S.U. Freq.	2.25 MHz		2.25 MHz			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/Mode	0° L-wave		70° Meas. S-wave			
Basic Ref. Level, Amp. (% Screen)/Db		50 db @ 70% FSH		60 db @ 80% FSH			
Scan Sensitivity, Db		50 db		74 db 79 db			
Screen Distance, in.		2.5"		5"			
Calib. Blocks, Type/No.		Base metal		DC-5 IIW-2 #783-69			

Noise, Linearity, and Resolution Verification [BW]

0180-F1-13-007
BR / Col. 167

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
3 BW	153'-9"	FP	Butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A
4 BW	153'-9"	FP	Butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A

FOR INFORMATION ONLY

INFORMATION ONLY

Continuation Sheets	Cal By: B. Welch I; B. Burlingame III	Exam By: B. Welch I; B. Burlingame III	Data Reviewed By: Level

PG&E

NONDESTRUCTIVE EXAMINATION MANUAL

Form N-MT-1A

Revision 0

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Location DCPP Unit II Procedure N-MT-1 Revision 0 Revision Date 1-1-83
Examiner [illegible] Level II Examiner T.O.C. Level I Exam'n Date 4-25-83
Surface Temperature N/A Surface Prep. Used wire wheel Demag. Req'd N/A
Technique Used Yoke AC ✓ HWAC N/A Magnetic Part. Type Red 8A Mfr Magnaflux
Magnetizing Unit Parker S.N. 7707 Last Calibration 4-25-83 Calibr Due N/A
Test Block S.N. N-MT-1 Weight 10 lbs.
Acceptance Criteria Appendix B
Light Level NGC

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	~~Indication~~ Description	Accept Yes	Accept No	Remarks
3		5"	N/A	EXCAVATION	✓		NRI
3		5"	N/A	ROOT PASS	✓		NRI

FOR INFORMATION ONLY

INFORMATION ONLY

M.T. Level III Review ______ Date ______

46

PG&E

NONDESTRUCTIVE EXAMINATION MANUAL

Page 1 of 1

Form N-MT-1A

Revision

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Location DCPP Unit 1 Procedure N-MT-1 Revision 0 Revision Date 1-1-83
Examiner [illegible] Level II Examiner R. Petero Level I Exam'n Date 9-21-83
Surface Temperature 64°F Surface Prep. Used Grinding wheel Demag. Req'd N/A
Technique Used Prod AC HWAC ✓ Magnetic Part. Type 8A Red Mfr Magnaflux
Magnetizing Unit Magnatech S.N. 71120 Last Calibration 11-19-82 Calibr Due 5-19-83
Test Block S.N. N/A Weight N/A
Acceptance Criteria Appendix B
Light Level N.G.C.

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	~~Indication~~ Description	Accept Yes	Accept No	Remarks
[illegible]		4"	500 Amps	Base Metal Exam After UT defect removal	✓		NRI

FOR INFORMATION ONLY

M.T. Level III Review ______ Date ______

RASONIC EXAMINATION OF GROOVE WELDS

EXAMINATION RECORD Rev 0

GENERAL				Date 6-2-83	Ref. Dwg. No. 6180-FZ-13-001
Plant DCPP	Unit I	Component Seismic Mode	Location Fuel Handling Bldg.		Cal. Proc/Rev. Date N-UT-5 / 0 / 4-4-83
Block Type/No. DC-5 IIW-2 #783168	S.U. Cable Type/Length Micro Dot / Super Micro Dot; 6'0"	Couplant Type/Visc. Ultragel II #7226			Exam. Proc/Rev. Date N-UT-5 / 0 / 4-4-83

Instrument Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° Nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. D-271	Search Unit	Aerotech Gamma	N/A	A'Tech Gamma	N/A	N/A	(L) 1010
Rej. off / Damp. off	Serial No. M11949	M11949		F07744			(S) in 1015
Rep. Rate 1K	S.U. Size	.75" ø		.50" ø			(S) out 1030
Filter (+)	S.U. Freq.	2.25 MHz		2.25 MHz			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/ Mode	0° L-wave		70° meas. S-wave			
Basic Ref. Level, Amp. (% Screen)/Db		50 db @ 70% FSH		60 db @ 80% FSH			
Scan Sensitivity, Db		50db		74 db 79 db			
Screen Distance, in.		2.5"		5"			
Calib. Blocks, Type/No.		Basemetal		DC-5 IIW-2 # 783168			

Noise, Linearity, and Resolution Verification [KW]

Weld Ident. No. (6180-F1-13-007 BR / Col. 167)	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
[redacted]	153' el.	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A
?-4	153' el.	FP	butt	3/4	12"	N/A	A/NRI	N/A	A70°/NRI	N/A

FOR INFORMATION ONLY

Continuation Sheets	Cal By: B. Welch Level I; R. Kalinowski(?) III	Exam By: B. Welch Level I; R. Kalinowski(?) III	Data Reviewed By: Level

48

PG&E

NONDESTRUCTIVE EXAMINATION MANUAL

Form N-MT-1A

Revision 0

DRY POWDER MAGNETIC PARTICLE EXAMINATION DATA SHEET

Location DCPP Unit ~~Two~~ I D. Lee Procedure N-MT-1 Revision 0 Revision Date 1-1-83
Examiner D Lee Level II Examiner L Ehlen Level I Exam'n Date 5-31-83
Surface Temperature 85° Surface Prep. Used Wire Wheel Demag. Req'd N/A
Technique Used PRODS AC ____ HWAC X Magnetic Part. Type red 8A Mfr Magnaflux
Magnetizing Unit Magnaflux S.N. 751847 Last Calibration 5-5-83 Calibr Due 11-5-83
Test Block S.N. N/A Weight N/A
Acceptance Criteria APPENDIX B
Light Level N.G.C.
Batch # 82H050

CONN./PACKAGE NO. #	DETAIL DRAWING NO. #	REFERENCE DRAWING NO. #
BR	6180-F1-13-007	6180-F1-13-001

Weld ~~Component~~	T	Prod/Leg Spacing	Current	Indication Description	Accept Yes	Accept No	Remarks
[redacted]		5"	500 amps	Indication was at end of Weld #3 that extended into Weld #1 and base metal. Indication was removed and re-examed. (Ref. N.C.R. # [illegible])	X		NRI
				Base Metal Exam only			

FOR INFORMATION ONLY

M.T. Level III Review ____________ Date ____________

49

N-UT-5
Rev 0

LTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL

Plant: Diablo Canyon	Unit: 1	Component: Seismic Mods	Location: Hot Shop & Fuel Handling Bldg	Date: 4-7-83
Block Type/No.: IIW-2 and DC	S.U. Cable Type/Length: BNC-Mdot / BNC-BNC 6 ft	Couplant Type/Visc.: Ultragel II #8226	Ref. Dwg. No.: 6180-F1-13-001 Rev.10	Cal. Proc/Rev. Date: N-UT-5 4/4/83
				Exam. Proc/Rev. Date: N-UT-5 4/4/83

Instrument: Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1425 (L) D.J.
Rej. off Damp. off	Serial No.	D11949		A20738			1434 (S) D.J.
Rep. Rate 1K	S.U. Size	3/4" ϕ		1/2" ϕ			1449 D.J.
Filter (+)	S.U. Freq.	2.25		2.25			
Temp. not applicable	Wedge Type	none		Lucite			
	Beam Angle/Mode	Contact 0° longitud.		70° meas. shear			
Basic Ref. Level, Amp. (% Screen)/Db		70% 42db		80% 59db			
Scan Sensitivity, Db		42db		73db			
Screen Distance, in.		2 1/2"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 IIW-2-723168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007
BR

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
BR-1	153'-7"	FP	Butt	3/4"	12"	N/A	NRI a		A/70/ RI	1
BR-3	153'-7"	FP	Butt	3/4"	12"	N/A	NRI a		A/70/ RI	2

FOR INFORMATION ONLY

INFORMATION ONLY

Continuation Sheets	Cal By: [signature] Level	Exam By: [signature] Level	Data Reviewed By: Level

50

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level a	Decibels: Reference Level b	Decibels: Attenuation Factor c	Decibels: Indication Rating d	Defect (see Figure 11): Length/Direct. (x and/or y)	Defect: Indication Class	Defect: Sound Path Distance	Defect: Depth from Surface/a, b, or c	Defect: Distance: Scan Face	Defect: Distance: X	Defect: Distance: Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70°	\	62	59	0	3	0.0 12.0	A	1.24	0.40'	A	7.0	1.3	RI		BR-4
2	70	\	62	59			0.0 12.0	A						RI		BR-3
	Indication 2 intermittent high amplitude (Class A)															
	depth varies 0.87-0.5'															
	B-side inaccessible for accurate measurement.															

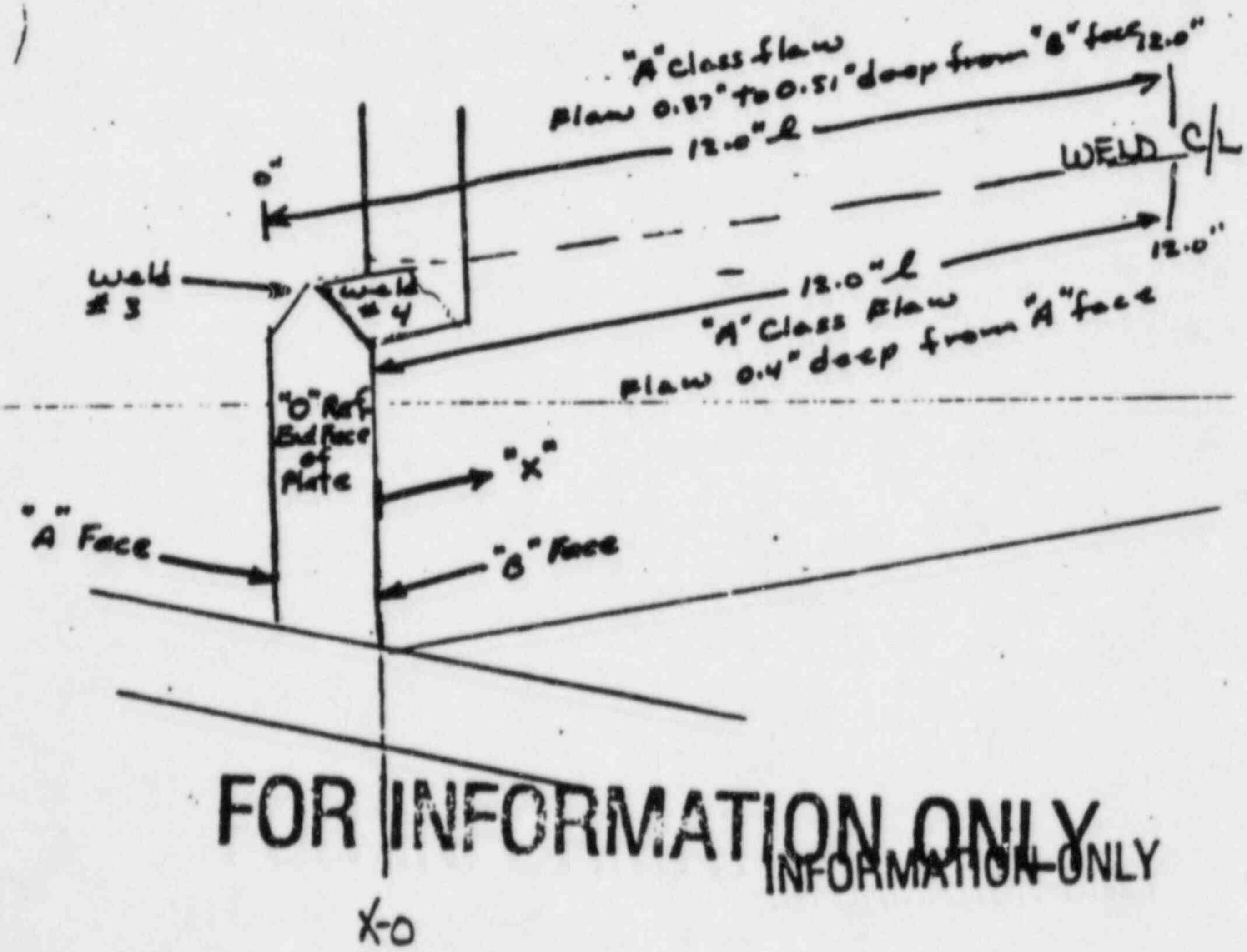
INFORMATION ONLY

JMW
4-7-83

Date 4-7-83

Package No. BR-344 Shee

Detail Drawing No. 6180-F1-13-007



1 & 3		W.O.	167	59

W.O. 1 & 3

WELDING: W.O. 167 59

DRAWING: 6150-F1-13-667 rev GS1 5A — T 153

FOREMAN: D Langley — Existing

DATE: 6/2/83 — [illegible] — CCA

		Base preparation	✓		
[illegible]		Fit-up			Rod diameter
n/a		N.D.E. (where applicable)			Fit-up
Material		Existing steel			Welder I.D.
P.O. SHT			✓		Preheat

ACPT	REJ	ROOT PASS INSPECTION 6/2/83	ACPT	REJ	FINAL PASS INSPECTION 6/2/83
[illegible]		Rod heat [illegible]	[illegible]		Rod heat 2002
[illegible]		Rod diameter 1/8	[illegible]		Rod diameter 1/8
[illegible]		Visual inspection	[illegible]		Visual inspection
[illegible]		N.D.E. type MT OK	[illegible]		N.D.E. type LP OK
[illegible]		Welder I.D. QB	[illegible]		Welder I.D. QB
[illegible]		Preheat 50°	[illegible]		Preheat 50°

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT ☐ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: Welder "QB" Is Ramirez

Weld 1 & 3 were Repaired per "NR" 88[illegible]R-25

FOR INFORMATION ONLY

This is to certify ... Howard P. ... [illegible] ... table.

INFORMATION ONLY

DATE 6/2/83 INSPECTOR [illegible signature]

INFORMATION ONLY

APPROVED 3-31-82

53

WELD [illegible]

[illegible] BR

WELD NO. 4-3 [illegible] WPS-15 [illegible] 1-? [illegible] 5"

DRAWING 6180-F1-13-0187?? [illegible] [illegible] I [illegible] 155'

INSPECTOR [illegible] [illegible] Existing [illegible] Existing

DATE 8/1/83 [illegible] E7018 [illegible] CS100

ACPT	REJCT	EDGE PREP AND FIT-UP	ACPT	REJCT	
NA		Edge preparation	NA		
		Fit-up			
		N.D.E. where applicable			

ACPT	REJCT	ROOT PASS [illegible]	ACPT	REJCT	FINAL PASS INSPECTION [redacted]
[illegible]		Rod heat 2AC2	[redacted]		[illegible] 2AC2
[illegible]		Rod diameter 1/8	[redacted]		Rod diameter 1/8
[illegible]		Visual Inspection	[redacted]		Visual Inspection
[illegible]		N.D.E. [illegible]	[redacted]		[illegible] MT OK
[illegible]		[illegible]	[redacted]		[illegible] [redacted]
[illegible]		Preheat [illegible]	[redacted]		Preheat [illegible]

MULTIPASS [illegible] INSPECTION ☒ ACCEPT ☐ REJECT ☐ NA

MAXIMUM 400°F INTERPASS (Ref. Sec. [illegible]) ☐ ACCEPT ☐ REJECT ☒ NA

ADDITIONAL REMARKS: Welder Khastein KG

[illegible]

Re-[illegible] per NCR [redacted]

This is to certify that [illegible]
The [illegible]
[illegible]

FOR INFORMATION ONLY

[redacted] [illegible signature]

3-2-[illegible]

54

[illegible] 1.R.

[redacted] 3 WELD [illegible] [redacted] 167 . 59

[illegible] 6150-F1-13-007 [illegible] GCI 5A [illegible] I [illegible] 153

INSPECTOR D. Tingley TYPE OF WELD[illegible] Duct [illegible] Existing

DATE 6/2/83 [illegible] [illegible] [illegible] CCB

ACPT	RJCT	[illegible] PREP AND [illegible] N/A	ACPT	RJCT	[illegible]
[illegible]		Edge preparation	N/A		Rod heat #
[illegible]		Fit-up			Rod diameter
N/A		N.D.E. (where applicable)			Fit-up
Material		Existing steel			Welder I.D.
P.O./HT#					Preheat

ACPT	RJCT	ROOT PASS INSPECTION 6/2/83	ACPT	RJCT	FINAL PASS INSPECTION [redacted]
[illegible]		Rod heat # 2A-2	[redacted]		Rod heat # 2AC2
[illegible]		Rod diameter 1/8	[redacted]		Rod diameter 1/8
[illegible]		Visual Inspection	[redacted]		Visual Inspection
[illegible]		N.D.E. type MT OK	[redacted]		N.D.E. type LT OK
[illegible]		Welder I.D. QB	[redacted]		Welder I.D. [redacted]
[illegible]		Preheat 50°	[redacted] [illegible]		Preheat 50°

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT ☐ N/A

MAXIMUM 600°F INTERPASS (Ref. [illegible] 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: Welder "QB" Is Ramirez

Weld 1 & 3 Were Repaired per "NR [redacted]

FOR INFORMATION ONLY

This is to cer[illegible] [illegible] The Howard P. F[illegible] [illegible] [illegible]ble.

INFORMATION ONLY

DATE [redacted] [illegible] INSPECTOR Donald L. Tingley

[illegible] 3-31-83

RIGHT .

NONCONFORMANCE REPORT Original

Page 1 of 2

Number: 8833XR-75

YES [X] NO [ ] ATTACHMENTS

Date: 4-26-83

DESCRIPTION:

Fuel Handling Building
Weld repair per NCR 8833XR-66
CONN. BR (Weld #3) WPS-19

W.R.#6180

HOLD TAG # 8833XR-75

[ ] REMOVED

BY ________ DATE ________

REF. HPF/IR NUMBER

UNIT I [X] UNIT II [ ] / LOCATION FHB Elev. 153' S[9] 16.7 CLASS I [X] NON-CLASS I [ ]

INSPECTION CRITERIA: DRAWING [X] SPECIFICATION [ ] PROCEDURE [X]

DOCUMENT TITLE AND NUMBER: 6180-F1-13-~~006 REV. 6~~ 007 REV. 7 CA 5-5-83, 6180-F1-13-001 REV. 12 QCP-5A

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

There is a crack at the end of Weld #3 that extends into adjacent weld ~~(#2)~~ #1 CA 5-5-83 and base metal. Weld ~~#2~~ #1 CA 5-5-83 has been Q.C. accepted.

CAUSE:
Defect propagation.

INFORMATION ONLY

[signature] 4-30-83 — INITIATED BY / DATE

[signature] 4-30-83 — QUALITY MANAGER / DATE

[signature] 4-30-83 — PROJECT MANAGER / DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

1. Remove defined crack by mechanical means per QCP-5A.
2. M.T. welds and/or base metal at excavated crack area to assure crack removal.
3. Weld up excavation to meet original base metal and weld requirements per current revision of design detail.

(CONTINUED ON PAGE 2)

DISPOSITION BY DATE

PROJECT MANAGER DATE

QUALITY MANAGER DATE

PACIFIC GAS AND ELECTRIC CO. DATE

DISPOSITION ACCOMPLISHED

FOR INFORMATION ONLY

Supercede by NCR 8833XR-75 R1 Date 5-5-83 RCG

VERIFIED BY DATE SUPERINTENDENT DATE QUALITY MANAGER DATE

THE HOWARD P. FOLEY CO. ACCEPTANCE

PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE

Original

THE HOWARD P. FOLEY COMPANY
NONCONFORMANCE REPORT - CONTINUATIO SHEET

NO. 8833XR-75

CONTINUATION OF: DESCRIPTION OF NONCONFORMANCE ☐
PROPOSED DISPOSITION ☒
DISPOSITION ACCOMPLISHED ☐

DATE 4-26-83

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE: (CONTINUED)

4. Perform Visual Inspection on repaired area. Provide final NDE on Welds 3 & 7 (M.T. for Weld 7, and M.T. & U.T. for Weld 3.)

MEANS TO PREVENT RECURRENCE:

Not applicable.

Superceded by NCR 8833XR-75 A Date 5-5-83

H.P. FOLEY
QUICK FIX DESIGN CHANGE
FOR STRUCTURAL STEEL

QFDC NUMBER 1-257

SUBJECT Weld Repairs per NCR 8833XR-60 CLASS I

LOCATION Fuel Handling Bldg. Unit 1

DESCRIPTION: Reference EDR's No. 1008, and 819.

Problem: Due to problems of welding ~~channel~~ additional PL to connection PL as addressed on EDR 1008, welds cannot be made without fusing channels to PL's. 4-12-83

Solution: Remove all bolts holding existing C15's in place. Move C15's out of the way to make welds per NCR 8833 XR-60. Install new bolts and torque.

For Reference Only: This QFDC pertains to connections CN, CO, & BM

REFERENCE DRAWING 6180-F1-13-006 & -007 Rev's 7 (both dwg's.)

ATTACHMENTS YES NO PAGES (INCLUDE THIS SHEET) 1

CONSTRUCTION MAY PROCEED David Collins DATE 4/13/83

PARTIES INVOLVED HPF Field Eng. Dennis Humbert DATE April 12, 1983

HPF PROD. FOREMAN Bill McCreary DATE 4-13-83

HPF-Q/C SUPERVISOR [signature] DATE 4-13-83

P.G.& E. GC INSPECTOR [signature] DATE 4/13/83

P.G.& E. PROJ. ENG. REV.: DATE

DISTRIBUTION:

Original - QCE
Copy - OPEG
- P.G.& E. QC (1)
- Production (1 "work copy", 1 "info only")
- HPF-E (1)
- Q/C (1)

WORK COPY

INFORMATION ONLY

CIVIL

UNIT I ☐
UNIT 2 ☐

THE HOWARD P. FOLEY COMPANY
PRODUCTION ENGINEERING DEPT.
ENGINEERING DISPOSITION REQUEST

№ 1008

To F. M. Russell/P. Palomo   Subject Repair per NCR 8833XR-60

From Dennis Humbert   WR C-6180

Problem Reference EDR 819. Some full Penetration welds detailed on dwgs. 6180-F1-13-006 & 007 have defects and require repair per NCR 8833XR-60. Some of these welds that require repair are on plates that were raised in elevation per EDR 819. Repair of these welds will cause C15 to be fused to these EL'S & to existing WTs. Is this condition acceptable? If this condition is not acceptable, please advise on how to proceed.

Signed Dennis Humbert   Date April 09, 1983

Reply Not acceptable. Either insulate to prevent fusion to channels or loosen & spread channels as required to prevent the fusion. Submit proposed method for approval.

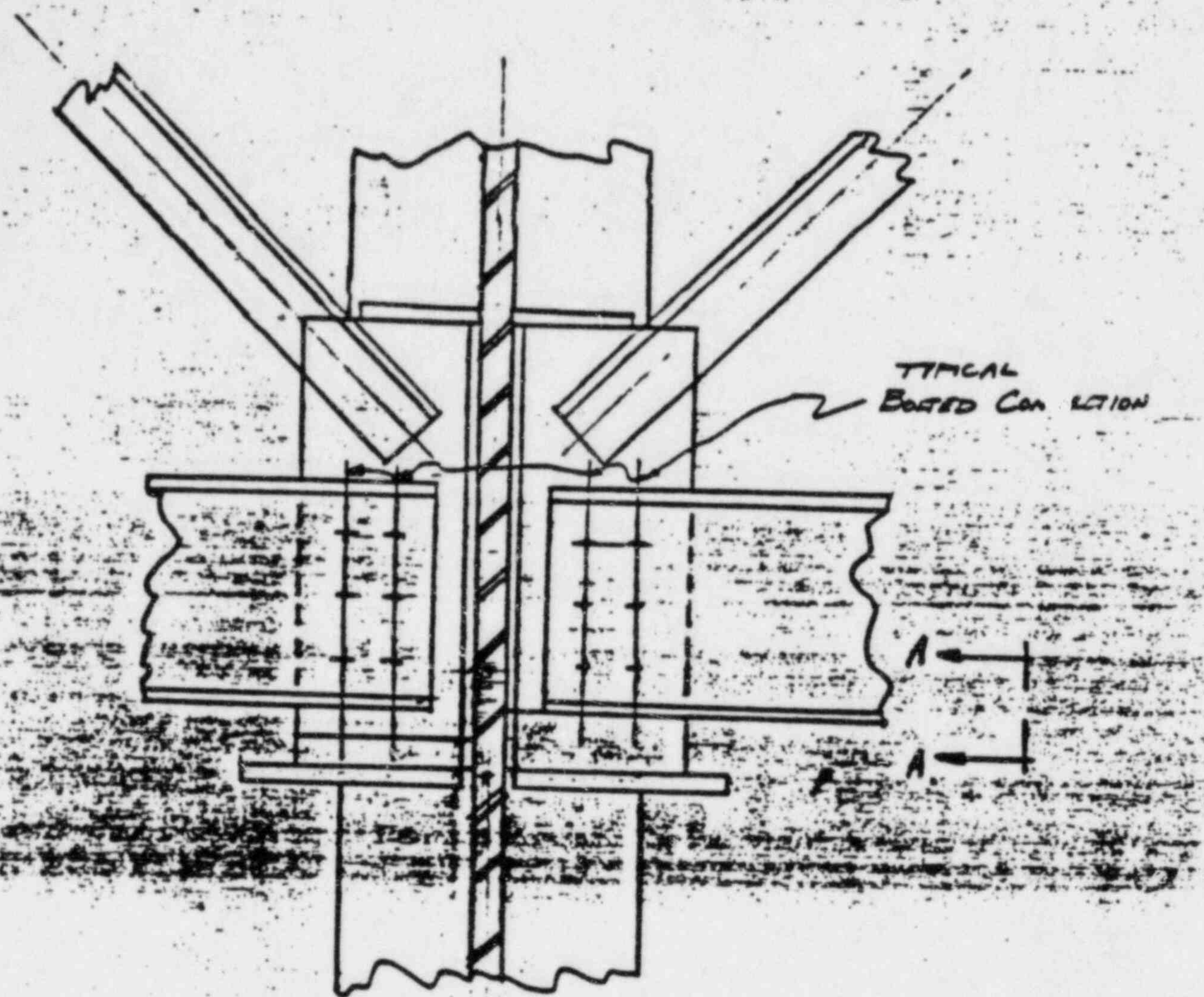
Signed E H Gunter   Date 4/11/83

Forrest M. Russell 4-11-83

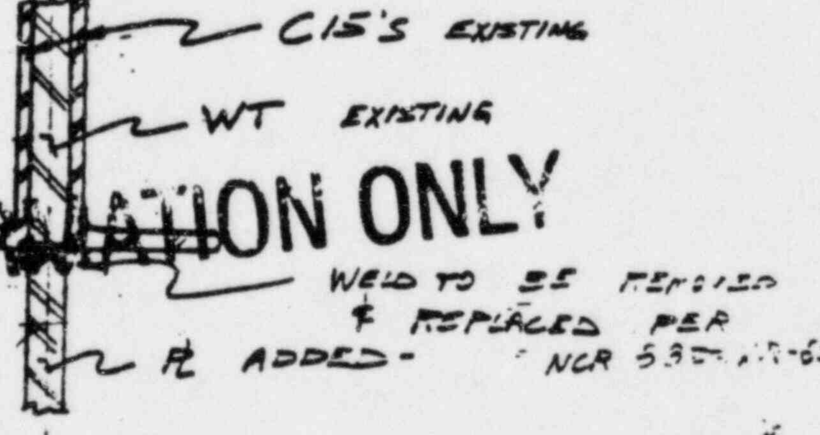
FOR INFORMATION ONLY

Note: ORIGINAL LOST.

Civil ECR 1008 (Attach.)
Pg. 2 of 2
April 09, 1983



2
006
PARTIAL DETAIL



DUE TO WT BEING CUT FLUSH WITH BOTTOM OF C15 WHEN REMOVING DEFECTIVE WELD METAL & REPLACING, WELD METAL WILL TIE C15 TO WT.

FOR INFORMATION ONLY

TYPICAL SEC A-A

60

CIVIL

UNIT I ☒
UNIT II ☒

FEB 8 1983

THE HOWARD P. FOLEY COMPANY

PRODUCTION ENGINEERING DEPT.

ENGINEERING DISPOSITION REQUEST

HM
BP
VT
RR
BL
LF-4
BB-4

№ 819

FEB 7 1983

To F.M. Russell/B. Gragg Subject F.H.B. Modifications

From B. Price W/R #C-6180

Problem Ref. EDR #792. At Col. $14^{\underline{1}}$ and $S^{\underline{9}}$, Connection BM, the existing WT was cut flush with the bottom of the existing 2[15. This will result in pieces B006 and E006 being raised about 1" in elevation. 1) Is this acceptable? 2) Will this be acceptable in other locations?

Signed [signature] Date 2-7-83.

Reply 1.) YES
2.) YES

Provide As builts as req'd.

Signed [signature] Date 2-8-83

FOR INFORMATION ONLY

61

HM
BP
VT
RR-
IF- 6
BC- 6
BB- 6

UNIT I [x]
FEB 3 1983
UNIT II [x]

VT

CIVIL

THE HOWARD P. FOLEY COMPANY
PRODUCTION ENGINEERING DEPT.
ENGINEERING DISPOSITION REQUEST

No. 792

RECEIVED
JAN 29 1983

To E.G. Russell/B. Gragg Subject F.H.B. Modifications

From B. Price W/R #C-6180

Problem At Col. 12' on V'Line, Connection EN, the existing WT was cut flush with the bottom of the existing 2[15. This will result in pieces E006 and E006 being raised about 1" in elevation. Is this acceptable?

FOR INFORMATION ONLY

Signed BB Date 1/29/83

Reply Yes

Signed James M. Russell Date 2-3-83

62

NONCONFORMANCE REPORT

PAGE 1 OF 1 — 8833XR-60

DESCRIPTION:

CONNECTIONS: FH, BL, BM, BN & BI

YES [x] NO [ ] ATTACHMENTS

Date: 4-6-83

W.R. #6180

8833XR-60 [ ] REMOVED

REF. NUMBER N/A — DATE

UNIT I [x] UNIT II [ ] LOCATION: Fuel Handling Building — CLASS I [x] NON-CLASS I [ ]

INSPECTION CRITERIA: DRAWING [x] SPECIFICATION [ ] PROCEDURE [ ]

DOCUMENT TITLE AND NUMBER: 6180-F1-13-006 & 007

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

1. Nondestructive Testing (Ultrasonic Test) U.T. on the foregoing connections revealed flaws. (See attached Examination Reports)
2. N.D.E. Column on Q.C. Weld Inspection Sheets was marked N/A.

CAUSE:

1. ~~Suspect weld shrinkage~~
2. N.D.E. Column inadvertently marked.

Robert A. Carter 4/6/83 — Robert A. Carter 4/6/83 — 4-6-83

INITIATED BY — DATE — QUALITY MANAGER — DATE — PROJECT MANAGER — DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

Repair welds per OCP-5A. Remove weld metal a minimum of 2" each side of the indication Reweld and reinspect visually and ultrasonically. Annotate original WIS to indicate this nonconformance.

Means to prevent recurrence: 1. Hold training meeting with production supervision regarding ~~distortion and shrinkage control as well as~~ welding technique as well as proper interpass weld cleaning & back gouge.
2. Hold training meeting with QC supervision to discuss nondestructive testing requirements and interpass weld cleaning.

FOR INFORMATION ONLY

DISPOSITION BY — DATE 4/7/83 — PROJECT MANAGER — 4-7-83 DATE

Robert A. Carter 4/7/83

QUALITY MANAGER — DATE — PACIFIC GAS AND ELECTRIC CO. — DATE

DISPOSITION ACCOMPLISHED

INFORMATION ONLY

Superceded by NCR 8833XR-60 ⚠ Date 4/7/83

63

THE HOWARD P. FOLEY COMPANY

INTER-OFFICE COMMUNICATION

To [illegible] Date [illegible]

From [illegible]

[illegible]

2nd NOTICE SENT 5/13/83

[illegible]

LIST OF MISSING DOCUMENTATION
SENT TO FISHER ON 5-18-83
" " " " 5-31-83
" " " " 6-8-83

Signature

[illegible]

FOR INFORMATION ONLY

64

THE HOWARD P. FOLEY COMPANY
INTER OFFICE COMMUNICATION

[illegible] 6-17-83

[illegible]

: [illegible]rification of weld numbers for connections (BH) (BS) & (EV) on drawing 6180-F1-13-00[illegible] Rev (12) & detail 2 on drawing 6180-F1-13-006 Rev (7)
Connections (CF) & (FG) on drawing 6180-F2-13-002 Rev (12) & detail 2 on drawing 6180-F1-13-006 Rev (7)

The following are applicable weld numbers per Howard P. Foley QC Inspectors interpretation of above drawings. This will help to document the difference of interpretation opinions between [illegible] and HPF Inspection Reports . A copy of this memo will be filed with each of the following Nonconformance Reports when closed to file.

NCR-8833xR-60 DWG#6180-F1-13-001 CONN(BH) S^9 COL 9^7
DETAIL #2-006 △7 South side only
WELDS#1 & 2

NCR-8833xR-66 DWG #6180-F1-13-001 CONN (BS)& (EV)
DETAIL #2-006 7 North side only
(BS) WELDS #3 & 4 S^9_1 COL 17^5
(EV) WELDS #1 & 2 V^1 COL 17^5

NCR-8833xR-81 DWG #6180-F2-002 CONN(CF) & (FG)
DETAIL # 2-006 △7 North side only
(CF) WELDS #3 & 4 S^6_1 COL 26^3_6
(FG) WELDS #1 & 2 V^1 COL 25^6

Weld # Interpretation By [signature] DATE 6/17/83

Signature

FOR INFORMATION ONLY

7-20-83

TO: B. CARTER

FROM: QCE

SUBJECT: Missing Documentation for NCR 8833XR-60 Rev. 1 Written on 4-7-83 Against Unit I Fuel Handling Building.

We still require the following documents prior to closure.

NOTE: The original is completely signed off including Hold Tag Removal on 5-5-83.

(A) FIX-IT WIS: For Connection BM Welds 3,4
~~EO~~ 1,2 — Rec 7-29-83

See Attached Info Copy.

T. D. Eversult

cc: J. Rothstein

FOR INFORMATION ONLY

66

THE HOWARD P. FOLEY COMPANY

INTER-OFFICE COMMUNICATION

To ______ Date ______

From ______

REC 7-29-83 E

7-27-83 E

E 7-27-83

Signature T.O. [illegible]

FOR INFORMATION ONLY

67

N-UT-5
Rev 0

ULTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL

Plant: Diablo Canyon	Unit: 1	Component: Seismic Mods	Location: Fuel Handling Bldg		Date: 4-5-83	Ref. Dwg. No. 6180-F1-13-001 Rev.10
Block Type/No. 11W-2 and DC	S.U. Cable Type/Length: BNC-Mdot / BNC-BNC 6ft		Couplant Type/Visc. Ultragel II #8226			Cal. Proc/Rev. Date N-UT-5 4/4/83
						Exam. Proc/Rev. Date N-UT-5 4/4/83

Instrument: Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			10:00 / DJ
Rej. off Damp. off	Serial No.	D11949		A20738			10:25 / DJ
Rep. Rate 1K	S.U. Size	3/4" ϕ		1/2" ϕ			
Filter (~)	S.U. Freq.	2.25		2.25			
Temp. not applicable	Wedge Type	none		Lucite			
	Beam Angle/ Mode	Contact 0° Longitud.		70° Shear			
Basic Ref. Level, Amp. (% Screen)/Db		75% 42db		80% 60db			
Scan Sensitivity, Db		42db		74db			
Screen Distance, in.		2 1/2"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 11W-2-TB3168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-006

BH

Weld Ident. No.	Additional Ident. & Elev. (ft.) 153'	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI — Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
BH-3	INACCESSIBLE									
BH-4	153'						NRI		A/70°/RI	Ind. 1, 2

FOR INFORMATION ONLY

Continuation Sheets	Cal By: [signature] II Level	Exam By: [signature] II Level	Data Reviewed By: Level

LTRASONIC EXAMINATION OF GROOVE WELDS

N-UT-5A
Rev. 0

REPORT OF INDICATIONS
CORRESPONDING EXAMINATION RECORD SHEET NO.

6180-F1-13-001/R10

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: a Indication Level	Decibels: b Reference Level	Decibels: c Attenuation Factor	Decibels: d Indication Rating	Defect (see Figure 11): Length/Direct. (x and/or y)	Defect: Indication Class	Defect: Sound Path Distance	Defect: Depth from Surface/a, b, or c	Defect: Scan Face	Defect: Distance X	Defect: Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70°	\	70	60	2	8		D	1.65							
2	70°	\	73	60	2	11		D	1.66							
3	70°	\	63	60	1	4	6 3/8 12 1/8 (5 3/4)	A	1.29	.47	A	7 3/8	1.2			BN ~~3~~ 49W 1 1/2 @

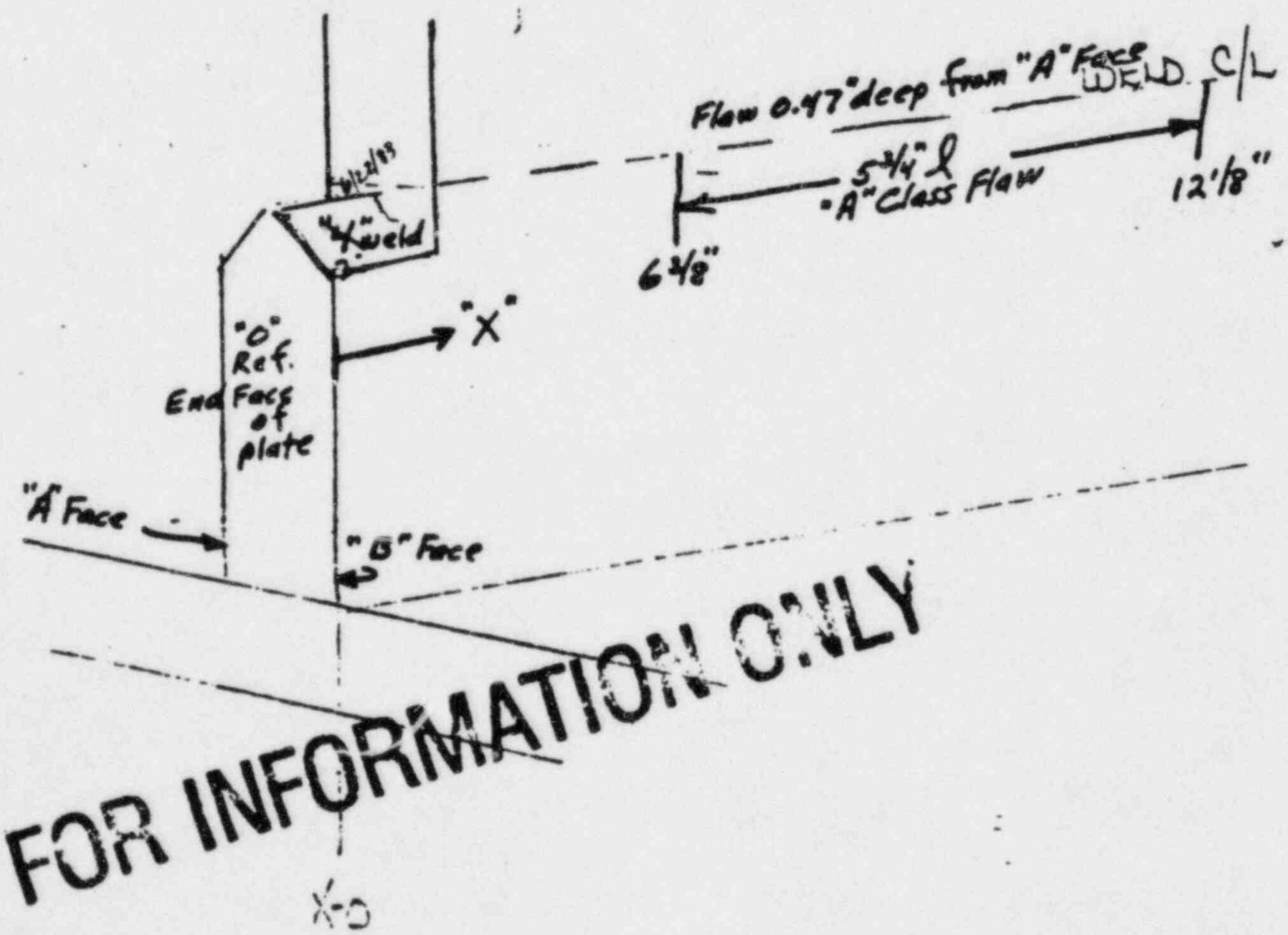
FOR INFORMATION ONLY

4/5/82
ACI II

Date 4/5/83

Package No. BH-~~3~~ 2 @ 6/22/83

Detail Drawing No. 6180-E1-13-006



FOR INFORMATION ONLY

N-4 1-3
Rev 0

TRASONI. EXAMINATION OF GROOVE WELDS

EXAMINATION RECORD

GENERAL

Plant	Unit	Component	Location	Date	Ref. Dwg. No.
DCPP	1	Seismic Mods	Fuel Handling Bldg	4-13-83	6180-F1-13-001

Block Type/No.	S.U. Cable Type/Length	Couplant Type/Visc.	Cal. Proc/Rev. Date	Exam.Proc/Rev. Date
11W-2 783/68 DC	BNC-MDOT/BNC-BNC 6 ft	Ultragel II #8226	N-UT-5 4-4-83	N-UT-5 4-4-83

Instrument: Nortec 131-D		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1500 (s) MLT
Rej. Damp. OFF OFF	Serial No.	D11952		F05943			1513 (s) MLT
Rep. Rate 1000	S.U. Size	3/4" ⌀		1/2" ⌀			
Filter +	S.U. Freq.	2.25		225			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/Mode	0° Longitud		68° Meas. Shear			
Basic Ref. Level, Amp. (% Screen /Db		70% 36db		80% 56db			
Scan Sensitivity, Db		36db		70db			
Screen Distance, in.		2.5"		5.0"			
Calib. Blocks, Type/No.		Base Metal		11-W2 DC			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-006
BH

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
BH-3 1		FP	B-TT	3/4"					B inaccessible	
BH-4 2		FP	B-TT	3/4"					A/70/	

RE-EXAM/REPAIR-1

FOR I... ONLY

Continuation Sheets	Cal By:	Level II	Exam By:	Level II	Data Reviewed By:	Level
	[signature]		[signature]			

3

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level (a)	Decibels: Reference Level (b)	Decibels: Attenuation Factor (c)	Decibels: Indication Rating (d)	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70	\	55	56	0	1	2 1/2	A	1.14	0.37	A	6 1/4 8 3/4	1 1/8			BH → [illegible]

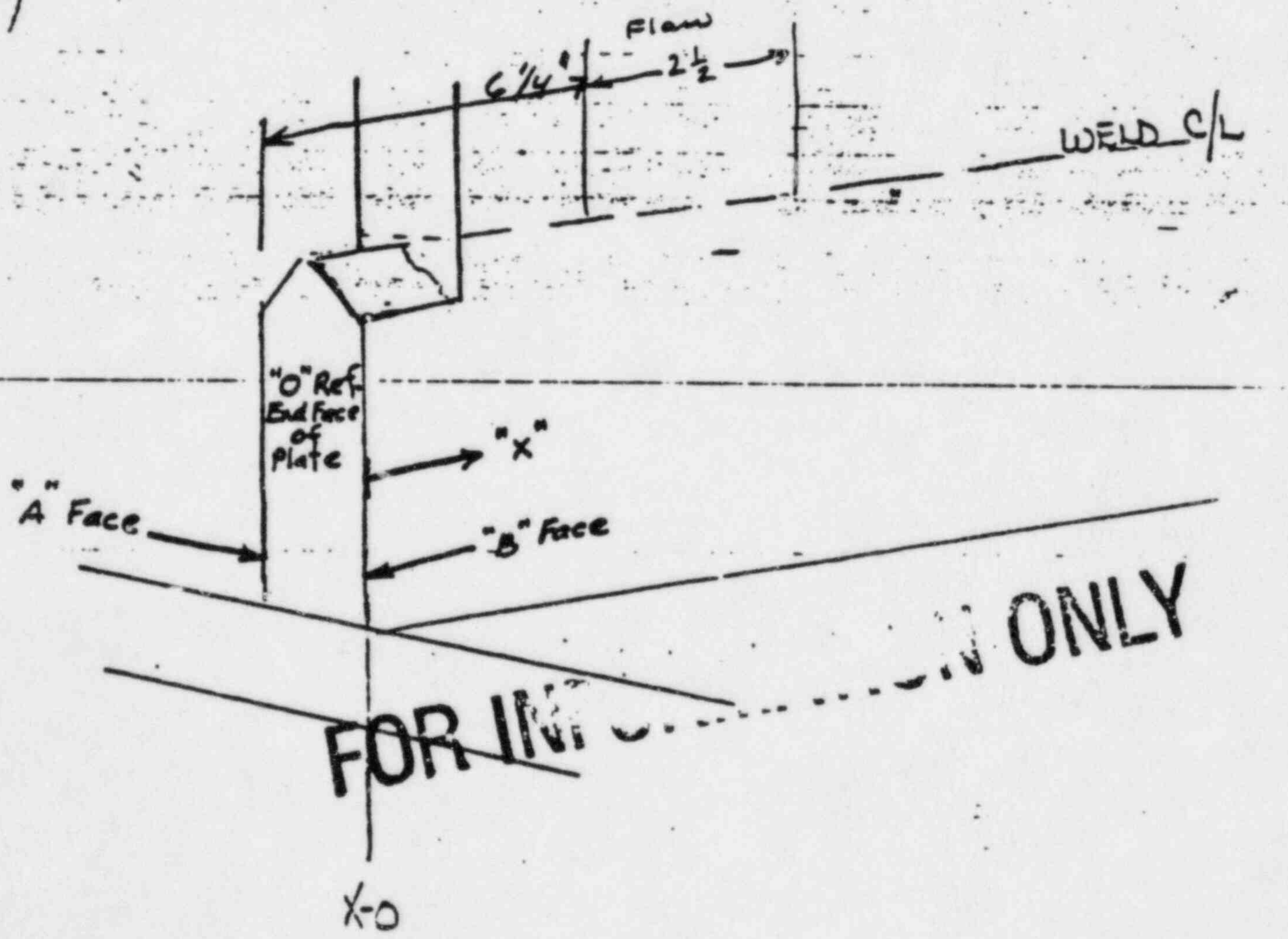
FOR I... ...N ONLY

[illegible] 4-12 [illegible]

Date 4-13-83

Package No. BH 2

Detail Drawing No. 6180-F1-13-006



ASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD Rev 0

GENERAL

Date 4-16-83					Ref. Dwg. No. 6180-F1-73-001
ant DCPP	Unit 1	Component SEISMIC MODS	Location FUEL HANDLING BLDG		Cal. Proc/Rev. Date N-UT-5 4-4-83
ock Type/No. IIW2-783168DC	S.U. Cable Type/Length BNC-MDOT / BNC-BNC 6'		Couplant Type/Visc. ULTRAGEL II #8226		Exam.Proc/Rev. Date N-UT-5 4-4-83

		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
strument NORTEC 131-D				70°/10M			
rial No. 271	Search Unit	AEROTECH GAMMA		AEROTECH GAMMA			9:12 (S) in
j. Damp. FF OFF	Serial No. D19949	D19949		A20758			9:30 (S) OUT
p. Rate 1K	S.U. Size	3/4" ⌀		1/2" ⌀			
lter +	S.U. Freq.	2.25 MHZ		2.25MHZ			
mp. N/A	Wedge Type	NONE		LUCITE			
	Beam Angle/ Mode	0° - Long		70° MEAS SHEAR			
sic Ref. Level, Amp. (Screen)/Db				80% 63DB			
an Sensitivity, Db				77DB			
reen Distance, in.		2.5"		5.0"			
lib. Blocks, Type/No.		BASE METAL		DC-IIW2 783168			

ise, Linearity, and Resolution Verification ✓

6180-F1-13-007 BH

Weld ent. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
BH-42	153'	FP	BUTT	3/4"	12 1/2	N/A			A70°/NRI	
BH-31	153'	FP	BUTT	3/4"	12 1/2	N/A			B70°/CANNOT GET TO	

Examination Results NRI or RI

FOR INFORMATION ONLY

Re-exam/Repair 2

ntinuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

WELD NO.: Conn 3H 1,2

WELD PROC. SPEC. USED: WPS-14 Occp 5H

LOC. CORD: 97 8

DRAWING: 6180-F1-13-006 Rev 5

UNIT: I

ELEV.: 33'-7

INSPECTOR: Charles House

TYPE OF WELDING ELECTRODE USED: E-7018

PIECE: F006 TO Exist. Col

DATE: 2-5-83

INITIATING DOC.: C-618-MR-5

ACPT	REJCT	EDGE PREP AND FITUP
CH		Edge preparation
CH		Fitup
NA		N.D.E. (where applicable)

ACPT	REJCT	2-5-83 TACKING
CH		Rod heat # 32804
CH		Rod diameter 5/32"
CH		Fitup
CH		Welder ID A4
CH		Preheat 50°

ACPT	REJCT	ROOT PASS INSPECTION 2-5-83
CH		Rod heat # 32804
CH		Rod diameter 5/32"
CH		Visual inspection
NA	NA	N.D.E. type
CH		Welder ID A4
CH		Preheat 50°

ACPT	REJCT	FINAL PASS INSPECTION
CH		Rod heat # 32804
CH		Rod diameter 5/32"
CH		Visual inspection
NA	NA	N.D.E. type
CH		Welder ID A4
CH		Preheat 50°

MULTIPASS 10% INSPECTION [X] ACCEPT [ ] REJECT [ ]

MATERIAL P.O. or HEAT NUMBER HT# 624871 MK F006

ADDITIONAL REMARKS: Welder Jim Angstadt A4

INFORMATION ONLY

FOR INFORMATION ONLY

This is to certify that the above welds have been inspected [illegible] and the Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE 2-7-83 Q.C. INSPECTOR [illegible]

WELD INSPECTION SHEET

CONN. NO. BH

WELD NO. 4 1~~1~~2 RJB 6-22-83 WELD PROC. SPEC(S) USED ______ LOC/COORD. 97 & 59

DRAWING 6180-F1-13-006 (7) WPS-19/QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-11-83 USED E7018 INITIATING DOC. C6180 (1)

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicabe	N/A		Fit-up
Material		CW 050144	N/A		Welder I.D.
P.O.SHT#		HT 624877	N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 3KK1	RJB		Rod heat # 3KK1
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. T5	RJB		Welder I.D. T5
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: DARRELL BOHN T5

REF NCR 8833XR-60 (1) REMOVED AREA AS

REQUIRED 2" EACH SIDE OF DEFECTIVE AREA

AND REPLACED

This is to certify that the above weld(s) have been inspected per The Howard P. Foley Company Quality Procedures and have been found to be acceptable.

FOR INFORMATION ONLY

DATE ____________ INSPECTOR ____________

REV. 3-31-83

8

THE HOWARD P. FOLEY COMPANY

INTER-OFFICE COMMUNICATION

MAUREEN McLEAN/PRODUCTION - CIVIL MECHANICAL
KARIN BURNS/PRODUCTION - ELECTRICAL
K. CALHOUN: M. McCALLISTER/RECEIVING & M. ALEXIS/CALIBRATION
ELEANOR SMULLEN/QUALITY CONTROL STATUS
To ~~CHARISSE CRAVATH/MECHANICAL ENGINEERING~~ Date 8-1-83

From QCE DEPT.

PLEASE BE ADVISED THAT:

(IR / NCR) # SEE LISTED BELOW REV. ____ HAS BEEN

WRITTEN AGAINST (SEE COPIES ATTACHED)

ON (See copies attached).

(IR / NCR) # ____ REV. ____ WRITTEN

AGAINST ____

ON ____ HAS BEEN CLOSED AS OF ____

INFORMATION COPY ATTACHED: HAS BEEN SUPERSEDED AS OF ____

IR 5422-240
IR 5422-241
NCR 8833XR-60 Rev 1
NCR 8833XR-121 Rev 1

BY ____.

THANK YOU,

Signature QCE DEPT.

FOR INFORMATION ONLY

THE HOWARD P. FOLEY COMPANY

TRANSMITTAL

TO [illegible]

[illegible]

ATTN: J. BRATTON

DATE 8-1-83

JOB NO. [illegible]

SPEC. NO. 8802 & 8833XR

WE HEREBY TRANSMIT - FOR YOUR APPROVAL ______

FOR YOUR INFORMATION XXX

FOR YOUR DISPOSITION ______

OTHER ______

PLEASE FIND ATTACHED: NCR # 8802-851

8833XR-60 Rev 1

8833XR-121 Rev 1

[ ] FOR PROPOSED DISPOSITION

[ ] APPROVAL OF PROPOSED DISPOSITION

[ ] FINAL APPROVAL

[X] CLOSED TO VAULT ON 8-1-83 - INFORMATION COPIES ATTACHED.

INFORMATION ONLY

THANK YOU

FOR INFORMATION ONLY

DATE RECEIVED ______

RECEIVED BY ______

RETURN ORIGINAL SIGNED AND DATED TO [illegible]

FORM H.P.F./T.

10

THE HOWARD P. FOLEY COMPANY

Original NONCONFORMANCE REPORT

	Page 1 of 3	Number: 8833XR-60 △1
DESCRIPTION: CONNECTIONS - BK, BL, BM, BN, BI, EN, EO, EP, EQ W.R. #6180	YES [X] NO [ ] ATTACHMENTS	Date: 4-7-83
	HOLD TAG # 8833XR-60 REV. 1 [X] REMOVED BY [signature] DATE 5-5-83	
REF. HPF/IR NUMBER N/A		

UNIT I [X] UNIT II [ ] / LOCATION FUEL HANDLING BLDG. CLASS I [X] NON-CLASS I [ ]

INSPECTION CRITERIA: DRAWING [X] SPECIFICATION [X] PROCEDURE [X]

DOCUMENT TITLE AND NUMBER: 6180-F1-13-006 & 007 8833XR QCP 5-A

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

1. Nondestructive testing (Ultrasonic Test) U.T. on the foregoing connections revealed flaws. (See attached examination reports.)
2. N.D.E. Column on Q.C. Weld Inspection Sheets was marked N/A.

CAUSE:

1. Improper interpass cleaning and/or back gouging. May also involve improper technique for depositing root side pass after back gouging.
2. N.D.E. Column inadvertently marked.

Robert A. Carter 4/7/83 — INITIATED BY / DATE
Robert A. Carter 4/7/83 — QUALITY MANAGER / DATE
[signature] 4-7-83 — PROJECT MANAGER / DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

Repair welds per QCP-5A. Remove weld metal a minimun of 2" each side of the indication. Reweld and reinspect visually and ultrasonically. Annote original WIS to indicate this nonconformance.
Means to prevent recurrence: 1. Hold training meeting with production (cont.)

R.A. Brau 4/7/83 — DISPOSITION BY / DATE
[signature] 4-7-83 — PROJECT MANAGER / DATE
Robert A. Carter 4/7/83 — QUALITY MANAGER / DATE
[signature] 4-7-83 — PACIFIC GAS AND ELECTRIC CO. / DATE

DISPOSITION ACCOMPLISHED

Corrective Action Accomplished per above Disposition.

REFERENCE NCR 8833XR-121 △1 THAT ACCEPTS MISSING DOCUMENTATION IE REPAIR WIS FOR CONN. "D" WELDS 3&4. CONN. "EQ" REPAIR WIS FOR WELDS 1&2 ARRIVED AFTER NCR 8833XR-121 WAS ISSUED. E 8-1-83

FOR INFORMATION ONLY

SEE PG 3 — VERIFIED BY / DATE
SEE PG 3 — SUPERINTENDENT / DATE
Robert A. Carter 5/2/83 — QUALITY MANAGER / DATE

THE HOWARD P. FOLEY CO. ACCEPTANCE

[signature] 5-4-83 — PROJECT MANAGER / DATE

PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE

[signature] 5-4-83 — SIGNATURE / DATE

HPF/NCR 5-14-82

CLOSED TO FILE 8-1-83

Original

THE HOWARD P. FOLEY COMPANY
NONCONFORMANCE REPORT - CONTINUATION SHEET

NO. 8833XR-60

CONTINUATION OF: DESCRIPTION OF NONCONFORMANCE ☐
PROPOSED DISPOSITION ☒
DISPOSITION ACCOMPLISHED ☐

PAGE 2 OF 3

DATE 4-7-83

Continued:

supervision regarding welding technique as well as proper interpass weld cleaning and back gouging.

2. Hold training meeting with Q.C. supervision to discuss nondestructive testing requirements and interpass weld cleaning.

FOR INFORMATION ONLY

HPF/NCR

12

Page ______ of ______

THE HOWARD P. FOLEY COMPANY

INDOCTRINATION AND TRAINING

DATE 6-6-83 TIME 2:40 Pm

PERSONNEL ATTENDING: [illegible signatures]

MEETING CONDUCTED BY: L. Fischer

SUBJECTS PRESENTED:

1.

2.

3.

REMARKS: DISCUSSED NONDESTRUCTIVE TEST REQUIREMENTS AND INTERPASS WELD CLEANING PER NCR #133XR60

FOR INFORMATION ONLY

HPF/QI&T 12-7-82

REVIEWED BY R.A. Carter DATE: 6/6/83

13

[illegible] NONCONFORMANCE REPORT

DESCRIPTION: CONNECTIONS - BH, BL, BM, BN, BI, EN, EO, EP, EQ W.R. #6180	Page 3 of 3 YES [X] NO [ ] ATTACHMENTS	8833XR-60 Date: 4-7-83
REF. HPF/IR NUMBER N/A	HOLD TAG # 8833XR-60 REV. 1 [ ] REMOVED BY ____ DATE ____	

UNIT I [X] UNIT II [ ] / LOCATION FUEL HANDLING BLDG. CLASS I [X] NON-CLASS I [ ]

INSPECTION CRITERIA: DRAWING [X] SPECIFICATION [X] PROCEDURE [X]

DOCUMENT TITLE AND NUMBER: 6180-F1-13-006 & 007 8833XR QCP 5-A

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

1. Nondestructive testing (Ultrasonic Test) U.T. on the foregoing connections revealed flaws. (See attached examination reports.)
2. N.D.E. Column on Q.C. Weld Inspection Sheets was marked N/A.

CAUSE:
1. Improper interpass cleaning and/or back gouging. May also involve improper technique for depositing root side pass after back gouging.
2. N.D.E. Column inadvertently marked.

Robert A. Carter 4/7/83 — INITIATED BY / DATE
Robert A. Carter 4/7/83 — QUALITY MANAGER / DATE
[signature] 4-7-83 — PROJECT MANAGER / DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

Repair welds per QCP-5A. Remove weld metal a minimun of 2" each side of the indication. Reweld and reinspect visually and ultrasonically. Annote original WIS to indicate this nonconformance.
Means to prevent recurrence: 1. Hold training meeting with production (cont.)

R. A. Brun 4/7/83 — DISPOSITION BY / DATE
[signature] 4-7-83 — PROJECT MANAGER / DATE
Robert A. Carter 4/7/83 — QUALITY MANAGER / DATE
[signature] 4-7-83 — PACIFIC GAS AND ELECTRIC CO. / DATE

DISPOSITION ACCOMPLISHED

2ND ISSUE SRM 4/28/

WORK COPY

FOR INFORMATION ONLY

QCE

DUE TO WELD CONFIGURATION REPAIRS TO WELD [illegible]
WOULD REPAIR WELDS 2 OR 4

[signature] 4-28-83 — VERIFIED BY / DATE
[signature] 4-28-83 — SUPERINTENDENT / DATE
QUALITY MANAGER / DATE

THE HOWARD P. FOLEY CO. ACCEPTANCE	PACIFIC GAS AND ELECTRIC CO. ACCEPTANCE
PROJECT MANAGER DATE	SIGNATURE DATE

HPF/NCR 5-14-82

14

Original

THE HOWARD P. FOLEY COMPANY
NONCONFORMANCE REPORT - CONTINUATION SHEET

NO. 8833XR-60 △1

CONTINUATION OF: DESCRIPTION OF NONCONFORMANCE ☐
PROPOSED DISPOSITION ☒
DISPOSITION ACCOMPLISHED ☐

PAGE 2 OF 2

DATE 4-7-83

Continued:

supervision regarding welding technique as well as proper interpass weld cleaning and back gouging.

2. Hold training meeting with Q.C. supervision to discuss nondestructive testing requirements and interpass weld cleaning.

WORK COPY QCE:

FOR INFORMATION ONLY

HPF/NCR

15

PLEASE DO NOT DISTURB THE ORDER OF THIS PACKAGE. IF FURTHER DOCUMENTATION IS RECEIVED, PLACE IT IN IT'S RESPECTIVE PLACE AND MARK IT OFF THE ATTACHED LIST. WHEN ALL DOCUMENTATION HAS BEEN RECEIVED FOR AN INDIVIDUAL WELD, MARK IT COMPLETE ON THE LIST.

[redacted] = IN PACKAGE
= STILL REQ

CONN	WELD #	UT ORIG	ORIG-W/S	FIX-IT W/S	UT. REPAIR #1	UT. REPAIR #2	UT. REPAIR #3	MT-BASE/MET	MT-ROOT	QC-QI:T	PROD QI:T	REMARKS NCR-8833XR-60
BH	BH-1	[redacted]										
	BH-2											
BL	BL-1											2nd PAGE OF ORIG UT REPORT MISSING
	BL-2											
	BL-3											
	BL-4											
BM	BM-3											
	BM-4											
BN	BN-3											
	BN-4											
BI	BI-3											WELD BI WAS ACCEPTABLE ON ORIG UT & REJECTABLE REPAIR #1
	BI-4											
EN	EN-3											
	EN-4											
EO	EO-1											
	EO-2											
	EO-3											
	EO-4											
EP	EP-3											
	EP-4											
EQ	EQ-3											...ON ONLY
	EQ-4											

NOTE: ALL ORIG ... SHOULD BE NOTED TO INDICATE ...

FOR INFORMATION ONLY

17

FIDLER NOTIFIED 5-31-83

N-UT-5
Rev 0

ULTRASONIC EXAMINATION OF GROOVE WELDS — EXAMINATION RECORD

GENERAL

Plant	Unit	Component	Location	Date	Ref. Dwg. No.
Diablo Canyon	1	Seismic Mods	Fuel Handling Bldg	4-5-83	6180-F1-13-001 Rev.10

Block Type/No.	S.U. Cable Type/Length	Couplant Type/Visc.	Cal. Proc/Rev. Date	Exam. Proc/Rev. Date
IIW-2 and DC	BNC-Mdot / BNC-BNC 6ft	Ultragel II #8226	N-UT-5 4/4/83	N-UT-5 4/4/83

Instrument: Nortec 131D

		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
				70° nom.			
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1102 DJ in
Rej. off Damp. off	Serial No.	D11949		A20738			1130 DJ
Rep. Rate 1K	S.U. Size	3/4" ϕ		1/2" ϕ			1155 DJ out
Filter (+)	S.U. Freq.	2.25		2.25			1250 DJ in
Temp. not applicable	Wedge Type	none		Lucite			1300 DJ out
	Beam Angle/Mode	Contact 0° Longitud.		70° meas. Shear			
Basic Ref. Level, Amp. (% Screen)/Db		75% 42db		80% 60db			
Scan Sensitivity, Db		42db		74db			
Screen Distance, in.		2 1/2"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 IIW-2-783168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-006

BL

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
BL-1	153'						NRI		B/70°/RI	1
BL-2	153'						NRI		A/70°/RI	2
BL-4	153'						NRI		A/70°/RI	3
BL-3	153'						NRI		B/70°/RI	4

FO... ...ON ONLY

Continuation Sheets	Cal By: Level	Exam By: Level	Data Reviewed By: Level
	[signature]	[signature]	

J. K. Wilson II J. K. Wilson II

18

LTRASONIC EXAMINATION OF GROOVE WELDS

NWT-5A
Rev. 0

Page 2 of 6

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level (a)	Decibels: Reference Level (b)	Decibels: Attenuation Factor (c)	Decibels: Indication Rating (d)	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70°	\	67	60	1	6	2 3/8 14.0	B	1.57	0.52	~~A~~ B	2 7/8	1.0	[illegible]	BL	~~BH~~-1
2	70°	\	57	60	0	-3	2 3/8 14.0	A	1.1	0.33	~~B~~ A	5.0	0.75	[illegible]	BL	~~BH~~-2
3	70°	\	55	60	0	-5	2.0 14.0	A	1.24	0.41	A	5 3/8	1.2	[illegible]	BL	~~BH~~-4
4	70°	\	56	60	.1	-5	2.0 14.0	A	1.37	0.45	B	18 1/2	1.25	[illegible]	BL	~~BH~~-3

FOR INFORMATION ONLY

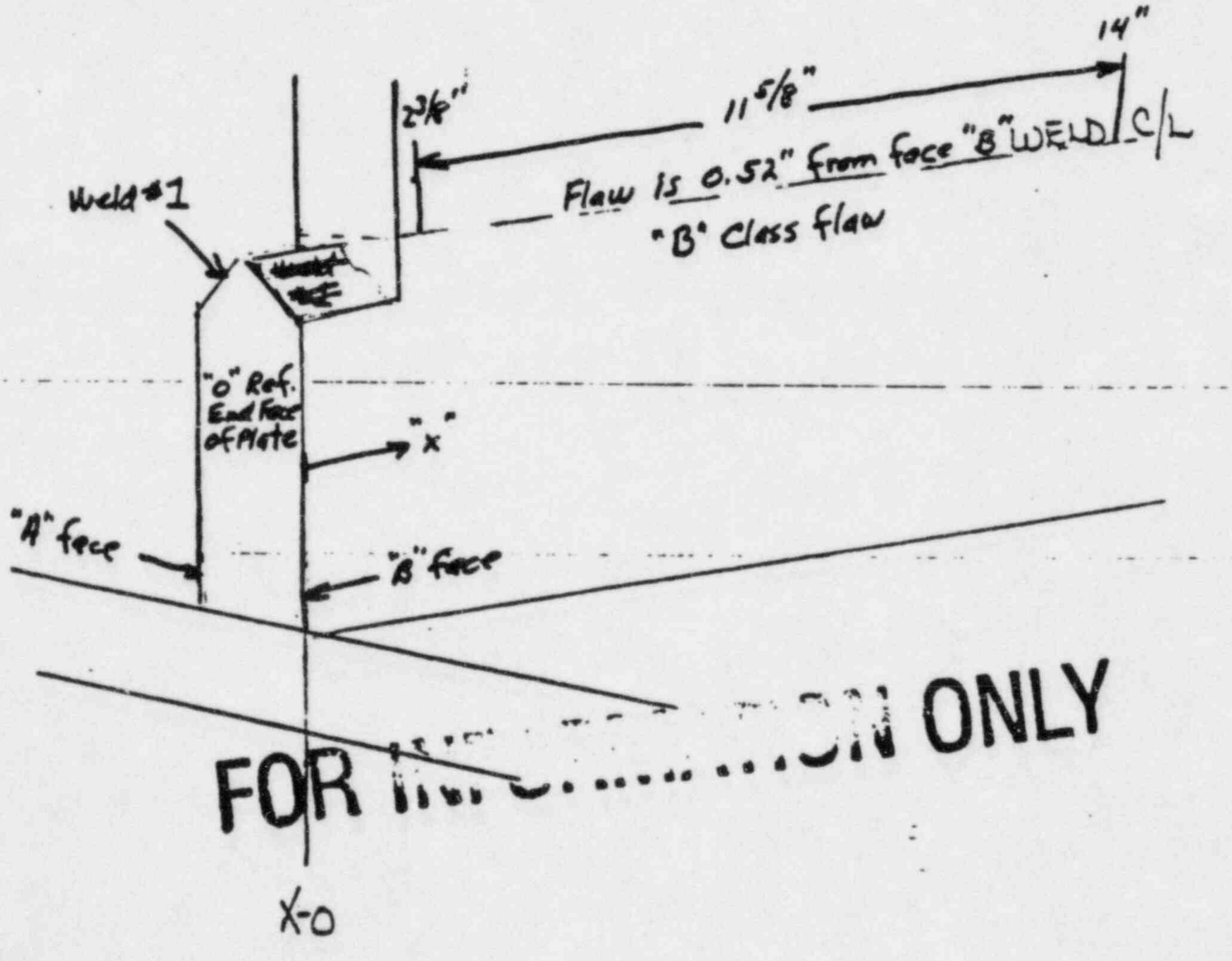
19

4/5/83

Date 4/5/83

Package No. BL-1

Detail Drawing No. 6180-F1-13-006

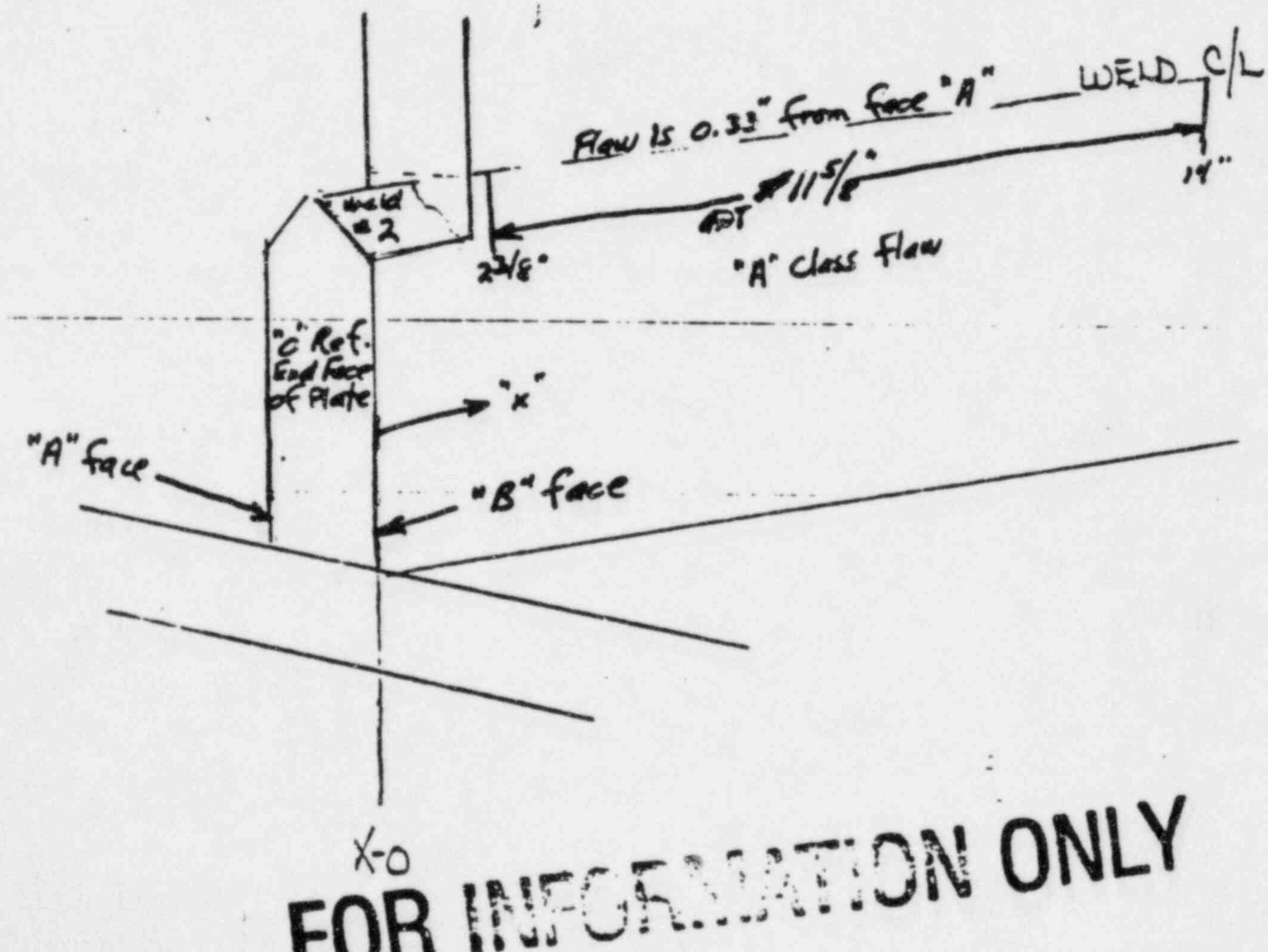


FOR ... ONLY

Date 4/5/83

Package No. BL-2

Detail Drawing No. 6/50-F1-13-006

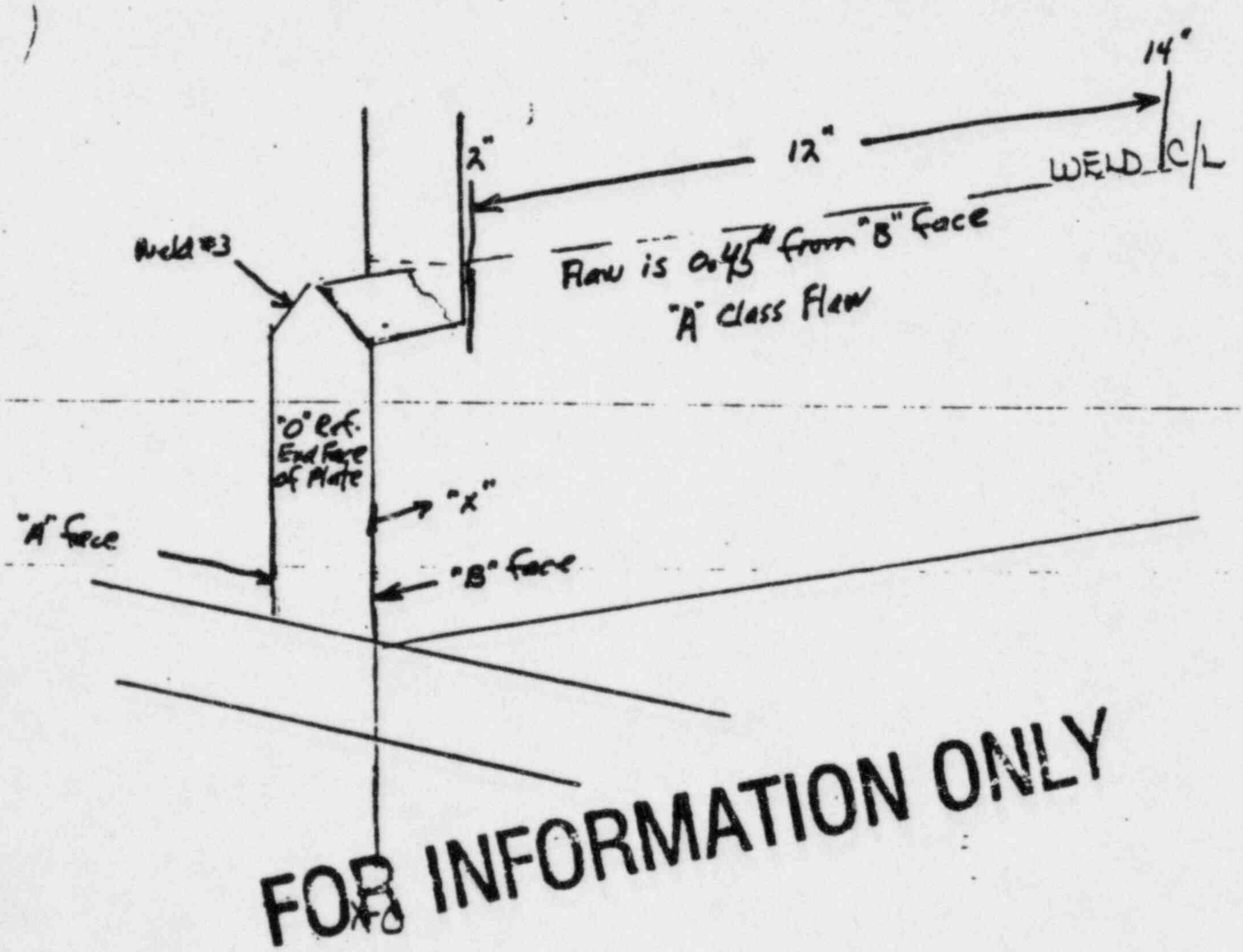


FOR INFORMATION ONLY

Date 4/5/83

Package No. BL-3

Detail Drawing No. ~~6~~-FL-13-006

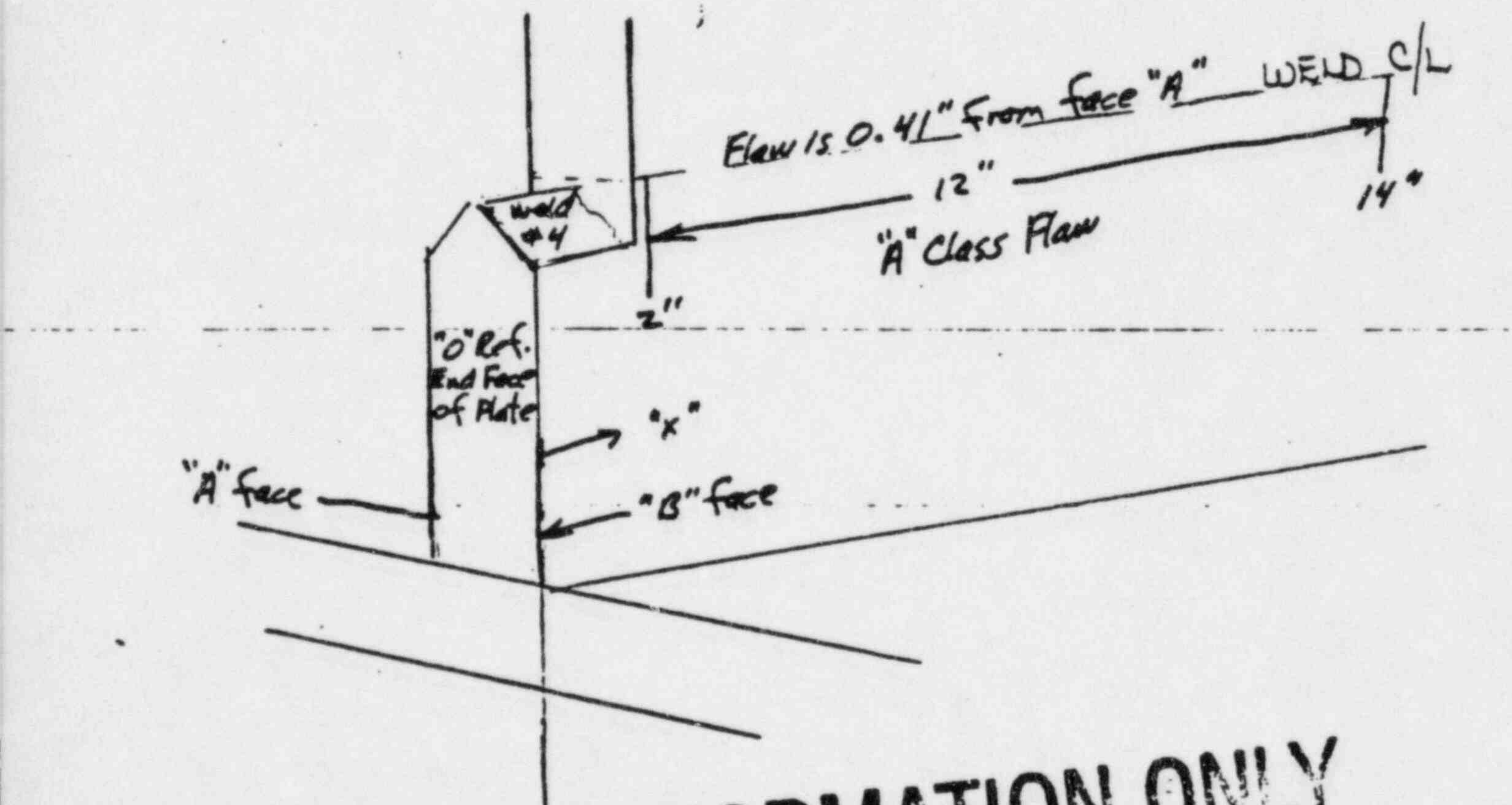


FOR INFORMATION ONLY

Date 4/5/83

Package No. BL-4

Detail Drawing No. 6180-F1-13-006



WELD INSPECTION SHEET

CONN. NO. BL

WELD NO. 1 WELD PROC. SPEC(S) USED WPS-19 / QCP-5A LOC/COORD. 12 8 & 59

DRAWING 6180-F1-13-006 7 UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-11-83 USED E 7018 INITIATING DOC. C6180 1

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicabe	N/A		Fit-up
Material P.O.SHT#			N/A		Welder I.D.
			N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 20531	RJB		Rod heat # 3KK1
RJB		Rod diameter 3/32	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. PX	RJB		Welder I.D. PX
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: C SIHOTA - PX

REF N.C.R 8833 XR-60 1 REMOVED OLD WELD AS REQUIRED AND REPLACED

INFORMATION ONLY

This is to certify that the above weld(s) have been inspected ... The Howard P. Foley Company Quality Procedures, and ... acceptable.

FOR INFORMATION ONLY

DATE ______________ Q.C. INSPECTOR ______________

HPF WIS 3-31-83

24

WELD NO.: ______ WELD PROC. SPEC. USED ______ PROC/COORD ______

DRAWING: ______ ______ ______ ELEV ______

INSPECTOR: ______ TYPE OF WELDING ELECTRODE ______ TO ______

DATE: ______ USED ______ INITIATING DOC. ______

ACPT	RJCT	EDGE PREP AND FITUP	ACPT	RJCT	TACKING
[illegible]		edge preparation	[illegible]		Rod heat #
[illegible]		fitup	[illegible]		Rod diameter
N/A		N.D.E. (where applicable)	[illegible]		Fitup
			[illegible]		Welder ID
			[illegible]		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
[illegible]		Rod heat #			Rod heat #
[illegible]		Rod diameter			Rod diameter
[illegible]		Visual inspection			Visual inspection
[illegible]		N.D.E. type			N.D.E. type
[illegible]		Welder ID			Welder ID
[illegible]		Preheat	[illegible]		Preheat

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT ☐ N/A

MATERIAL P.O. or HEAT NUMBER ______

ADDITIONAL REMARKS: ______

INFORMATION ONLY

FOR INFORMATION ONLY

DATE: ______

[illegible] N. BL WELD INSPECTION SHEET

WELD NO.: 3&4 WELD PROC. SPEC(S) USED LOC/CLORD 15[illegible] : 51

DRAWING: 6180-F1-13-006 R/5 WPS-19 GCP-5A UNIT 1 [illegible] 153-7

INSPECTOR: JIM MICHEL TYPE OF WELDING ELECTRODE PIECE E[illegible] TO [illegible]

DATE: 1-27-83 USED E-7018 INITIATING DOC.: 61[illegible]

ACPT	RJCT	EDGE PREP AND FITUP
Jm		edge preparation
Jm		fitup
N/A	N/A	N.D.E. (where applicable)

ACPT	RJCT	TACKING
NA	NA	Rod heat #
		Rod diameter
		Fitup
		Welder ID A-9
N/A	N/A	Preheat

ACPT	RJCT	ROOT PASS INSPECTION
Jm		Rod heat # 32809
Jm		Rod diameter 1/8
Jm		Visual inspection
N/A	N/A	N.D.E. type
Jm		Welder ID A-9
Jm		Preheat 50°

ACPT	RJCT	FINAL PASS INSPECTION
Jm		Rod heat # 32809
Jm		Rod diameter 1/8
Jm		Visual inspection
N/A	N/A	N.D.E. type
Jm		Welder ID A-9
Jm		Preheat 50°

MULTIPASS 10% INSPECTION [X] ACCEPT [ ] REJECT [ ] N/A

MATERIAL P.O. or HEAT NUMBER HT# 314-0646

ADDITIONAL REMARKS: WELDER ANGSTADT A-9

INFORMATION ONLY

FOR INFORMATION ONLY

This is to certify that the above [illegible] inspected per AWS D1.1 and the Howard P. Foley Company [illegible] Procedures, and have been found to be acceptable.

DATE: 1-31-83 Q.C. INSPECTOR Jim Michel

26

N-UT-5
Rev 0

TRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL				Date 4-13-83	Ref. Dwg. No. 6180-F1-13-001
Plant DCPP	Unit 1	Component Seismic Mods	Location Fuel Hand Bldg.		Cal. Proc/Rev. Date N-UT-5 4-4-83
Block Type/No. IIW-2,783168 DC	S.U. Cable Type/Length BNC-Micro/BNC-BNC 6ft		Couplant Type/Visc. Ultragel II 8226		Exam.Proc/Rev. Date N-UT-5 4-4-83

Instrument		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Nortec 131 D				70° Nor			
Serial No. 271	Search Unit			Aerotech Gamma			1018 (S) MLT
Rej. off Damp. off	Serial No.			A20738			1037 (S) MLT
Rep. Rate 1K	S.U. Size			1/2" ϕ			
Filter (+)	S.U. Freq.			2.25			
Temp. N/A	Wedge Type			Lucite			
	Beam Angle/Mode			70° Meas shear			
Basic Ref. Level, Amp. (% Screen)/Db				80% 66db			
Scan Sensitivity, Db				80db			
Screen Distance, in.				5.0			
Calib. Blocks, Type/No.				DC IIW-2, 783168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-006 BL Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
L-1	153'	FP	Butt	3/4					B/70/NRI	
L-2	153'	FP	Butt	3/4					A/70/NRI	

RE-EXAM/REPAIR 1

Continuation Sheets	Cal By: J McFarling Level	Exam By: McFarling Level II	Data Reviewed By: Level

ASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD Rev 0

GENERAL				Date 4-16-83	Ref. Dwg. No. 6180-F1-73-001
lant DCPP	Unit 1	Component SEISMIC MODS	Location FUEL HANDLING BLDG		Cal. Proc/Rev. Date N-UT-5 4-4-83
lock Type/No. IIW2-783168DC	S.U. Cable Type/Length BNC-MDOT / BNC-BNC 6'		Couplant Type/Visc. ULTRAGEL II #8226		Exam. Proc/Rev. Date N-UT-5 4-4-83

nstrument HORTEC 131-D		Straight Beam	Straight Beam	Angle Beam 70° / 1oH	Angle Beam	Angle Beam	Cal. Checks Time/Initials
erial No. 271	Search Unit	AEROTECH GAMMA		AEROTECH GAMMA			8:29 in / JC
ej. Damp. OFF OFF	Serial No.	D11949		A20758			8:50 out / JC
ep. Rate 1K	S.U. Size	3/4" ⌀		1/2" ⌀			
ilter +	S.U. Freq.	2.25 MHZ		2.25 MHZ			
emp. N/A	Wedge Type	NONE		LUCITE			
	Beam Angle/ Mode	0° - Long		70° MEAS SHEAR			
asic Ref. Level, Amp. (% Screen)/Db				80% 63 DB			
can Sensitivity, Db				77 DB			
creen Distance, in.		2.5"		5.0"			
alib. Blocks, Type/No.		BASE METAL		DC-IIW2 783168			

oise, Linearity, and Resolution Verification ✓

6180-F1-13-007 BL Weld dent. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI Straight Beam Face a or b	Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
BL -4	153'	FP	BUTT	3/4"	12 1/2	N/A			A70°/NRI	
BL -3	153'	FP	BUTT	3/4"	12 1/2	N/A			B70°/NRI	

FOR INFORMATION ONLY

Re-exam by ... 12

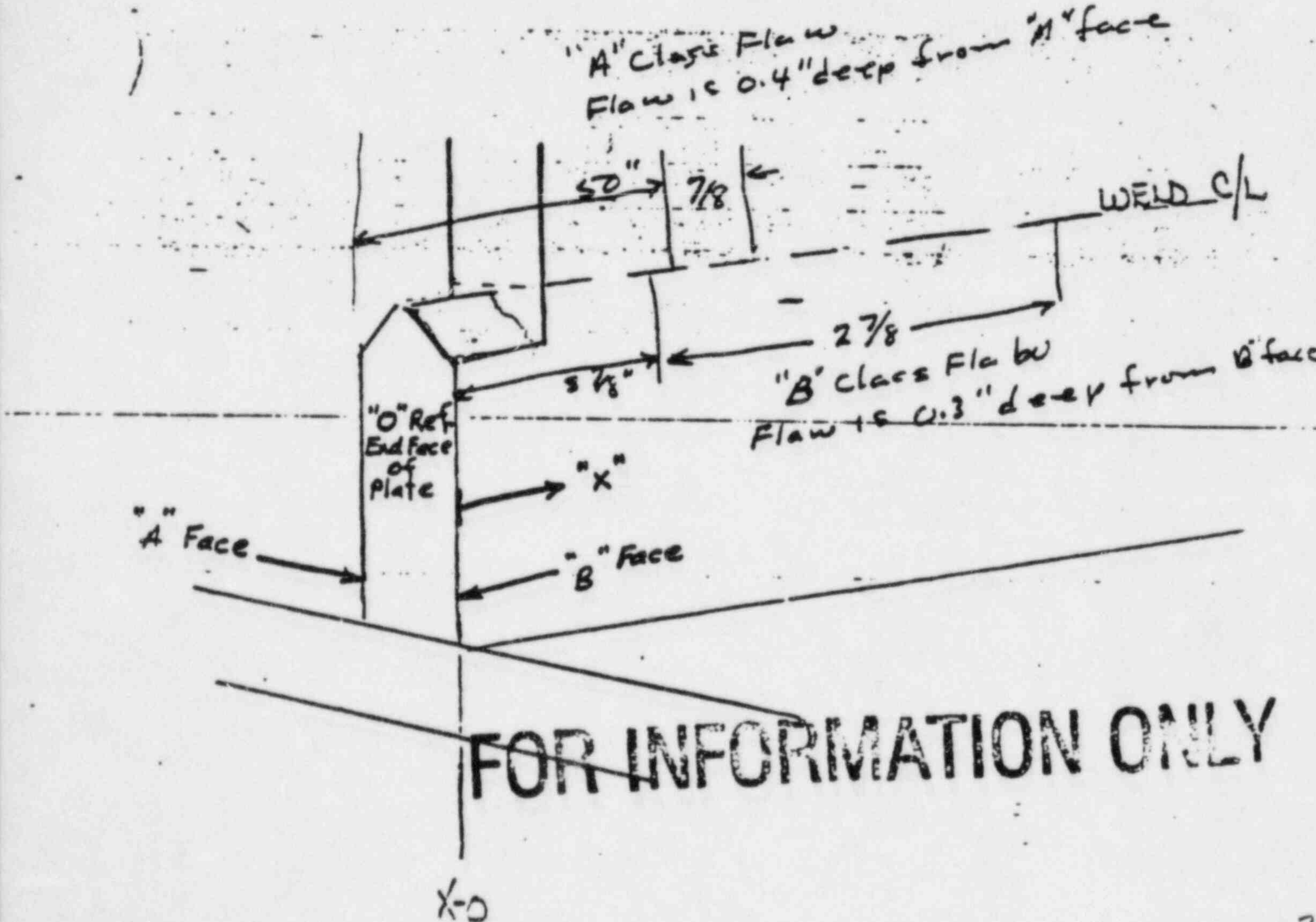
ontinuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

28

Date 4-12-83

Package No. B L

Detail Drawing No. 6180-F1-13-006



N-UT-5
Rev 0

ULTRASONIC EXAMINATION OF GROOVE WELDS — EXAMINATION RECORD

GENERAL

Plant	Unit	Component	Location	Date	Ref. Dwg. No.
DCPP	1	Seismic Mods	Fuel Handling Bldg	4-12-83	619-F1-13-001

Block Type/No.	S.U. Cable Type/Length	Couplant Type/Visc.	Cal. Proc/Rev. Date	Exam. Proc/Rev. Date
IIW-2 783/68 DC-	BNC-RG 58/BNC-BNC 6ft	Ultragel II # 8226	N-UT-5 4-4-83	N-UT-5 4-4-83

Instrument: Nortec - 131-D		Straight Beam	Straight Beam	Angle Beam 70° Nom	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1515 (L) MLT
Rej. Damp. OFF OFF	Serial No.	D11952		F25993			1525 (S) MLT
Rep. Rate 1000	S.U. Size	3/4" ⌀		1/2" ⌀			1550 (S) MLT
Filter +	S.U. Freq.	2.25		2.25			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/Mode	0° Longitud		68° meas. shear			
Basic Ref. Level, Amp. (% Screen)/Db		70% 36db		80% 56db			
Scan Sensitivity, Db		36db		70db			
Screen Distance, in.		2.5"		5.0"			
Calib. Blocks, Type/No.		Base Metal		IIW-2 -DC-			

Noise, Linearity, and Resolution Verification ✓

6186-F1-13-006
BL

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI — Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
L-3	153	FP	Butt	3/4"			NRI		B/70/RI	1
L-4	153	FP	Butt	3/4"			NRI		A/70/RI	2

RE-EXAM/REPAIR - 1

FOR INFORMATION ONLY

Continuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

30

GENERAL				Date 4-16-83	Ref. Dwg. No. 6180-F1-73-001
ant DCPP	Unit 1	Component SEISMIC MODS	Location FUEL HANDLING BLDG		Cal. Proc/Rev. Date N-UT-5 4-4-83
ock Type/No. IIW2-783168DC	S.U. Cable Type/Length BNC-MDOT / BNC-BNC 6'		Couplant Type/Visc. ULTRAGEL II #8226		Exam.Proc/Rev. Date N-UT-5 4-4-83

strument WORTEC 131-D		Straight Beam	Straight Beam	Angle Beam 70°/10M	Angle Beam	Angle Beam	Cal. Checks Time/Initials
rial No. 271	Search Unit	AEROTECH GAMMA		AEROTECH GAMMA			8:29 IN
j. Damp. EFF OFF	Serial No.	D11949		A20758			8:50 OUT
p. Rate 1K	S.U. Size	3/4" ø		1/2" ø			
lter +	S.U. Freq.	2.25 MHZ		2.25 MHZ			
mp. N/A	Wedge Type	NONE		LUCITE			
	Beam Angle/ Mode	0° - Long		70° MEAS SHEAR			
asic Ref. Level, Amp. (% Screen)/Db				80% 63DB			
an Sensitivity, Db				77DB			
reen Distance, in.		2.5"		5.0"			
lib. Blocks, Type/No.		BASE METAL		DC-IIW2 783168			

oise, Linearity, and Resolution Verification ✓

6180-F1-13-007 BL Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI Straight Beam Face a or b	Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
BL -4	153'	FP	BUTT	3/4"	12½	N/A			A70°/NRI	
BL -3	153'	FP	BUTT	3/4"	12½	N/A			B70°/NRI	

FOR INFORMATION ONLY

Re-exam/Repair 2

ntinuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

51

WELD INSPECTION SHEET

CONN. NO. BL

WELD NO. 4 WELD PROC. SPEC(S) USED ______ LOC/COORD. 12 E, S 2

DRAWING 6180-F1-13-006 △1 QCP-5A / WPS-19 UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-12-83 USED E7018 INITIATING DOC. C-6180 △1

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	NA		Rod heat #
RJB		Fit-up	NA		Rod diameter
N/A		N.D.E. (where applicabe	NA		Fit-up
Material		CW 050 850	NA		Welder I.D.
P.O.SHT#		HT 314-0646	NA		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 20531	RJB		Rod heat # 2H3
RJB		Rod diameter 3/32	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. PX	RJB		Welder I.D. PX
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: C SIHOTA - PX

REF NCR 8833 XR-60 △1 Removed old weld

AND

This is ... The How... accepta... ...ity ... and have

FOR INFORMATION ONLY

DATE ______ Q.C. INSPECTOR ______

REF VIF 3-31-83

32

FOR INFORMATION ONLY

N-UT-5
Rev 0

ULTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL

Plant	Unit	Component	Location	Date	Ref. Dwg. No.
Diablo Canyon	1	Seismic Mods	Fuel Handling Bldg	4-5-83	6180-FI-13-001 Rev. 10

Block Type/No.	S.U. Cable Type/Length	Couplant Type/Visc.	Cal. Proc/Rev. Date	Exam. Proc/Rev. Date
IIW-2 and DC	BNC-Mdot / BNC-BNC 6ft	Ultragel II #8226	N-UT-5 4/4/83	N-UT-5 4/4/83

Instrument: Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1310 DJ
Rej. off Damp. off	Serial No.	D11949		A20738			1325 DJ
Rep. Rate 1K	S.U. Size	3/4" ⌀		1/2" ⌀			1335 DJ
Filter (+)	S.U. Freq.	2.25		2.25			
Temp. not applicable	Wedge Type	none		Lucite			
	Beam Angle/Mode	Contact 0° Longitud.		70° meas. Shear			
Basic Ref. Level, Amp. (% Screen)/Db		75% 42db		80% 69db			
Scan Sensitivity, Db		42db		73db			
Screen Distance, in.		2 1/2"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 IIW-2-783168			

Noise, Linearity, and Resolution Verification ✓

6180-FI-13-007
BM

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
BM-4	153'						NRI		A/70°/RI	1
BM-3	153'						NRI		A/70°/RI	2

Examination Results NRI or RI

Continuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

33

INFORMATION ONLY

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level (a)	Decibels: Reference Level (b)	Decibels: Attenuation Factor (c)	Decibels: Indication Rating (d)	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70°	\	66	59	1	6	2.0 14.0	B	1.49	0.48	A	6 3/8	1 3/8			BM-4
2	70°	\	59	59	0	0	2.0 14.00	A	1.21	0.40	B	7 3/4	1.2			BM-3

FOR INFORMATION ONLY

34

HN. RM — REINFORCING STEEL - WELD REPORT

WELD NO.: ______ WELD PROC. SPEC(S) USED ______ LOC./COL. ______

DRAWING: ______ UNIT ______ ELEV. 153'

INSPECTOR: ______ TYPE OF WELDING ELECTRODE PIECE ______ TO ______

DATE: ______ USED ______ INITIATING DOC.: ______

ACPT	RJCT	EDGE PREP AND FITUP
		edge preparation
		fitup
N/A		N.D.E. (where applicable)

ACPT	RJCT	TACKING
		Rod heat #
		Rod diameter
		Fitup
		Welder ID
		Preheat

ACPT	RJCT	ROOT PASS INSPECTION
		Rod heat #
		Rod diameter
		Visual Inspection
	N/A	N.D.E. (when)
		Welder ID
		Preheat

ACPT	RJCT	FINAL PASS INSPECTION
		Rod heat #
		Rod diameter
		Visual Inspection
		N.D.E. (when)
		Welder ID
		Preheat

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT

MATERIAL P.O. or HEAT NUMBER HT 314-6141

ADDITIONAL REMARKS: WELDER RICHARD B1

RM

INFORMATION ONLY

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.4 and the Howard P. Foley Company Quality Procedures and have been found to be acceptable.

DATE: 2 ______ ______

35

GENERAL

lant DCPP	Unit 1	Component SEISMIC MODS	Location FUEL HANDLING BLDG	Date 4-16-83	Ref. Dwg. No. 6180-F1-73-001
lock Type/No. IIW2-783168DC	S.U. Cable Type/Length BNC-MDOT/BNC-BNC 6'		Couplant Type/Visc. ULTRAGEL II #8226		Cal. Proc/Rev. Date N-UT-5 4-4-83
					Exam.Proc/Rev. Date N-UT-5 4-4-83

nstrument NORTEC 131-D		Straight Beam	Straight Beam	Angle Beam 70°LON	Angle Beam	Angle Beam	Cal. Checks Time/Initials
erial No. 271	Search Unit	AEROTECH GAMMA		AEROTECH GAMMA			
ej. Damp. OFF OFF	Serial No.	D11949		A2T58			1240 Lin GMT
ep. Rate 1K	S.U. Size	3/4"φ		1/2"φ			1226 Lout GMT
ilter +	S.U. Freq.	2.25 MHZ		2.25 MHZ			
emp. N/A	Wedge Type	NONE		LUCITE			
	Beam Angle/ Mode	0°-Long		70° MEAS SHEAR			
asic Ref. Level, Amp. (% Screen)/Db				80% 63db			
can Sensitivity, Db				77db			
creen Distance, in.		2.5"		5.0"			
alib. Blocks, Type/No.		BASE METAL		DC-IIW2			

oise, Linearity, and Resolution Verification ✓

6180-F1-13-007 BM Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
BM-4	153'	FP	BUTT	3/4"	12"	N/A			A70°/NRI	
BM-3	153	FP	BUTT	3/4"	12"	N/A			B70°/NRI	

Examination Results NRI or RI

FOR INFORMATION ONLY

Re-exam/Repair 1

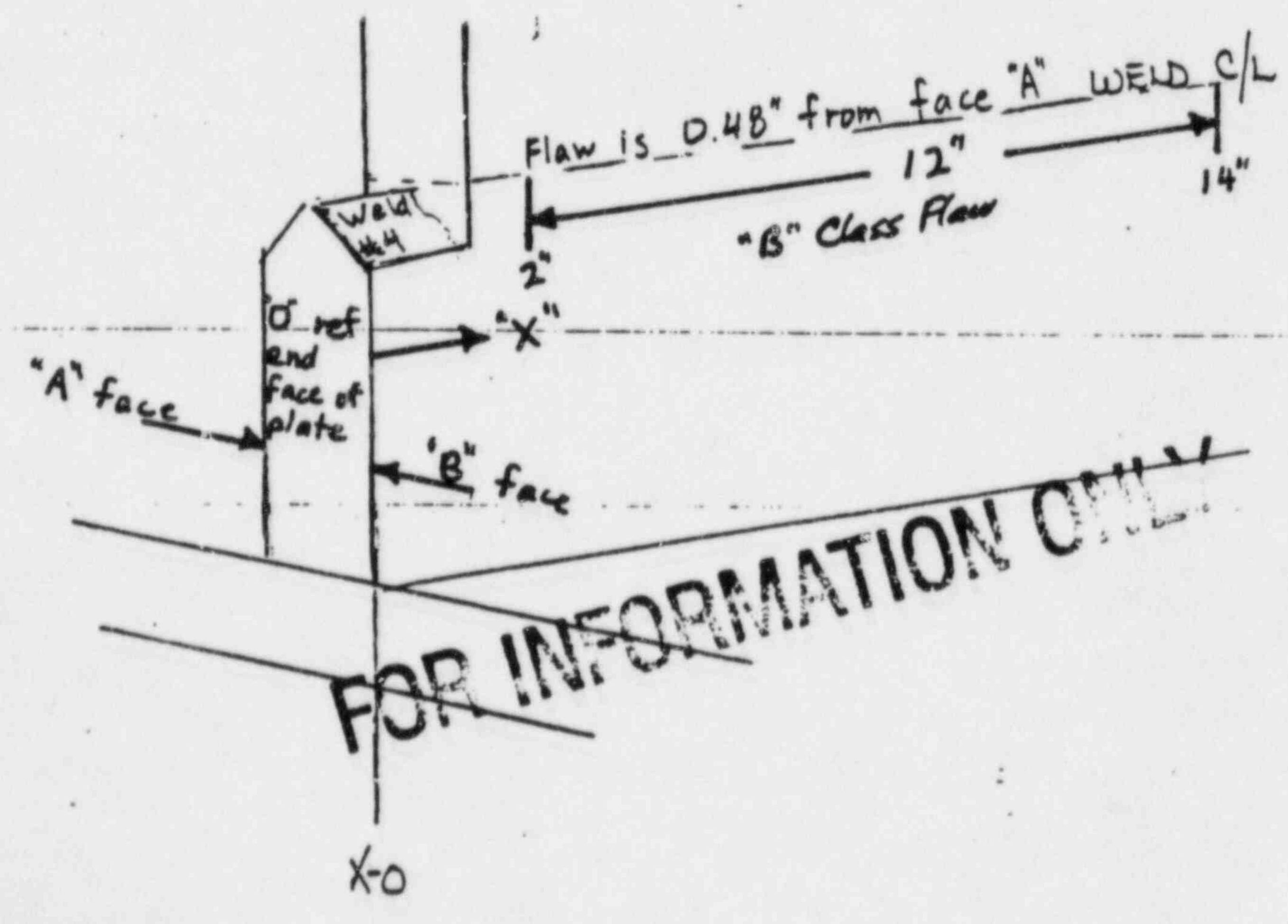
ontinuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

36

Date 4-5-83

Package No. BM-4

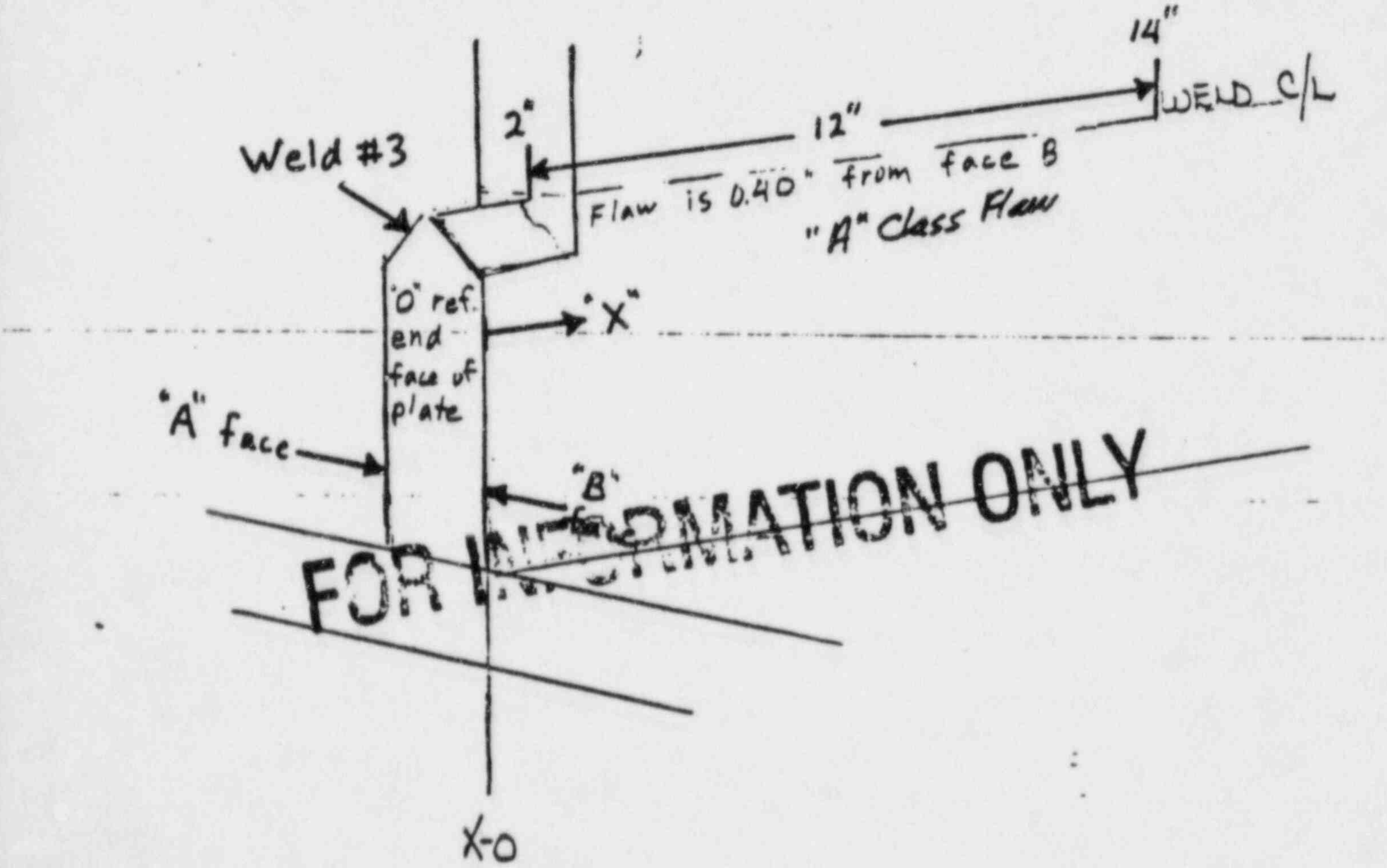
Detail Drawing No. 6180-F1-13-007



Date 4-5-83

Package No. BM-3

Detail Drawing No. 6180-F1-13-007



WELD INSPECTION SHEET

CONT. NO. BL

WELD NO. 4 * WELD PROC. SPEC(S) USED ____ LOC/COORD. 12 E, 5 2

DRAWING 6180-F1-13-006 △1 QCP-5A / WPS-19 UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-12-83 USED E7018 INITIATING DOC. C-6180 △1

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	NA		Rod heat #
RJB		Fit-up	NA		Rod diameter
N/A		N.D.E. (where applicabe	NA		Fit-up
Material		CW 050 850	NA		Welder I.D.
P.O.SHT#		HT 314-0646	NA		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 20531	RJB		Rod heat # 2H3
RJB		Rod diameter 3/32	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. PX	RJB		Welder I.D. PX
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: C SIHOTA - PX

REF NCR 8833XR-60 △1 Removed old weld

AND REPLACED.

* #3 WAS REPAIRED [illegible] RJB 6-2-83

FOR INFORMATION ONLY

Requires NDE

This is to certify that the above weld(s) have been insp[ected in accordance with] The Howard P. Foley Company Quality Procedures, and have [been found] acceptable.

DATE ____________ Q.C. INSPECTOR ____________

HPF VIS 3-31-83

39

WELD INSPECTION SHEET

ISO. NO. BL

WELD NO. 1 * WELD PROC. SPEC. BY USED ____ LOC. COORD. 12 8 , 5 4

DRAWING 6180-F1-13-006 7 WPS-19 / QCP-51 UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO: EXISTING STEEL

DATE 4-11-83 USED E7018 INITIATING DOC. C6180 1

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicable	N/A		Fit-up
Material		CW05C950	N/A		Welder I.D.
P.O./HT#		HT B14-[illegible]	N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 20531	RJB		Rod heat # 3KK1
RJB		Rod diameter 3/32	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. PX	RJB		Welder I.D. PX
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS LOT INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: G SIHOTA - PX

REF N.C.R 8833XR-60 1 REMOVED OLD WELD AS REGUIRED AND REPLACED

* #2 was corrected As #1 was being Repaired RLB 6-29-83

This is to certify that the above weld ... The Howard P. Foley Company ... and acceptable.

FOR INFORMATION ONLY

DATE ____________ ____________

[illegible] 3-3.-83

40

ULTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD N-UT-5 Rev 0

GENERAL

Date 4-5-83				Ref. Dwg. No. 6180-F1-13-001 Rev.10
Plant: Diablo Canyon	Unit: 1	Component: Seismic Mods	Location: Fuel Handling Bldg	Cal. Proc/Rev. Date: N-UT-5 4/4/83
Block Type/No.: IIW-2 and DC	S.U. Cable Type/Length: BNC-Mdot / BNC-BNC 6 ft		Couplant Type/Visc.: Ultragel II #8226	Exam.Proc/Rev. Date: N-UT-5 4/4/83

Instrument: Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			0840 / DJ, JW
Rej. off Damp. off	Serial No.	D11949		A20738			0910 / DJ
Rep. Rate 1K	S.U. Size	3/4" ⌀		1/2" ⌀			0940 / DJ
Filter (+)	S.U. Freq.	2.25		2.25			
Temp. not applicable	Wedge Type	none		Lucite			
	Beam Angle/ Mode	Contact 0° longitud.		70° Measured Shear			
Basic Ref. Level, Amp. (% Screen)/Db		75% 42db		80% 60 db			
Scan Sensitivity, Db		42db		74			
Screen Distance, in.		2½"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 IIW-2-T83168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007

BI Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
BI-4							NRI		A/70°/RI	1
BI-4							NRI		A/70°/NRI	2
BI-4							NRI		A/70°/NRI	3
BI-3							NRI		B/70°/NRI	

FOR INFORMATION ONLY

Continuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level a	Decibels: Reference Level b	Decibels: Attenuation Factor c	Decibels: Indication Rating d	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70°	\	61	60	2	-1	6 5/8 7 1/8	A	2.12	0.71	A	6 3/4	2 1/2			BI-4
2	70°	\	73	60	2	11		D	1.64							BI-4
3	70°	\	68	60	2	6	13 0 13 3/8	B	1.70	0.56	A	13 1/4	2.0			BI-4

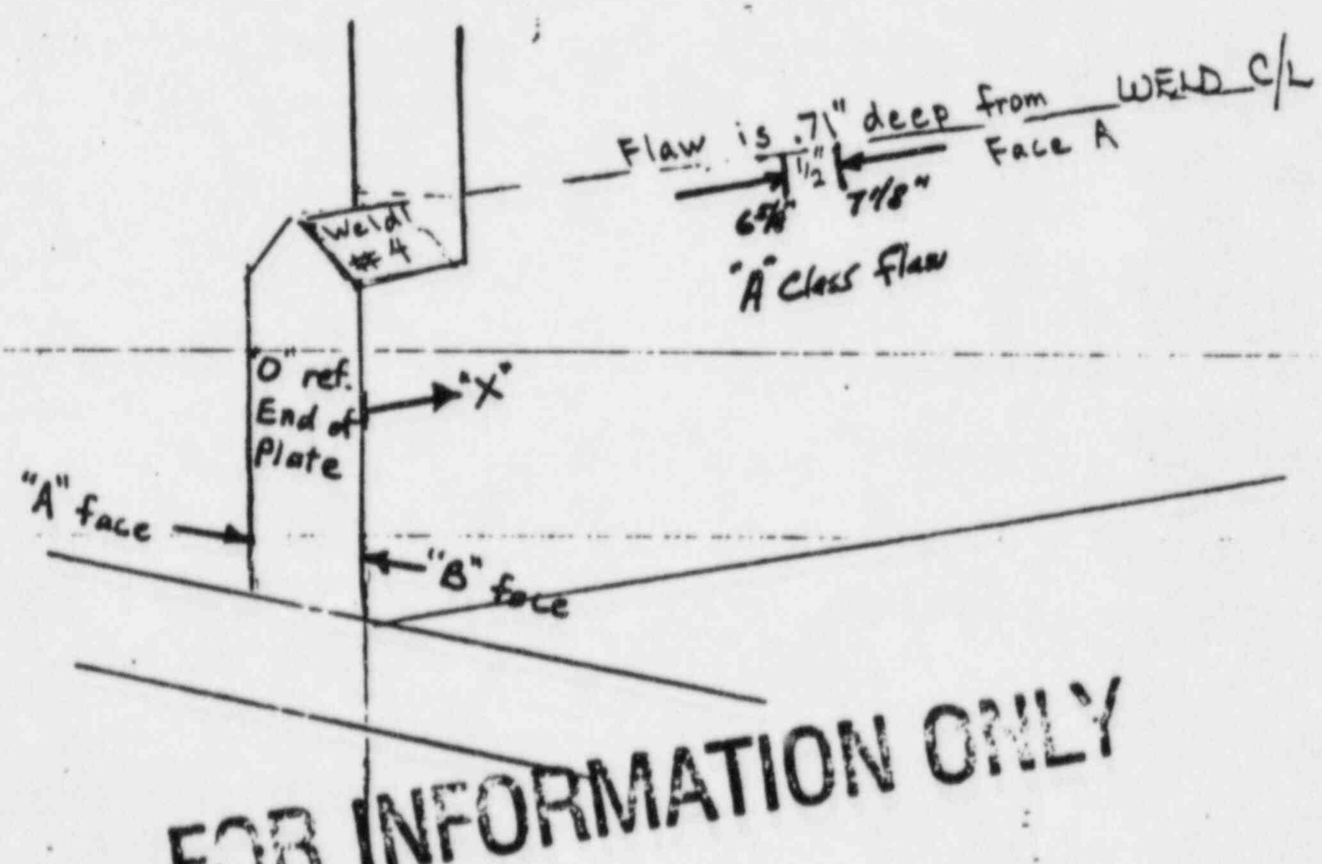
FOR INFORMATION ONLY

42

Date 4-5-83

Package No. BI-4

Detail Drawing No. 6180-F1-13-00



X-0

WELD INSPECTION ...

CONN 61 Rev B

Fuel Handling

WELD NO.: 3, 4 — WELD PROC. SPEC USED — LOC/COORD 10' 5 5?

DRAWING: 6180-FI-13-027 Rev 0 — WPS-27 GCP-54 — UNIT I — ELEV. 13 3

INSPECTOR: Charles ... — TYPE OF WELDING ELECTRODE — PIECE ... TO ...

DATE: 2-23-83 — USED ... — INITIATING DOC. ...

ACPT	RJCT	2-23-83 EDGE PREP AND FITUP
CH		edge preparation
CH		Fitup
M	M	N.D.E. (where applicable)

ACPT	RJCT	2-23-83 TACKING
CH		Rod heat # 4?E??
CH		Rod diameter ??
CH		Fitup
CH		Welder ID ~~P5~~ CH
CH		Preheat ??

ACPT	RJCT	ROOT PASS INSPECTION
CH		Rod heat # ...
CH		Rod diameter ...
CH		Visual inspection
M	M	N.D.E. (tion)
CH		Welder ID ...
CH		Preheat 5?

ACPT	RJCT	FINAL PASS INSPECTION
CH		Rod heat # ...
CH		Rod diameter ...
CH		Visual inspection
M	M	N.D.E. ...
CH		Welder ID ...
CH		Preheat ...

MULTIPASS 10% INSPECTION [X] ACCEPT [ ] REJECT [ ]

MATERIAL P.O. or HEAT NUMBER 47 # 314-0642 — A1K & ...

ADDITIONAL REMARKS:

Welder PG. Cass - ~~B5~~ P5 - Root Weld # 4

Welder R. Warren - P5

INFORMATION ONLY

This is to certify that the above welds have been ... Howard P. Foley Company ... acceptable.

FOR INFORMATION ONLY

DATE 2-23-83 — ... INSPECTOR Charles House

44

WELD INSPECTION SHEET

CONN. NO. B1

WELD NO. 4 WELD PROC. SPEC(S) USED ____ LOC/COORD. 10S & 59

DRAWING 6180-F1-B-007 (2) WPS-10 / QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-11-83 USED E7018 INITIATING DOC. C6180 (1)

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicabe	N/A		Fit-up
Material		CW 050850	N/A		Welder I.D.
P.O.SHT#		HT 314-0648	N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 3KK1	RJB		Rod heat # 3KK1
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. T5	RJB		Welder I.D. T5
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: DARRELL BOHN – T5

REF N.C.R 8833XR-60 (1)

REMOVED AREA AS REQUIRED 2" PAST EACH END OF DEFECTIVE AREA AND REPLACED

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures and have been found to be acceptable.

FOR INFORMATION ONLY

DATE ____ Q.C. INSPECTOR ____

HPF WIS 3-31-83

INFORMATION ONLY

45

N-UT-5
Rev 0

ULTRASONIC EXAMINATION OF GROOVE WELDS — EXAMINATION RECORD

GENERAL				Date	Ref. Dwg. No.
Plant: DCPP	Unit: 1	Component: Seismic Mods	Location: Fuel Handling Bldg.	4-12-83	6180-F1-13-001
Block Type/No.: 1100-279 & 68 DC	S.U. Cable Type/Length: BNC-MDOT/BNC BNC 6F	Couplant Type/Visc.: Ultragel II			Cal. Proc/Rev. Date: N-UT-5 4-4-83
					Exam.Proc/Rev. Date: N-UT-5 4-4-83

Instrument: Nortec 131-D		Straight Beam	Straight Beam	Angle Beam 70° nom	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1415 (L) (MLT)
Rej. OFF Damp. OFF	Serial No.	D11952		F05943			1427 (S) MLT
Rep. Rate 1000	S.U. Size	3/4" φ		1/2" φ			1450 (S) MLT
Filter +	S.U. Freq.	2.25		2.25			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/Mode	0° Longitud.		68° meas. shear			
Basic Ref. Level, Amp. (% Screen)/Db		70% 36 DB		80% 56db			
Scan Sensitivity, Db		36 db		70db			
Screen Distance, in.		2.5"		5.0"			
Calib. Blocks, Type/No.		Base Metal		DC 1100-2			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007 BI Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
I-3		FP	Butt	3/4"			NRI		B/70/ RI	1
I-4		FP	Butt	3/4"			NRI		A/70/ RI	2

RE-EXAM / REPAIR 1

INFORMATION ONLY

Continuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By:	Level

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

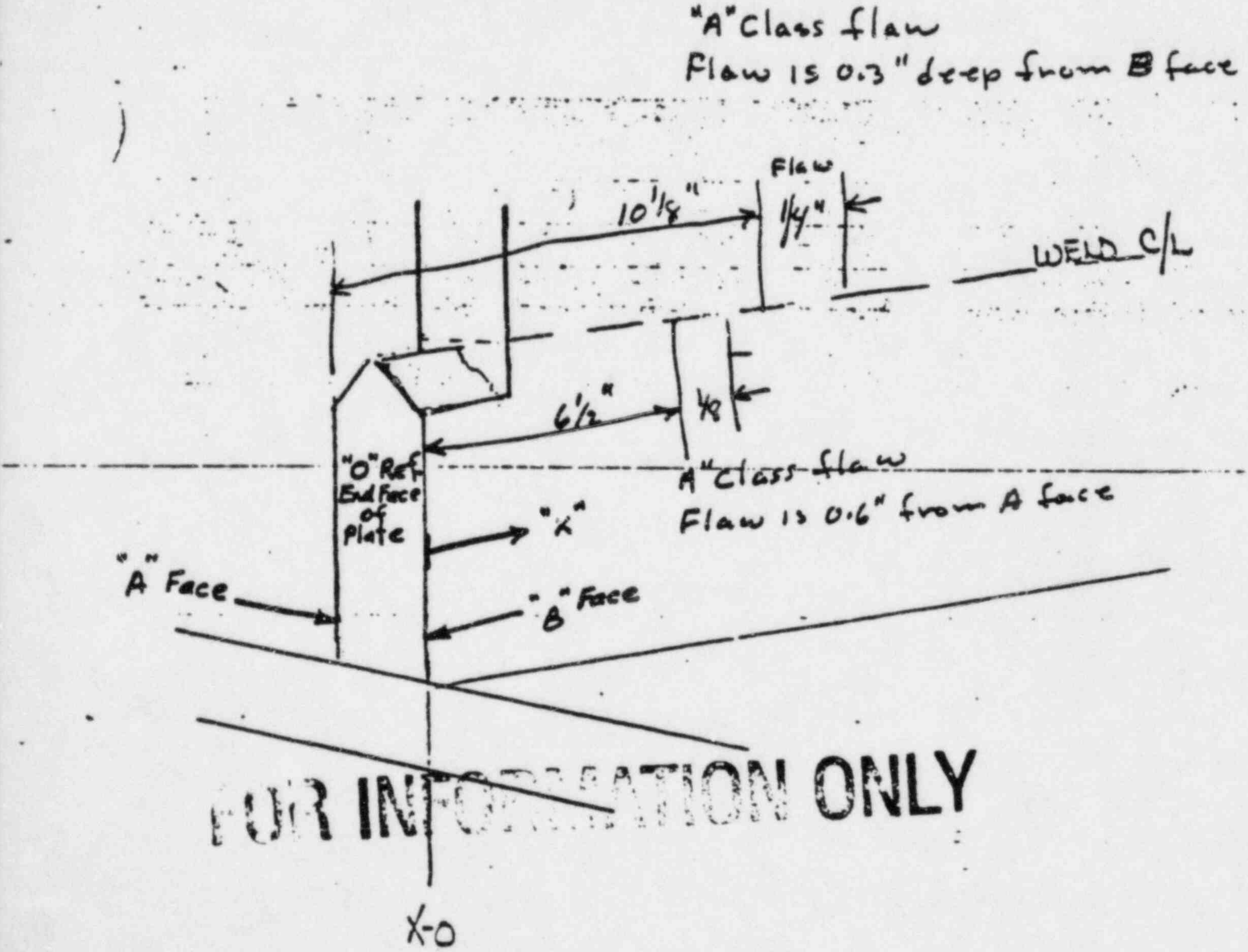
Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level a	Decibels: Reference Level b	Decibels: Attenuation Factor c	Decibels: Indication Rating d	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Distance: Scan Face	Distance: X	Distance: Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70	\	56	56	0	0	1/4	A	0.85	0.27	B	10 1/8 10 3/?	7/8	RI		BI-3
2	70	\	62	56	2	4	1/8	A	1.86	0.62	A	6 5/8 6 1/2	1 7/8	RI		BI-4

OPLT 4-12-83

Date

Package No. B-I

Detail Drawing No. 6180-F1-13-0



SONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD Rev 0

GENERAL				Date 9-16-83	Ref. Dwg. No. 6180-F1-73-001
ant DCPP	Unit 1	Component SEISMIC MODS	Location FUEL HANDLING BLDG		Cal. Proc/Rev. Date N-UT-5 4-4-83
ock Type/No. IWZ-783168DC	S.U. Cable Type/Length BNC-MDOT / BNC-BNC 6'		Couplant Type/Visc. ULTRAGEL II #8226		Exam.Proc/Rev. Date N-UT-5 4-4-83

strument Nortec 131-D		Straight Beam	Straight Beam	Angle Beam 70°/10M	Angle Beam	Angle Beam	Cal. Checks Time/Initials
rial No. 271	Search Unit	AEROTECH GAMMA		AEROTECH GAMMA			9:00 (S) IN [initials] (S)
j. Damp. FF OFF	Serial No. D18949	D18949		A20758			9:15 (S) OUT [initials] (S)
p. Rate 1K	S.U. Size	3/4" ⌀		1/2" ⌀			
lter +	S.U. Freq.	2.25 MHZ		2.25 MHZ			
mp. N/A	Wedge Type	NONE		LUCITE			
	Beam Angle/ Mode	0°-Long		70° MEAS SHEAR			
sic Ref. Level, Amp. Screen)/Db				80% 63DB			
an Sensitivity, Db				77DB			
reen Distance, in.		2.5"		5.0"			
lib. Blocks, Type/No.		BASE METAL		DC-IWZ-783168			

ise, Linearity, and Resolution Verification ☑

6180-F1-13-007

BI

Weld ent. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
							Examination Results NRI or RI			
BI -4	153'	FP	BUTT	3/4"	12 1/2	N/A			A70°/NRI	
BI -3	153'	FP	BUTT	3/4"	12 1/2	N/A			B70°/NRI	

FOR INFORMATION ONLY

Re-exam/Repair 2

ntinuation Sheets	Cal By [signature] Level II	Exam By [signature] Level II	Data Reviewed By: Level

49

WELD INSPECTION SHEET

CONN. NO. B1

WELD NO. 4 * WELD PROC. SPEC(S) USED ____ LOC/COORD. 10S , 5Y

DRAWING 6180-F1-B-007 △ WPS10 / QCP 5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-11-83 USED E7018 INITIATING DOC. C6180 △

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		NDE Required -RJB
RJB		Fit-up	N/A		
N/A		N.D.E. (where applicabe	N/A		
Material		CW 050850	N/A		
P.O.SHT#		HT 314-0648	N/A		

ACPT	RJCT	ROOT PASS INSPECTION		ACPT	RJCT	FINAL PASS INSPECTION	
RJB		Rod heat #	3KK1	RJB		Rod heat #	3KK1
RJB		Rod diameter	1/8	RJB		Rod diameter	1/8
RJB		Visual Inspection		RJB		Visual Inspection	
N/A		N.D.E. type				N.D.E. type	
RJB		Welder I.D.	T5	RJB		Welder I.D.	T5
RJB		Preheat	150°	RJB		Preheat	150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: DARRELL BOHN — T5

REF N.C.R 8833XR-60 △ * #3 REPAIRED when 4 was FIXED RJB 8-29-83

REMOVED AREA AS REQUIRED 2" PAST EACH END OF DEFECTIVE AREA AND REPLACED

FOR INFORMATION ONLY

This is to certify that the above welds have been inspected per AWS D1.1 and The Howard [illegible] Company Quality Procedures, and have been found to be acceptable.

DATE ____________ Q.C. INSPECTOR ____________

HPF VI2 3-31-83

50

N-UT-5
Rev 0

ULTRASONIC EXAMINATION OF GROOVE WELDS — EXAMINATION RECORD

GENERAL

Plant	Unit	Component	Location	Date	Ref. Dwg. No.
Diablo Canyon	1	Seismic Mods	Fuel Handling Bldg	4/6/83	6180-F1-13-001 Rev.10

Block Type/No.	S.U. Cable Type/Length	Couplant Type/Visc.	Cal. Proc/Rev. Date	Exam.Proc/Rev. Date
IIW-2 and DC	BNC-Mdot / BNC-BNC 6ft	Ultragel II #8226	N-UT-5 4/4/83	N-UT-5 4/4/83

Instrument: Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1300 (L-wave) JGW
Rej. off Damp. off	Serial No.	D11949		A20738			1307 (S-wave) JGW
Rep. Rate 1K	S.U. Size	3/4" ⌀		1/2" ⌀			1332 " JGW
Filter (+)	S.U. Freq.	2.25		2.25			
Temp. not applicable	Wedge Type	none		Lucite			
	Beam Angle/Mode	Contact 0° Longitud.		70° meas. shear			
Basic Ref. Level, Amp. (% Screen)/Db		70% 43dB		80% 59dB			
Scan Sensitivity, Db		43dB		73dB			
Screen Distance, in.		2 1/2"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 IIW-2-TB3168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007

EP

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
EP-3	153'						NRI		70°/A/RI	1
EP-4	153'						NRI		70°/A/RI	2

FOR INFORMATION ONLY

Continuation Sheets	Cal By: Level	Exam By: Level	Data Reviewed By: Level
	J. G. Wilson II	J. G. Wilson II	

N-UT-5 A
Rev. 0

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: a Indication Level	Decibels: b Reference Level	Decibels: c Attenuation Factor	Decibels: d Indication Rating	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X (max)	Distance Y (max)	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	78	/	59	59	0	0	1 1/4" — 14"	A	1.07	0.35	A	7 1/8"	0.9"			EP-3
2	70°	/	55	59	0	-4	2" — 14"	A	1.14	0.37	B	2 1/8	1.0			EP-4

FOR INFORMATION ONLY

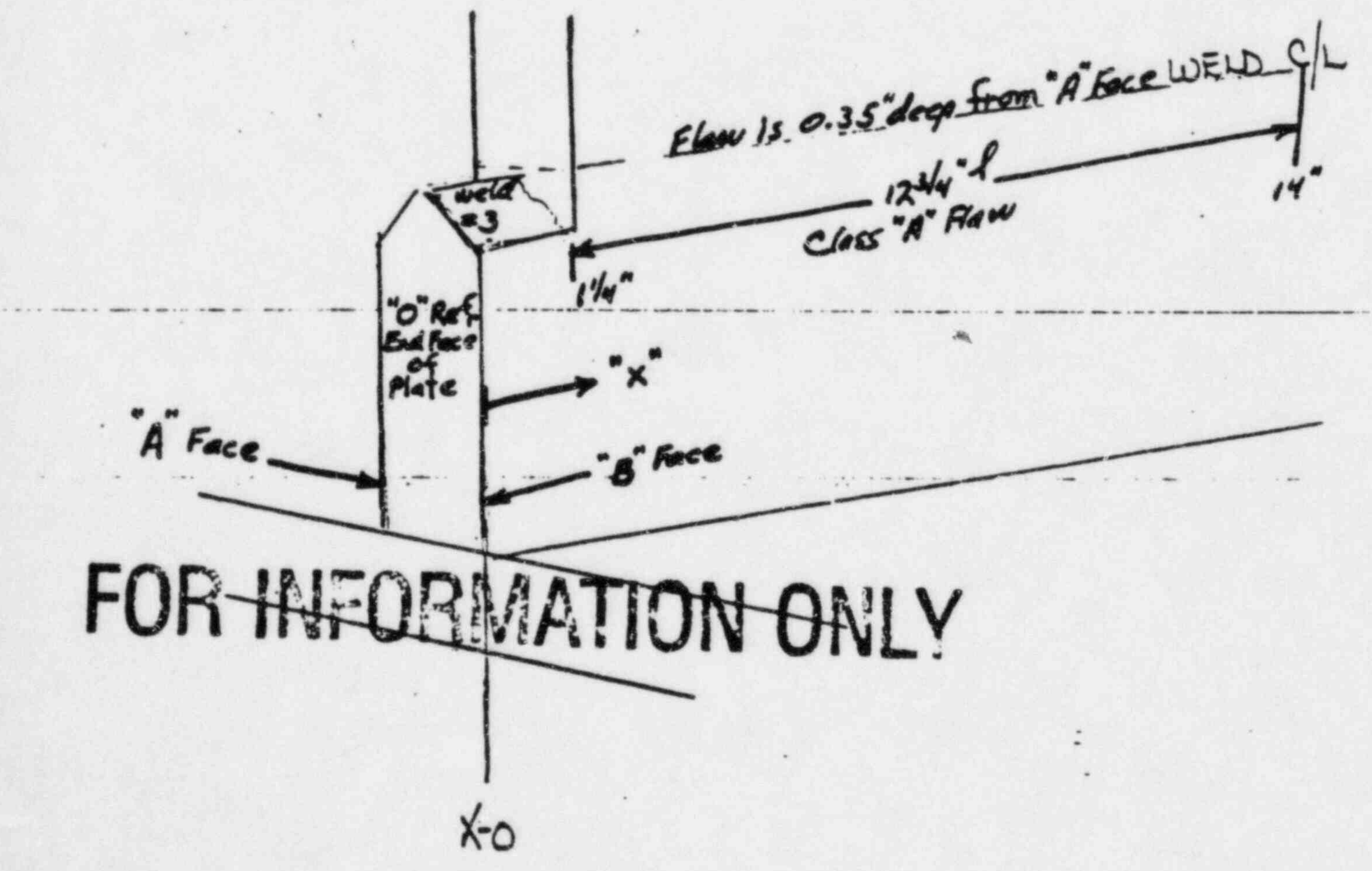
JLW 1-6-83

52

Date 4/6/83

Package No. EP-3

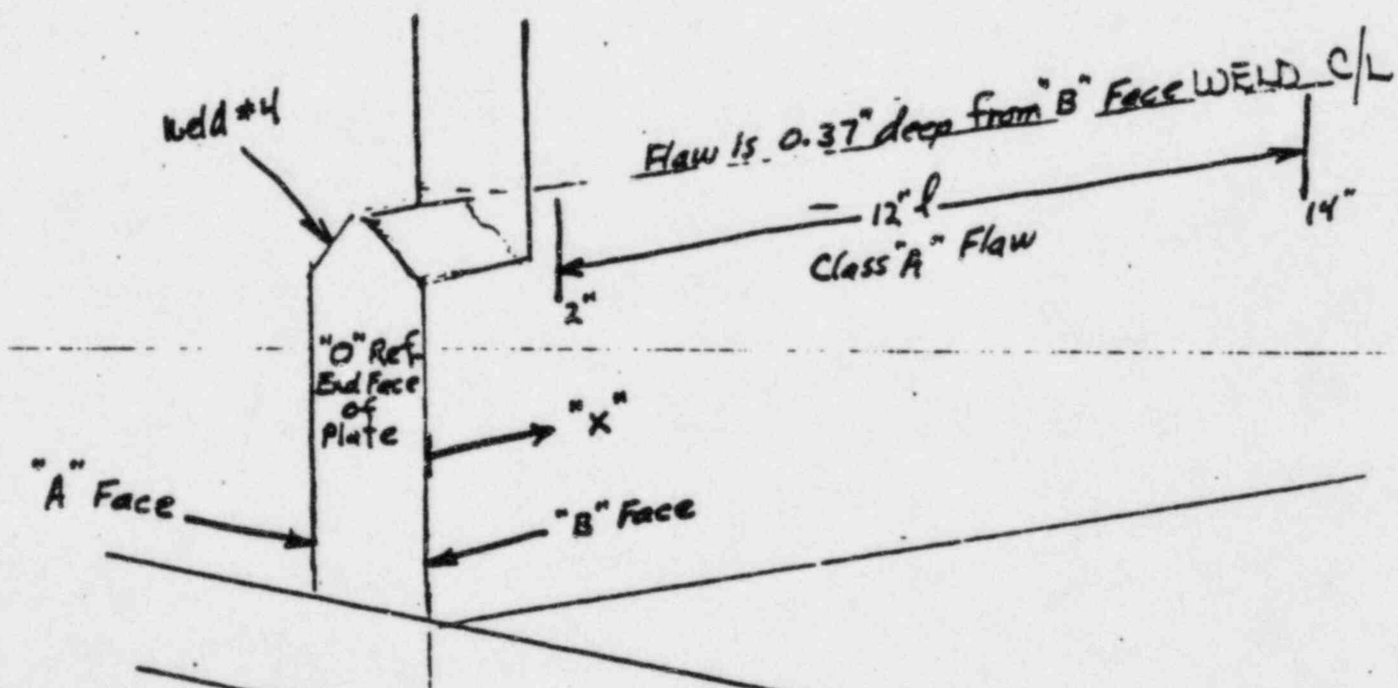
Detail Drawing No. 6180-F1-13-007



Date 4/6/83

Package No. EP-4

Detail Drawing No. 6180-F1-13-007



FOR INFORMATION ONLY

X-0

. . NSPECTION SHEET

WELD NO: Conn. FP* 3, 4 WELD PROC. SPEC(S) USED ____ LOC/COORD 11' & 14'

DRAWING: 6180 51-13-007A WPS 19 QCP 5A UNIT I ELEV. 153'-7

INSPECTOR Roger D. Meek TYPE OF WELDING ELECTRODE PIECE E006 TO EXIST.

DATE: 1.27.83 USED E7018 INITIATING DOC. C1150 A

ACPT	RJCT	EDGE PREP AND FITUP	ACPT	RJCT	TACKING
RDM		edge preparation	RDM		Rod heat # 32809
RDM		fitup	RDM		Rod diameter 1/8 Ø
N/A	N/A	N.D.E. (where applicable)	RDM		Fitup
			RDM		Welder ID D3
			RDM		Preheat 50°

FOR INFORMATION ONLY

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RDM		Rod heat # 32809	RDM		Rod heat # 32809
RDM		Rod diameter 1/8 Ø	RDM		Rod diameter 1/4" Ø
RDM		Visual Inspection	RDM		Visual Inspection
NA	NA	N.D.E. type	NA	NA	N.D.E. type
RDM		Welder ID D3	RDM		Welder ID D3
RDM		Preheat	RDM		Preheat 50°

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT ☐ N/A

MATERIAL P.O. or HEAT NUMBER Ht# 321-0412 (E006)

ADDITIONAL REMARKS: Welder: George STAEHLING D3

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and the Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE: 1.27.83 Q.C. INSPECTOR Roger D. Meek

55

WELD INSPECTION SHEET

CONN. NO. EP

WELD NO. 3 WELD PROC. SPEC(S) USED ____ LOC/COORD. 14' & V'

DRAWING 6180-F1-13-007 (2) WPS-10/ QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-11-83 USED E7018 INITIATING DOC. C6180 (1)

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicabe	N/A		Fit-up
Material P.O.SHT#		CW 050845	N/A		Welder I.D.
		HT 324-0412	N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJ		Rod heat # 3KK1	RJB		Rod heat # 3KK1
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. BE	RJB		Welder I.D. BE
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: DON SAVORY

REF NCR 8833XR-60 (1) REMOVED OLD WELD

AND REPLACED

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Havard Boley Company Quality Procedures, and have been found to be acceptable.

DATE ________ Q.C. INSPECTOR ________________

HPF/WIS 3-31-83

56

ULTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD N-UT-5 Rev 0

GENERAL

Plant	Unit	Component	Location	Date	Ref. Dwg. No.
DCPP	1	SEISMIC MODS	FUEL HANDLING BLDG.	9-11-83	6180-F1-13-001

Block Type/No.	S.U. Cable Type/Length	Couplant Type/Visc.	Cal. Proc/Rev. Date	Exam.Proc/Rev. Date
IIW2 DC	BNC-MICRODOT/BNC-BNC	ULTRAGEL II #8226	N-UT-5- 4-4-83	N-UT-5 4-4-83

Instrument: NORTEC 131D		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 271	Search Unit	AEROTECH GAMMA		70°IAM AEROTECH GAMMA			1325 (L) [initials]
Rej. Damp. OFF OFF	Serial No.	D11949		A 20738			1330 (S) [initials]
Rep. Rate 1K	S.U. Size	3/4" ϕ		1/2" ϕ			1400 [initials]
Filter (-)	S.U. Freq.	2.25MHZ		2.25MHZ			1412 [initials]
Temp. N/A	Wedge Type	NONE		LUCITE			
	Beam Angle/ Mode	0° LONGITUD		69° MEAS SHEAR			
Basic Ref. Level, Amp. (% Screen)/Db		70% 47DB		80% 62DB			
Scan Sensitivity, Db		47DB		76DB			
Screen Distance, in.		2.5"		5.0"			
Calib. Blocks, Type/No.		BASE METAL		DC-1 IIW2	783162		

Noise, Linearity, and Resolution Verification [✓]

6180-F1-13-007 EP

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
EP-3	153'	FP	BUTT	3/4		N/A	NRI		A70° RI	1+2
EP-4	153'	FP	BUTT	3/4		N/A	NRI		B70° RI	1

RE-EXAM/REPAIR 1

FOR INFORMATION ONLY

Continuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level (a)	Decibels: Reference Level (b)	Decibels: Attenuation Factor (c)	Decibels: Indication Rating (d)	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70	\	63	62	0	1	3/4	A	.88	0.28	A	11.0 10 1/4	1	RI		EP-3
2	70	\	67	62	0	5	1/4	A	.90	0.31	A	5.0 4 3/4	1	RI		EP-3
1	70	\	69	62	1	6	3/4	B	1.3	0.43	B	11.0 10 3/4	1	RI		EP-4

RE-EXAM/REPAIR 1

FOR INFORMATION ONLY

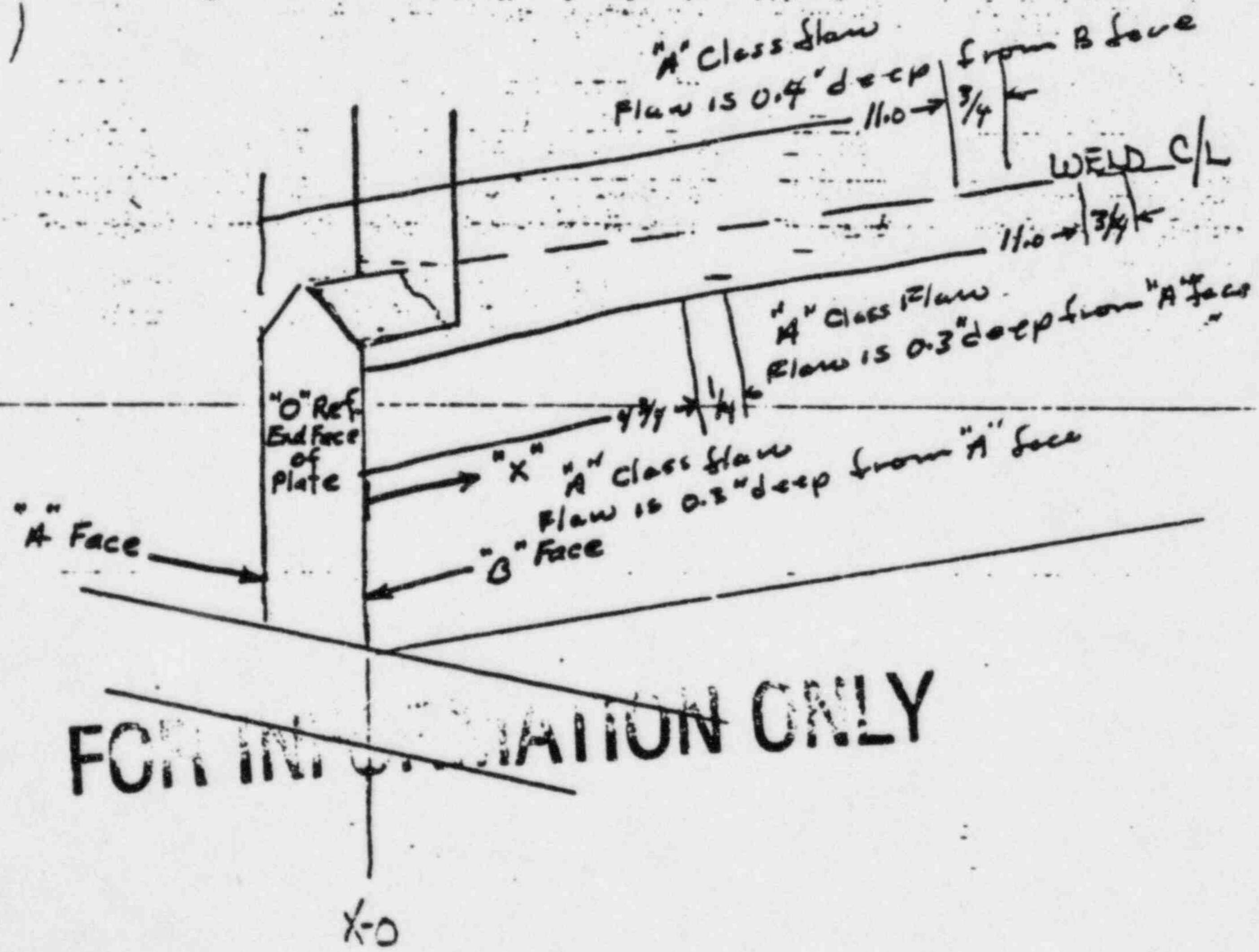
[signature] 4-11-83

58

Date 4-11-83

Package No. EP

Detail Drawing No. 6180-F1-13-007



FOR INFORMATION ONLY

ULTRASONIC EXAMINATION OF GROOVE WELDS — EXAMINATION RECORD

GENERAL				Date 4-13-83	Ref. Dwg. No. 6180-F1-13-001
Plant DCPP	Unit 1	Component Seismic Mods.	Location Fuel Hand Bldg		Cal. Proc/Rev. Date N-UT-5 4-4-83
Block Type/No. IIW-2, 783168 DC	S.U. Cable Type/Length BNC-Mdot/BNC-BNC 6ft		Couplant Type/Visc. Ultragel II 8226		Exam.Proc/Rev. Date N-UT-5 4-4-83

Instrument Nortec 131D		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 271	Search Unit			70° Non Aerotech Gamma			0855(S) MJF
Rej. off Damp. off	Serial No.			A20788			0911(S) MJF
Rep. Rate 1K	S.U. Size			1/2 ø			0928(S) MJF
Filter (+)	S.U. Freq.			2.25			
Temp. N/A	Wedge Type			Lucite			
	Beam Angle/Mode			70° Mans. Shear			
Basic Ref. Level, Amp. (% Screen)/Db				80% 66db			
Scan Sensitivity, Db				80db			
Screen Distance, in.				5.0"			
Calib. Blocks, Type/No.				DC IIW-2 783168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007
EP

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
P-3	153'	FP	Butt	3/4					A/70 RI	1, 2
P-4	153'	FP	Butt	3/4					B/70 RI	3

RE-EXAM /REPAIR 2

FOR INFORMATION ONLY

Continuation Sheets	Cal By: MHanley Level II	Exam By: MHanley Level II	Data Reviewed By: Level

60

REPORT OF INDICATIONS
CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: a Indication Level	b Reference Level	c Attenuation Factor	d Indication Rating	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70	\	67	66	6	5	3/8	A	1.2	0.4	A	13 1/4 13 5/8	1 1/4	RI		EP-3
2	70	\	66	66	1	-1	1/2	A	1.25	0.4	A	9 3/4 10 1/4	1 1/8	RI		EP-3
3	70	\	68	66	1	1	3/8	A	1.29	0.42	B	7 1/2 7 7/8	1	RI		EP-4

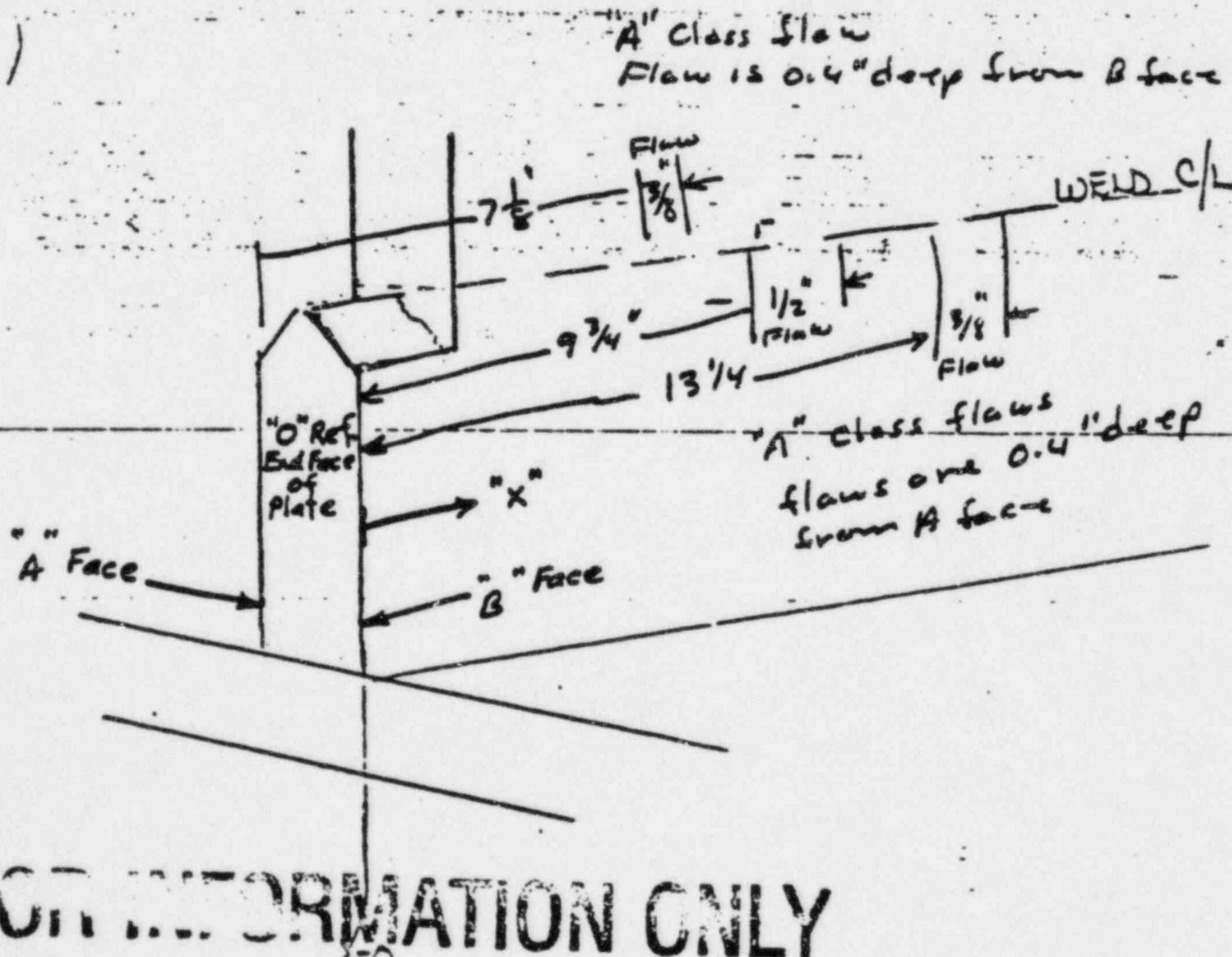
4-13-83

61

Date 4-13-83

Package No. EP

Detail Drawing No. 6180-F1-13-007



GENERAL				Date 4-17-83	Ref. Dwg. No. 6180-F1-13-001
Plant DCPP	Unit 1	Component Seismic Mods	Location Fuel Handling Bldg.		Cal. Proc/Rev. Date N-UT-5 4-4-83
Block Type/No. IIW-2 7583/72 OC	S.U. Cable Type/Length BNC/BNC BNC MDOT 6ft		Couplant Type/Visc. Ultrasol II #8226		Exam. Proc/Rev. Date N-UT-5 4-4-83

Instrument Nortec 131-D		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
				70° nom			
Serial No. 276	Search Unit	Gamma Aerotech		Gamma Aerotech			1510 (S) (in) MF
Rej. OFF Damp. OFF	Serial No.	011952		F05943			1530 (S) out MF
Rep. Rate 1000	S.U. Size	3/4" ⌀		1/2" ⌀			
Filter +	S.U. Freq.	2.25		2.25			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/ Mode	0° Long		70° meas shear			
Basic Ref. Level, Amp. (% Screen)/Db		70% 49 db		80% 58 db			
Scan Sensitivity, Db		49 db		72 db			
Screen Distance, in.		2.5"		5.0"			
Calib. Blocks, Type/No.		Base Metal		IIW-2 OC			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007 EP Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
-3	153'	FP	Butt	3/4	12 1/2		NRI	B	MLT B/70/NRI	
-4	153'	FP	Butt	3/4	12 1/2		NRI		A/70/NRI	

Re-exam / Repair ONLY

FOR INFO...

Continuation Sheets	Cal By: MFinley Level II	Exam By: MFinley Level II	Data Reviewed By: Level

WELD INSPECTION SHEET

CONN. NO. EP

WELD NO. 4 WELD PROC. SPEC(S) USED ______ LOC/COORD. 14 L , V 1

DRAWING 6180-F1-13-007 △7 WPS-10/QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancropt TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-11-83 USED E-7018 INITIATING DOC. ______

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicabe	N/A		Fit-up
Material		CW 050645	N/A		Welder I.D.
P.O.SHT#		HT 324-0412	N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 2H3	RJB		Rod heat # 2H3
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. BE	RJB		Welder I.D. BE
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: DON SAVORY - BE

REF NCR 8833XR-60 △1 Removed OLD weld & REPLACED

with New WELD

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures and found to be acceptable.

FOR INFORMATION ONLY

DATE ______ Q.C. INSPECTOR ______

HPF WIS 3-31-83

FOR INFORMATION ONLY

64

ULTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL

Plant: Diablo Canyon	Unit: 1	Component: Seismic Mods	Location: Fuel Handling Bldg	Date: 4-5-83
				Ref. Dwg. No.: 6180-F1-13-001 Rev. 10
Block Type/No.: IIW-2 and DC	S.U. Cable Type/Length: BNC-Mdot / BNC-BNC 6 ft		Couplant Type/Visc.: Ultragel II #8226	Cal. Proc/Rev. Date: N-UT-5 4/4/83
				Exam. Proc/Rev. Date: N-UT-5 4/4/83

Instrument: Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1335 DJ
Rej. off Damp. off	Serial No.	D11949		A20738			1342 DJ
Rep. Rate 1K	S.U. Size	3/4" ϕ		1/2" ϕ			1353 DJ
Filter (+)	S.U. Freq.	2.25		2.25			
Temp. not applicable	Wedge Type	none		Lucite			
	Beam Angle/Mode	Contact 0° Longitud.		70° meas. shear			
Basic Ref. Level, Amp. (% Screen)/Db		75% 42db		80% 59db			
Scan Sensitivity, Db		42db		73db			
Screen Distance, in.		2 1/2"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 IIW-2-783168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007

BN

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
BN-4	153'						NRI		A/70°/RI	1
BN-3	153'						NRI		B/70°/RI	2

FOR INFORMATION ONLY

Continuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

REPORT OF INDICATIONS
CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level a	Decibels: Reference Level b	Decibels: Attenuation Factor c	Decibels: Indication Rating d	Defect (see Figure 11): Length/Direct. (x and/or y)	Defect: Indication Class	Defect: Sound Path Distance	Defect: Depth from Surface/a, b, or c	Defect: Scan Face	Defect: Distance X	Defect: Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70°	\	55	59	0	-4	2.00 14.00	A	1.11	0.37	A	4 5/8	1.0			BN-4
2	70°	\	66	59	1	-4	2.0 14.0	A	1.4	0.46	B	6 1/8	1.3			BN-3

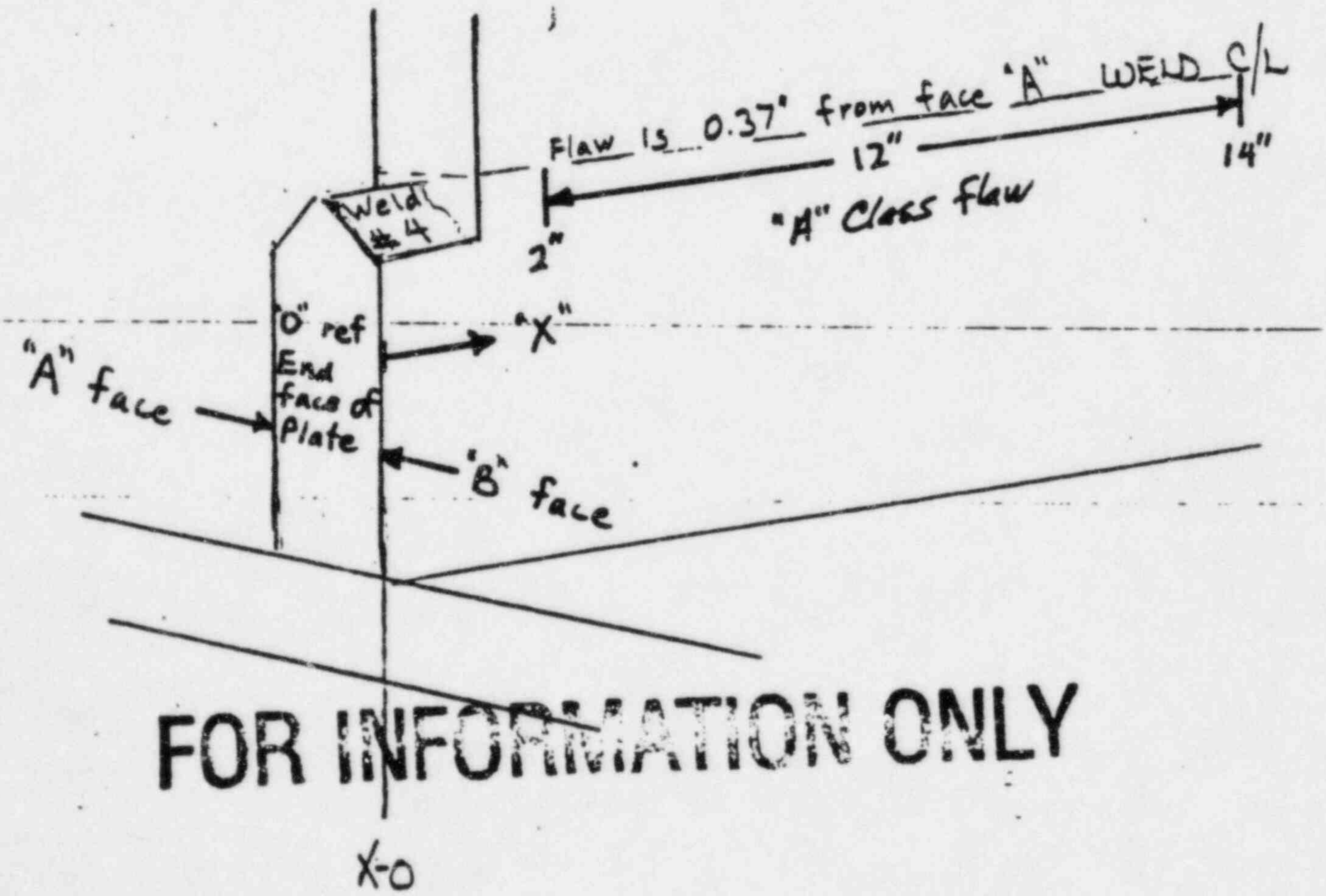
FOR INFORMATION ONLY

66

Date 4-5-83

Package No. BN-4

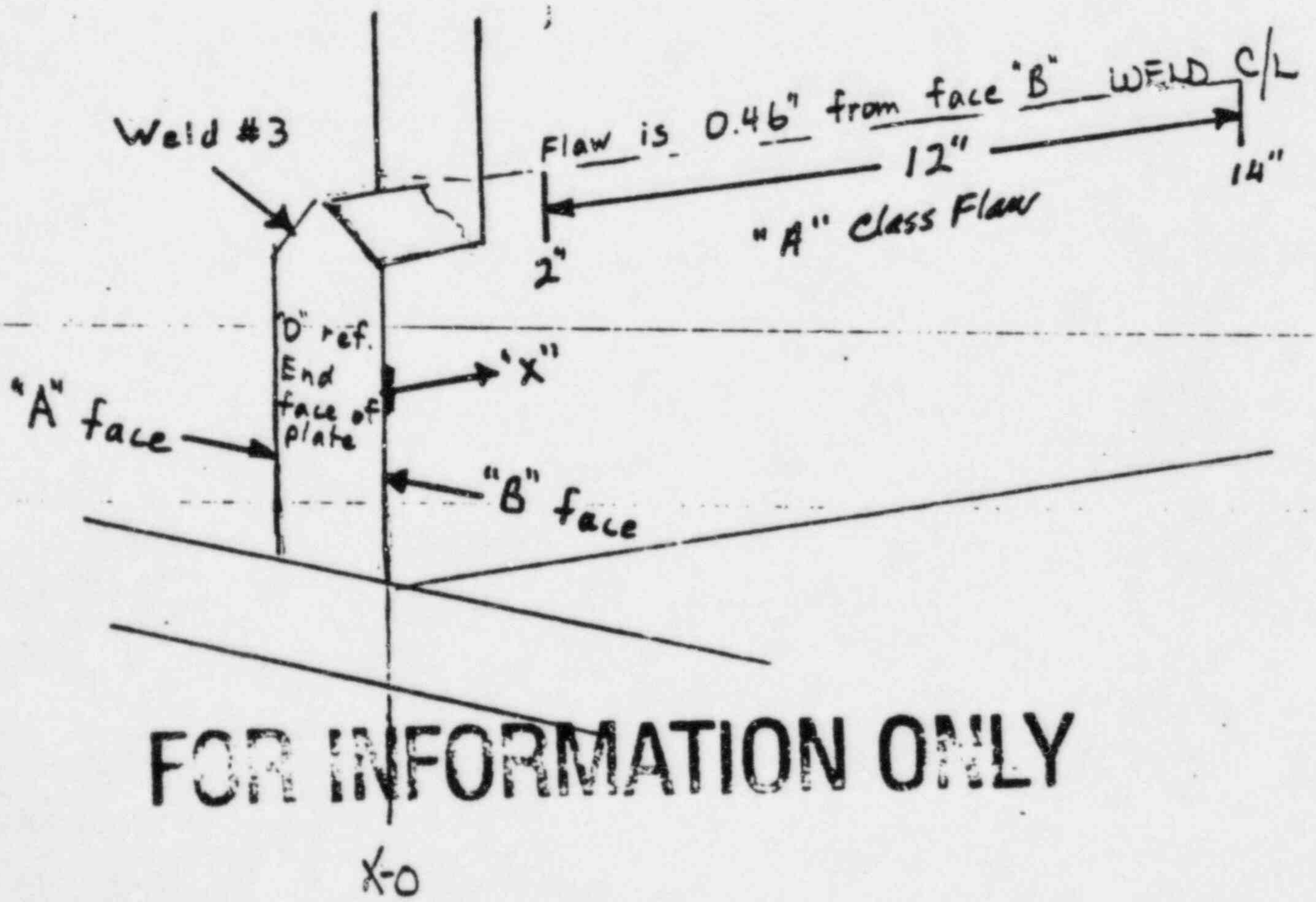
Detail Drawing No. 6180-F1-13-007



Date 4-5-83

Package No. BN-3

Detail Drawing No. 6180-F1-13-8



FOR INFORMATION ONLY

WELD INSPECTION SHEET

CONN. NO. BN

WELD NO. 3 WELD PROC. SPEC(S) USED ____ LOC/COORD. 147 & 51

DRAWING 6180-F1-13-007 A WPS-17/QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE F006 TO Existing Steel

DATE 4-13-83 USED E7018 INITIATING DOC. C6180 A

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	NA		Rod heat #
RJB		Fit-up	NA		Rod diameter
NA		N.D.E. (where applicabe	NA		Fit-up
Material		~~CW050186~~ CW051180 RJB 4-13-83	NA		Welder I.D.
P.O.SHT#		HT 624-877	NA		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 2H3	RJB		Rod heat # 2H3
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
NA		N.D.E. type			N.D.E. type
RJB		Welder I.D. PX	RJB		Welder I.D. PX
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: C S1HCTA - PX

REF NCR 8833XR-60A REWELDED DEFECTIVE AREA

~~INFORMATION ONLY~~

This is to certify that the above weld(s) have been inspected to ... and The Howard P. Foley Company Quality Procedures & and have been found to be acceptable.

FOR INFORMATION ONLY

DATE ____________ Q.C. INSPECTOR ____________

HPF WIS 3-31-83

[illegible] R/7 WELD INSPECTION SHEET

Field [illegible]

WELD NO. 3, 4 WELD PROC. SPEC(S) USED LOC/COORD 14' 5'

DRAWING: [illegible] Wps-19 Qcp-5H UNIT I ELEV. 15'3"

INSPECTOR: Charles [illegible] TYPE OF WELDING ELECTRODE PIECE E or 6 TO Exist Elc

DATE: 3-5-83 USED E-7016 INITIATING DOC.: C-6150

ACPT	RJCT	3-5-83 EDGE PREP AND FITUP
CH		Edge preparation
CH		Fitup
NA	NA	N.D.E. (where applicable)

ACPT	RJCT	3-5-83 TACKING
CH		Rod heat # ~~[illegible]~~ 77644
CH		Rod diameter ~~[illegible]~~ 3/32"
CA		Fitup
CH		Welder ID H-7
CH		Preheat 50°

ACPT	RJCT	ROOT PASS INSPECTION 3-5-83
CH		Rod heat # ~~[illegible]~~ 77644
[illegible]		Rod diameter ~~[illegible]~~ 3/32"
CH		Visual Inspect.
NA	NA	N.D.E. type
CH		Welder ID H-7
CH		Preheat 50°

ACPT	RJCT	FINAL PASS INSPECTION 3-7-83
CH		Rod heat # [illegible]
CH		Rod diameter [illegible]
CH		Visual Inspection
NA	NA	N.D.E. type
CH		Welder ID H-7
CH		Preheat 50°

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT ☐ [illegible]

MATERIAL P.O. or HEAT NUMBER HT 62467 [illegible] Elc

ADDITIONAL REMARKS:

INFORMATION ONLY

Welder C. Rector H-7

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per [illegible] Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE: 3-7-83 Q.C. INSPECTOR Charles [illegible]

WELD INSPECTION SHEET

CONN. NO. ~~BAA~~ BN RJB 4-11-83

WELD NO. 3 WELD PROC. SPEC(S) USED ______ LOC/COORD. S9 & 14-7

DRAWING 6180-F1-13007 (1) WPS19/ QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-9-83 USED E7018 INITIATING DOC. 6180 (1)

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	NA		Rod heat #
RJB		Fit-up	NA		Rod diameter
NA		N.D.E. (where applicabe	NA		Fit-up
Material		CW051180	NA		Welder I.D.
P.O.SHT#		HT 624877	NA		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 3WF2	RJB		Rod heat # 3WF2
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. PX	RJB		Welder I.D. Px
RJB		Preheat 50°	RJB		Preheat 50°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☑ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☑ N/A

ADDITIONAL REMARKS: C SHIOTA PX REF NCR 4833XR-60 (1)

WELD BACK gouged OUT AND All DEFECTIVE AREA REMOVED

AND REPLACED

FOR INFORMATION ONLY INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE ______________ Q.C. INSPECTOR ______________________

HPF WIS 3-31-83

N-41-5
Rev 0

TRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL				Date 4-12-83	Ref. Dwg. No. 6180-F1-13-001
Plant DCPP 1	Unit 1	Component Seismic Mods	Location Fuel Hand. Bldg.		Cal. Proc/Rev. Date N-UT-5 4-4-83
Block Type/No. 11W-2 DC	S.U. Cable Type/Length BNC-Microdot/BNC-BNC 6'		Couplant Type/Visc. Ultragel II 8226		Exam.Proc/Rev. Date N-UT-5 4-4-83

Instrument		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Nortec 131D				70° nom			
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1610 (c)
Rej. off Damp. off	Serial No.	D11452		F05943			1615 (s)
Rep. Rate 1K	S.U. Size	3/4" ϕ		1/2 ϕ			1630 (s)
Filter (+)	S.U. Freq.	2.25		2.25			
Temp. N/A	Wedge Type	None		Lucite			
	Beam Angle/ Mode	0° Longitud		68° meas shear			
Basic Ref. Level, Amp. (% Screen)/Db		70% 36 db		80% 56 db			
Scan Sensitivity, Db		36db		70db			
Screen Distance, in.		2 1/2"		5.0"			
Calib. Blocks, Type/No.		Base Metal		DC1 Dwg. 7B3168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007

BN Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
N-3	153'	FP	BH	3/4			NRI		B/70/RI	2
N-4	153'	FP	BH	3/4			NRI		A/70/RI	2

FOR [illegible] ONLY

RE-EXAM/REPAIR-1

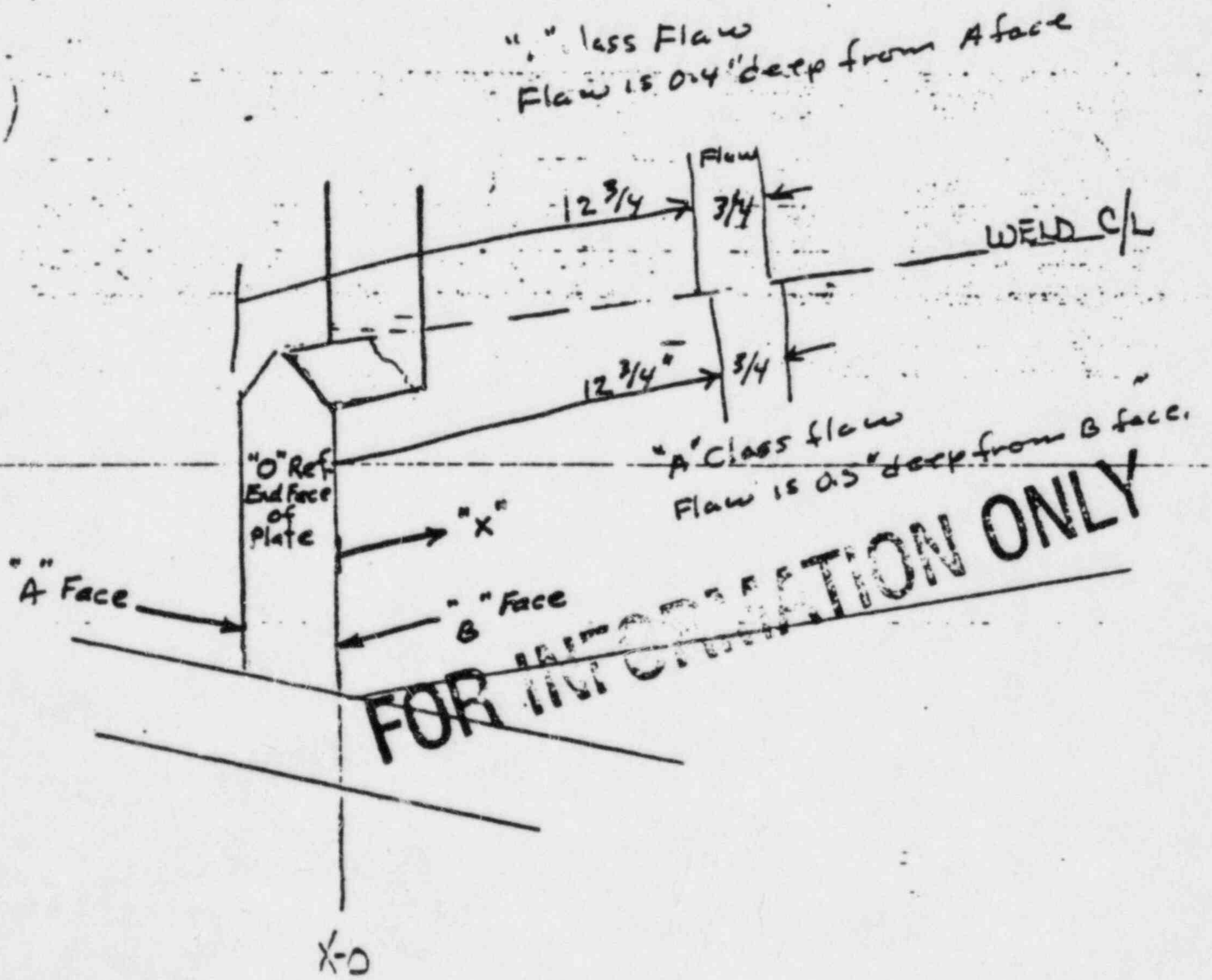
Continuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

72

Date 4-12-83

Package No. BN

Detail Drawing No. 6180-F1-13-007



N-UT-5
Rev 0

...SONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL				Date	Ref. Dwg. No.
...ant: Dr.PP	Unit: 1	Component: Seismic Mods	Location: Fuel Handling Bldg	4-16-83	6180-F1-13-001
					Cal. Proc/Rev. Date: N-UT-5 4-4-83
...ock Type/No.: ...-7531WA OC	S.U. Cable Type/Length: BNC/BNC BKUMPP 6ft		Couplant Type/Visc.: Ultragel II #8226		Exam.Proc/Rev. Date: N-UT-5 4-4-83

...strument: Nortec-131-D		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
...rial No. 271	Search Unit	Gamma Aerotech		Gamma Aerotech			1505 cal(s) MCT
...j. Damp. ...FF OFF	Serial No.	011949		A2073B			1522 OUT(S) MCT
...p. Rate 1000	S.U. Size	3/4"φ		1/2"φ			
...lter +	S.U. Freq.	2.25		2.25			
...mp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/Mode	0° Long		70° nom Shear			
...sic Ref. Level, Amp. (% Screen)/Db		70% 49db		80% 63db			
...an Sensitivity, Db		49db		77db			
...reen Distance, in.		2.5"		5.0"			
...rib. Blocks, Type/No.		Base Metal		IIW-2 OC			

...ise, Linearity, and Resolution Verification ✓

... 6180-F1-13-007 ...BN Weld ...ent. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
-3	153'	FP	Butt	3/4	12½		NRI		B/70/NRI	
-4	153'	FP	Butt	3/4	12½		NRI		A/70/NRI	

FOR INFORMATION ONLY

Re-Exam/Repair L

...tinuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

WELD INSPECTION SHEET

CONN. NO. BIJ

WELD NO. 3 * WELD PROC. SPEC(S) USED ____ LOC COORD. 1+2 & S4

DRAWING 6150-F1-13-007 A WPS-19/CCP-5-A UNIT 1 ELEV. 153

INSPECTOR RJB TYPE OF WELDING ELECTRODE PIECE 5006 TO Existing Steel

DATE 4-13-83 USED E7018 INITIATING DOC. CC194 A

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
CJ		Edge preparation	NA		Rod heat #
RJB		Fit-up	NA		Rod diameter
NA		N.D.E. (where applicabe	NA		Fit-up
Material		~~CWG50115C~~ CWG51180 RJB 4-13-83	NA		Welder I.D.
P.O.SHT#		HT 624-877	NA		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 2H3	RJB		Rod heat # 2H3
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
NA		N.D.E. type			N.D.E. type
RJB		Welder I.D. PX	RJB		Welder
RJB		Preheat 150°	RJB		NDE Required

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT

Ref NCR

ADDITIONAL REMARKS: C S1H6TA - PX

REF NCR 5533XR-60A REWELDED DEFECTIVE AREA

THIS WAS DONE AGAIN BEACUSE NOT FOUND ... MORE

B+D AREAS ... WAS DONE RJB 6-29-83

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE ________ Q.C. INSPECTOR ________

REV 3-31-83

75

BN RJB 4-11-83

WELD INSPECTION SHEET

... NO. ~~BAA~~

WELD NO. 3 WELD PROC. SPEC(S) USED ... COORD. S9 & 14

DRAWING 6180-FL-B007 WPS-19 / QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO Existing Steel

DATE 4-9-83 USED E7018 INITIATING DOC. 6180

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	...
RJB		Edge preparation	NA		
RJB		Fit-up	NA		
NA		N.D.E. (where applicabe	N		
Material		CW051180	NA		
P.O.&HT#		HT 624877	NA		

NDE Required
NCR 8833XR-60

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 3WF2	RJB		Rod heat # 3WF2
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type		RJB	N.D.E. type *
RJB		Welder I.D. PX	RJB		Welder I.D. Px
RJB		Preheat 50°	RJB		Preheat 50°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☑ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☑ N/A

ADDITIONAL REMARKS: C SHIOTA PX REF NCR 8833XR-60

WELD BACK gouged OUT AND All DEFECTIVE AREA REMOVED AND REPLACED

* SEE ~~... DATED 4-13-83~~ ... FOR NEW REWORK RJB

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected ... D1.1 and The Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE 4-17-83 Q.C. INSPECTOR Robert J Bancroft

HPF ... 3-31-83

ULTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD N-UT-5 Rev 0

GENERAL				Date 4-5-83	Ref. Dwg. No. 6180-F1-13-001 Rev.10
Plant Diablo Canyon	Unit 1	Component Seismic Mods	Location Fuel Handling Bldg		Cal. Proc/Rev. Date N-UT-5 4/4/83
Block Type/No. IIW-2 and DC	S.U. Cable Type/Length BNC-Mdot / BNC-BNC 6ft		Couplant Type/Visc. Ultragel II #8226		Exam.Proc/Rev. Date N-UT-5 4/4/83

Instrument Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1500 D.J.
Rej. off Damp. off	Serial No.	D11949		A20738			1510 D.J.
Rep. Rate 1K	S.U. Size	3/4" ϕ		1/2" ϕ			1540 D.J.
Filter (+)	S.U. Freq.	2.25		2.25			1603 D.J.
Temp. not applicable	Wedge Type	none		Lucite			
	Beam Angle/ Mode	Contact 0° Longitud.		70° shear			
Basic Ref. Level, Amp. (% Screen)/Db		75% 42db		59db 80%			
Scan Sensitivity, Db		42db		73db			
Screen Distance, in.		2 1/2"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 IIW-2-783168			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-007

EN Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI Straight Beam Face a or b	Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
EN-3							NRI		A/70°/RI	1
EN-3							NRI		A/70°/RI	2
EN-3							NRI		A/70°/RI	3
EN-4							NRI		A/70°/RI	4
									B	

FOR INFORMATION ONLY

Continuation Sheets	Cal By: [signature] II Level	Exam By: [signature] II Level	Data Reviewed By: Level

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

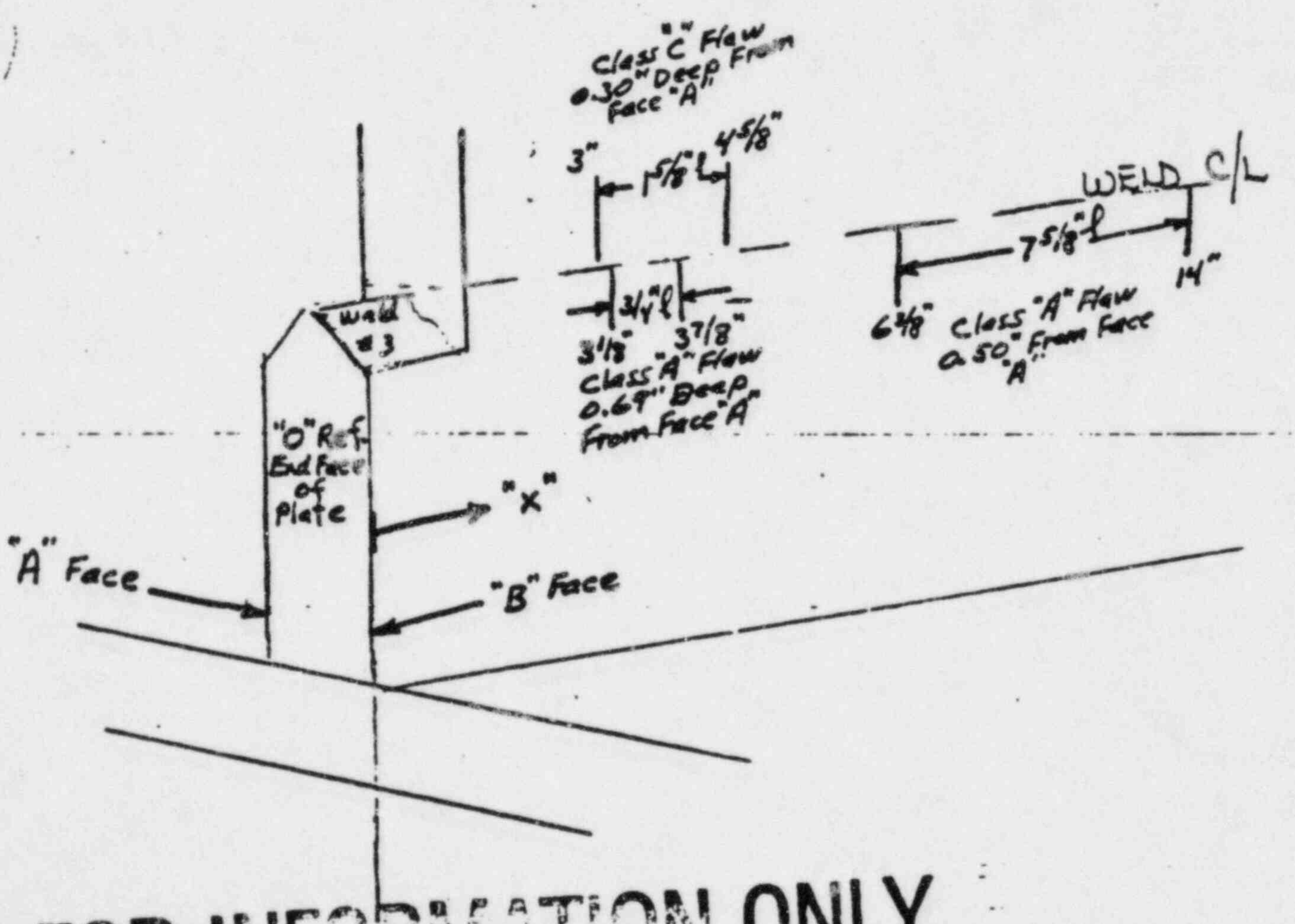
Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level a	Decibels: Reference Level b	Decibels: Attenuation Factor c	Decibels: Indication Rating d	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70°	\	60	59	2	-1	3 1/8 3 7/8	A	2.06	0.69	A	3 3/8	2.0			EN-3
2	70°	\	66	59	0	7	3.0 4 5/8	C	0.94	0.80	A	3 7/8	1.0			EN-3
3	70°	\	61	59	1	1	6 3/8 14.0	A	1.5	0.50	A	12 3/4	1 3/4			EN-3
4	70°	\	63	59	0	4	0.0 14.0	A	0.94	0.31	B	11 7/8	1.0			EN-4

710

Date 4/5/83

Package No. EN-3

Detail Drawing No. 6180-F1-13-007

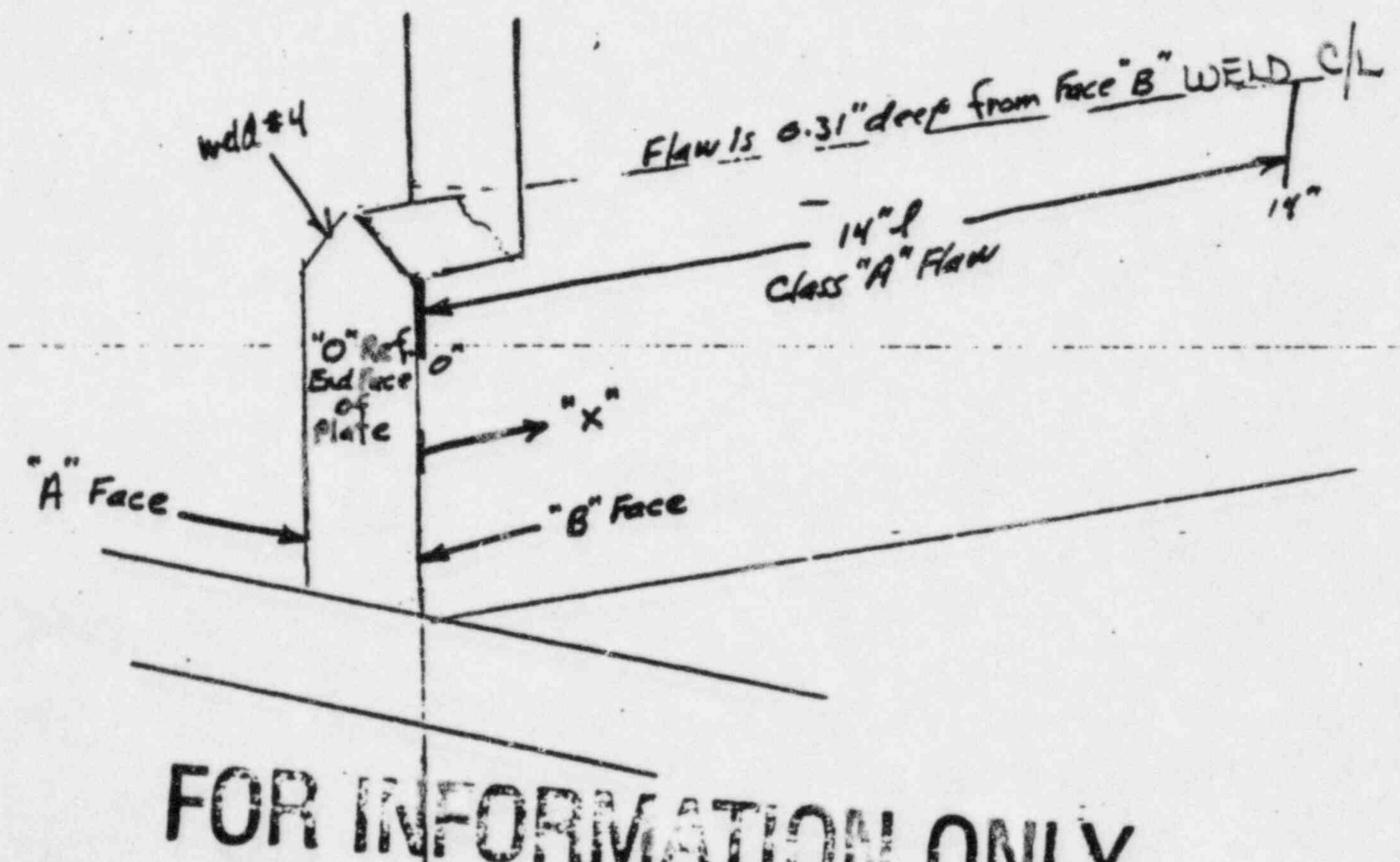


K-5

Date 4/5/83

Package No. EN-4

Detail Drawing No. 6180-F1-13-007



FOR INFORMATION ONLY

CONN. EN R/5 WELD INSPECTION SHEET

FUEL HANDLING

WELD NO.: 3 & 4 WELD PROC. SPEC(S) USED ____ LOC/COORD 12' & V'

DRAWING: 6180-F1-13-007R/5 WPS-19 QCP-5A UNIT 1 ELEV. 153'

INSPECTOR: JIM MICHEL TYPE OF WELDING ELECTRODE PIECE E006 TO D006

DATE: 2-7-83 USED E-7018 INITIATING DOC.: C-6180 R/1

ACPT	RJCT	EDGE PREP AND FITUP 2-7-83
JM		edge preparation
JM		fitup
N/A	N/A	N.D.E. (where applicable)

ACPT	RJCT	TACKING 2-7-83
JM		Rod heat # 32807
JM		Rod diameter 1/8
JM		Fitup
JM		Welder ID N3
JM		Preheat 50°

ACPT	RJCT	ROOT PASS INSPECTION 2-8-83
JM		Rod heat # 32809
JM		Rod diameter 1/8
JM		Visual inspection
N/A	N/A	N.D.E. type
JM		Welder ID N3
JM		Preheat 50°

ACPT	RJCT	FINAL PASS INSPECTION 2-11-83
JM		Rod heat # 32809
JM		Rod diameter 1/8
JM		Visual inspection
N/A	N/A	N.D.E. type
JM		Welder ID N3
JM		Preheat 50°

MULTIPASS 10% INSPECTION ☒ ACCEPT ☐ REJECT ☐ N/A

MATERIAL P.O. or HEAT NUMBER HT# 314-0646 MK E006

ADDITIONAL REMARKS: WELDER - FREEMAN - N3

CONNECTION EN REV. 5

HT# (D006) 3250653

INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and the Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE: 2-11-83 ... Q.C. INSPECTOR

FOR INFORMATION ONLY

HPF-W13 12/10/82

Q.C. CLERICAL ____

ASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD Rev 0 Page 1 of 1

GENERAL			Date 9-16-83	Ref. Dwg. No. 6180-F1-73-001
lant DCPP	Unit 1	Component SEISMIC MODS	Location FUEL HANDLING BLDG	Cal. Proc/Rev. Date N-UT-5 4-4-83
lock Type/No. IWZ-783168DC	S.U. Cable Type/Length BNC-MDOT / BNC-BNC 6'		Couplant Type/Visc. ULTRAGEL II #8226	Exam.Proc/Rev. Date N-UT-5 4-4-83

nstrument NORTEC 131-D		Straight Beam	Straight Beam	Angle Beam 70°/LOM	Angle Beam	Angle Beam	Cal. Checks Time/Initials
erial No. 271	Search Unit	AEROTECH GAMMA		AEROTECH GAMMA			9:53 [illegible] in(S)
ej. Damp. FF OFF	Serial No.	D11949		A20758			10:15 [illegible] out(S)
ep. Rate 1K	S.U. Size	3/4"φ		1/2"φ			
ilter +	S.U. Freq.	2.25 MHZ		2.25MHZ			
emp. N/A	Wedge Type	NONE		LUCITE			
	Beam Angle/ Mode	0° Long		70° MEAS SHEAR			
asic Ref. Level, Amp. (% Screen)/Db				80% 63DB			
can Sensitivity, Db				77DB			
creen Distance, in.		2.5"		5.0"			
alib. Blocks, Type/No.		BASE METAL		DC-IWZ783168			

oise, Linearity, and Resolution Verification [✓]

6180-F1-13-007 EN Weld dent. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI Straight Beam Face a or b	Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
EN-4	153'	FP	BUTT	3/4"	12 1/2	N/A			A70°/NRI	
EN-3	153'	FP	BUTT	3/4"	12 1/2	N/A			B70°/NRI	

FOR INFORMATION ONLY

Re-exam/Repair 1

ontinuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By: Level

82

WELD INSPECTION SHEET

CONN. NO. EN

WELD NO. 3 WELD PROC. SPEC.(S) USED ____ LOC/COORD. 12± & V±

DRAWING 6180-F-13-007 (7) WPS-19 / QCP-SA UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-13-83 USED E7018 INITIATING DOC. C6180 (1)

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicabe	N/A		Fit-up
* Material P.O.&HT#		~~RJB 4-14-83~~ HT 314-0646	N/A		Welder I.D.
			N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 2H3	RJB		Rod heat # 2H3
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. BE	RJ[illegible]		Welder I.D. BE
RJB		Preheat 150°	R[illegible]		150°

Ref NCR

requires NDE

MULTIPASS 100% INSPECTION ☐ ACCEPT

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☒ N/A

ADDITIONAL REMARKS: DON SAVORY - B (ON OLD W.I.S)

Removed old weld AND Replaced Ref N.C.R 8833XR-60 (1)

REF E.D.R 1008 REF Q.F.D.C. 1-257

Finished Final PASS ON 4-14-83 *(~~HEAT NO &~~ P/O NO. GROUND OFF) RJB 4-14-83

This is to certify that the [illegible] inspected per AWS D1.1 and The He[illegible] [illegible] to be acceptable.

FOR INFORMATION ONLY

DATE ________ Q.C. INSPECTOR ________________

HPF [illegible] 3-31-83

FOR INFORMATION ONLY

WELD INSPECTION SHEET

CONT. NO. EN

WELD NO. 3 * WELD PROC. SPEC(S) USED LOC/COORD. 12 ± & V ±

DRAWING 6180-F1-13-007 /7\ WPS-19 / QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-13-83 USED E7018 INITIATING DOC. C6180 /1\

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicabe	N/A		Fit-up
* Material P.O.SHT#		F0344-83 ~~Gui~~ H7 314-0646	N/A		Welder I.D.
			N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 2H3	RJB		Rod heat # 2H3
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. BE	RJ[illegible]		Welder I.D. BE
RJB		Preheat 150°	R[illegible]		150°

Ref NCR

requires NDE

MULTIPASS 10% INSPECTION ☐ ACCEPT

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☒ N/A

ADDITIONAL REMARKS: DON SPNORY - B [illegible] ON OLD W.I.S)

Removed old weld AND Replaced Ref N.C.R 5833XR-60 /1\

REF E.D.R - 1008 REF Q.F.D.C. 1-257 * #4 REPAIRED ALONG WITH #3 RJB 6-29-83

Finished FINAL PASS ON ~~4-14-83~~ * (~~HEAT NO.~~ P/O NO. GROUND OFF)

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures and have been found to be acceptable.

INFORMATION ONLY

DATE ______ Q.C. INSPECTOR ______

REF WIS 3-31-83

84

ULTRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD N-UT-5 Rev 0

GENERAL

Plant: Diablo Canyon	Unit: 1	Component: Seismic Mods	Location: Fuel Handling Bldg		Date 4-6-83	Ref. Dwg. No. 6180-F1-13-001 Rev.10
Block Type/No.: IIW-2 and DC	S.U. Cable Type/Length: BNC Mdot / BNC-BNC 6ft	Couplant Type/Visc.: Ultragel II #8226				Cal. Proc/Rev. Date: N-UT-5 4/4/83
						Exam.Proc/Rev. Date: N-UT-5 4/4/83

Instrument: Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom.	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			1025 (LW) DJ
Rej. off Damp. off	Serial No.	D11949		A20738			in 1037 (S) DJ
Rep. Rate 1K	S.U. Size	3/4" ⌀		1/2" ⌀			1107 DJ
Filter (+)	S.U. Freq.	2.25		2.25			1124 (LW) DJ
Temp. not applicable	Wedge Type	none		Lucite			1129 (S) in DJ
	Beam Angle/Mode	Contact 0° Longitud.		70° meas. shear			1143 out DJ
Basic Ref. Level, Amp. (% Screen)/Db		~~75%~~ 70% 43db		80% 59db			
Scan Sensitivity, Db		43db		73db			
Screen Distance, in.		2 1/2"		5"			
Calib. Blocks, Type/No.		Base Metal		DC-1 IIW-2-783168			

Noise, Linearity, and Resolution Verification ✓

6180-~~F1-~~ F1-13-~~001~~ 006

EO

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
EO-1	153'						A/NRI		A/70/RI	1
EO-2	153'						B/NRI		B/70/RI	2
EO-3	153'						NRI		A/70/RI	3
EO-4	153'						NRI		B/70/RI	4

FOR INFORMATION ONLY

Continuation Sheets	Cal By: Level II	Exam By: Level II	Data Reviewed By: Level

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level a	Decibels: Reference Level b	Decibels: Attenuation Factor c	Decibels: Indication Rating d	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70°	\	59	59	1	-1	3/4 12.0	A	1.3	0.42	A	5 1/4	1.0			EO-1
2	70°	\	53	59	0	-6	3/4 12.0	A	1.18	0.39	B	1 1/8	1.0		~~[illegible]~~	EO-2
3	70°	\	60	59	1	0	1 5/8 - 14.0	A	1.33	0.44	A	4 1/2	1.1			EO-3
4	70°	\	62	59	1	0	1 5/8 - 14.0	A	1.28	0.41	B	7 7/8	1.1			EO-4

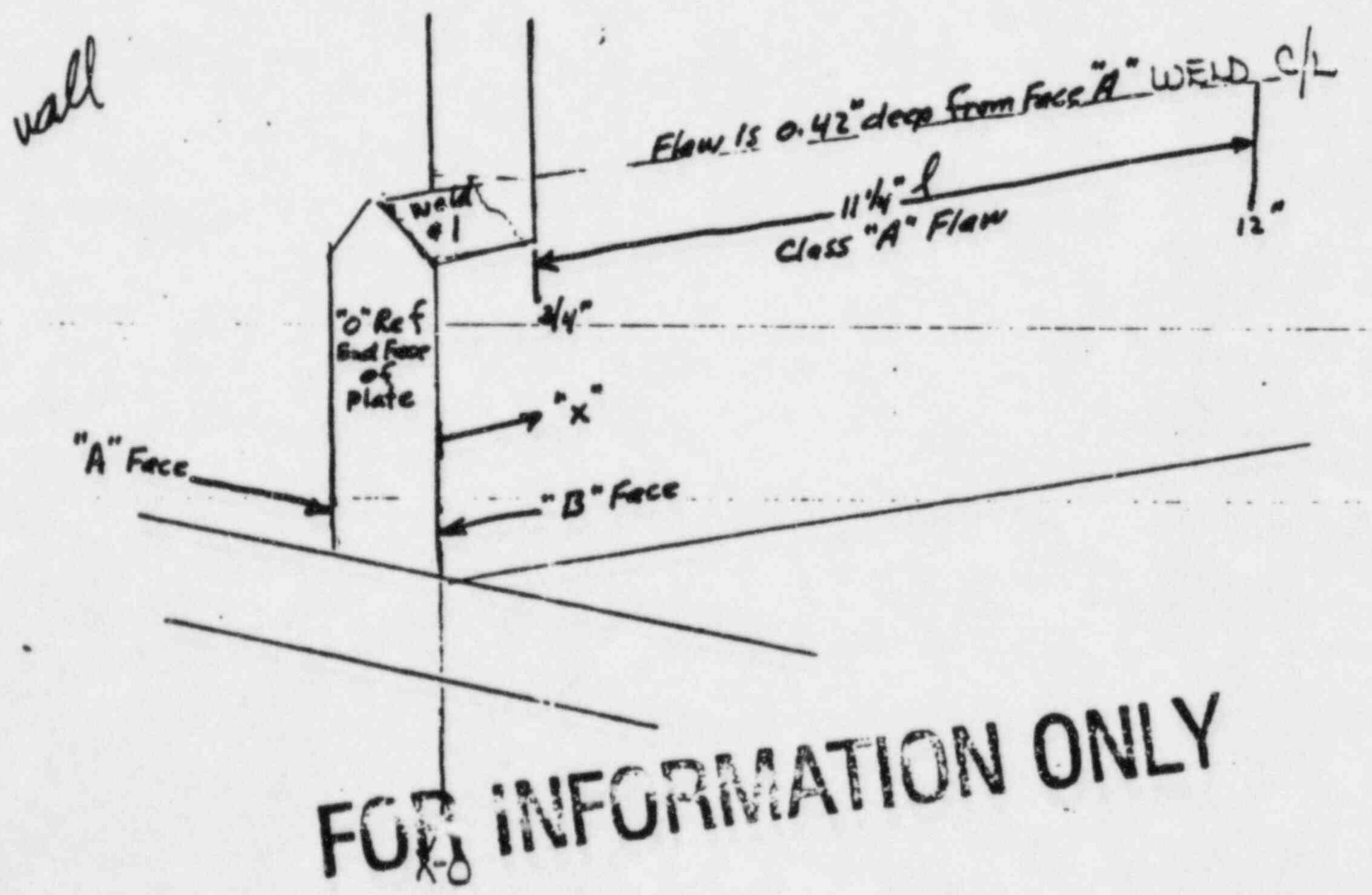
FOR INFORMATION ONLY

[illegible] 4/6/83. 86

Date 4-6-83

Package No. EO-1 ~~2, 3, 4~~

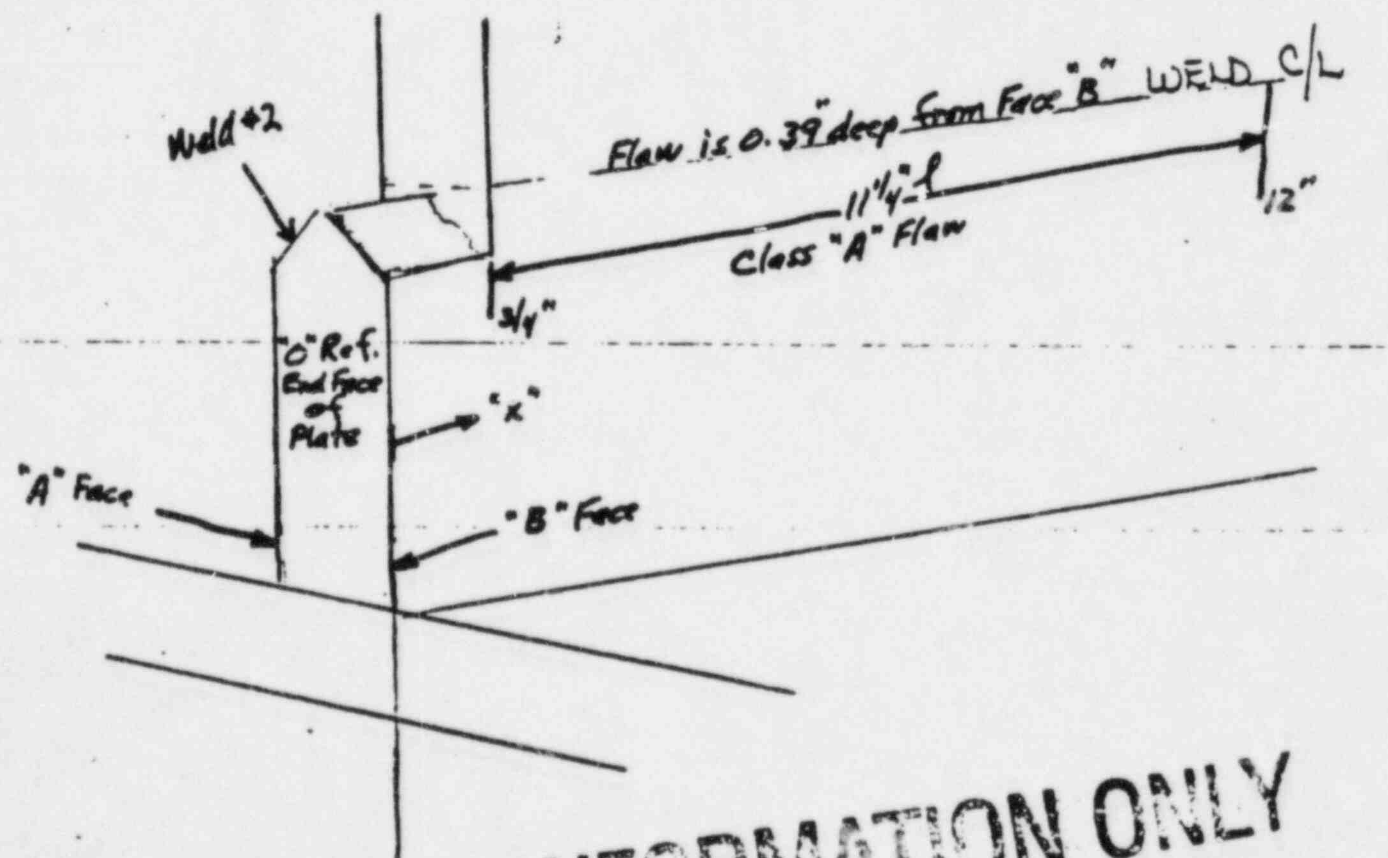
Detail Drawing No. 6180-F1-13-006



Date 4-6-83

Package No. EO-2

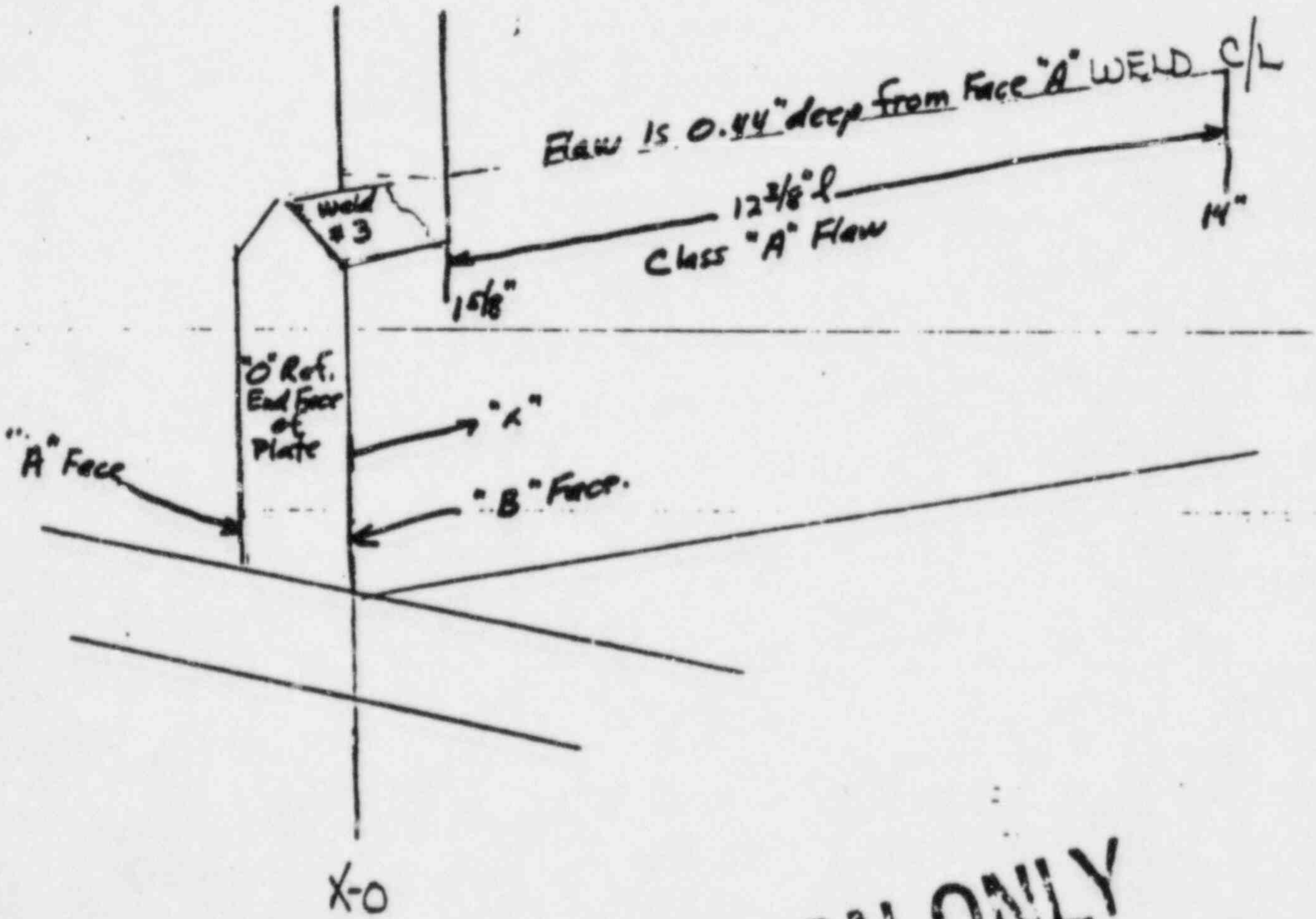
Detail Drawing No. 6180-F1-13-006



Date 4/6/83

Package No. EO-3

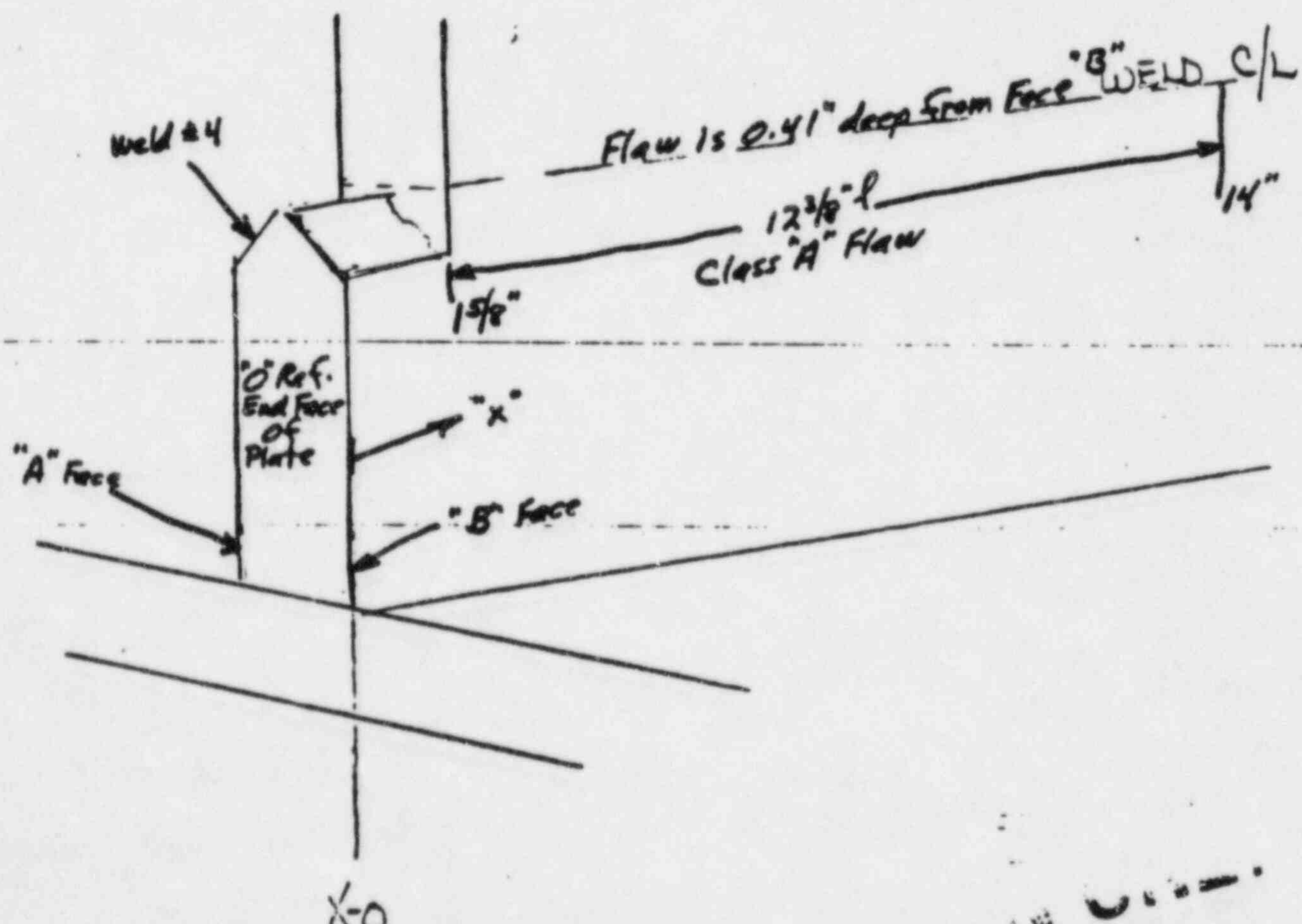
Detail Drawing No. 6180-E1-13-006



Date 4/6/83

Package No. EO-4

Detail Drawing No. 6180-E1-13-006



WELD INSPECTION SHEET

WELD NO. COMM EO 4,2 WELD PROC. SPEC'S) USED ____ LOC/COORD V' 12[8]

DRAWING: 6180 F1-12-006 A WPS19 QCPSA UNIT I ELEV. 153'-7

INSPECTOR: Roger D. Meek TYPE OF WELDING ELECTRODE PIECE E006 TO D005'

DATE: 1.20.83 USED E7018 INITIATING DOC. ______

ACPT	RJCT	EDG PREP AND FITUP
RDM		edg preparation
RDM		fitup
RDM	NA	N.D.E. (where applicable)

ACPT	RJCT	TACKING
RDM		Rod heat # 32809
RDM		Rod diameter 1/8" Ø
RDM		Fitup
RDM		Welder ID D3
RDM		Preheat 50°

ACPT	RJCT	OOT PASS INSPECTION
RDM		Rod heat # 32809
RDM		Rod diameter 1/8"
RDM		Visual Inspection
NA	NA	N.D.E. type
RDM		Welder ID D3
RDM		Preheat 50°

ACPT	RJCT	FINAL PASS INSPECTION
RDM		Rod heat # 32809
RDM		Rod diameter 1/8" Ø
RDM		Visual Inspection
NA	NA	N.D.E. type
RDM		Welder ID D3
RDM		Preheat 50°

MULTIPASS 10% INSPECTION [X] ACCEPT [ ] REJECT [ ] N/A

MATERIAL P.O. or HEAT NUMBER HT# 624 877 (E006)

ADDITIONAL REMARKS: Welder: George STAEHLING D3

This is to certify that the above weld(s) have been inspected per AWS D1.1 and the Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE: 1.20.83 Q.C. INSPECTOR Roger D. Meek

REF/WIC 12/10/81

Q.C. CLERICAL ______

WELD INSPECTION SHEET

CONN. NO. E O

WELD NO. 4 WELD PROC. SPEC(S) USED ____ LOC/COORD. 12 & V-1

DRAWING 6180-FH3-006 2 WPS-19 / QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-8-83 USED E7018 INITIATING DOC. C6180 1

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicabe	N/A		Fit-up
Material P.O.SHT#		CW 050850	N/A		Welder I.D.
		H7 3140646	N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 3WF2	RJB		Rod heat # 3WF2
RJB		Rod diameter 1/8"	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. BE	RJB		Welder I.D. BE
RJB		Preheat 50°	RJB		Preheat 50°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☑ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☑ N/A

ADDITIONAL REMARKS: DON SAVORY / BE

REF NCR 8833XR-60 1

WELD COMPLETELY REMOVED AND REPLACED

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures and have been found to be acceptable.

FOR INFORMATION ONLY

DATE ____________ Q.C. INSPECTOR ____________

HPF WIS 3-31-83

92

CONN. EO R/5 — D INSPECTION SHEET

FUEL HANDLING

WELD NO.: 3, 4 WELD PROC. SPEC(S) USED ____ LOC/COORD 12⁸ s V'

DRAWING: 6180-F1-13-006 R/5 WPS 19 QCP-5A UNIT 1 ELEV. 153'

INSPECTOR: JIM MICHEL TYPE OF WELDING ELECTRODE PIECE E006 TO D006-2

DATE: 3-3-83 USED E-7018 INITIATING DOC. C-6180

ACPT	RJCT	EDGE PREP AND FITUP 3-3-83
Jm		edge preparation
Jm		fitup
N/A	N/A	N.D.E. (where applicable)

ACPT	RJCT	TACKING 3-4-83
Jm		Rod heat # 20993
Jm		Rod diameter 1/8
Jm		Fitup
Jm		Welder ID K6
Jm		Preheat 50°

ACPT	RJCT	ROOT PASS INSPECTION 3-4-83
Jm		Rod heat # 20993
Jm		Rod diameter 1/8
Jm		Visual Inspection
N/A	N/A	N.D.E. type
Jm		Welder ID K6
Jm		Preheat 50°

ACPT	RJCT	FINAL PASS INSPECTION 3-4-83
Jm		Rod heat # 20993
JM		Rod diameter 1/8
Jm		Visual Inspection
N/A	N/A	N.D.E. type
Jm		Welder ID K6
Jm		Preheat 50°

MULTIPASS 10% INSPECTION [X] ACCEPT [ ] REJECT [ ] N/A

MATERIAL P.O. or HEAT NUMBER HT# 3140646 (MK E006) HT# 3250653 (MK-D006-2)

ADDITIONAL REMARKS: WELDER MEL GRIGGS K6

CONN. EO R/5

P.T. REPORT FOR NCE/BD 3933 XR5 ACCEPTABLE

INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per ASME and the Howard P. Foley Company quality procedures and have been found to be acceptable.

FOR INFORMATION ONLY

DATE: 3-4-83 Q.C. INSPECTOR Jim Michel

HPF/WIS 12/10/81

Q.C. CLERICAL ____

N-4 1-5
Rev. 0

TRASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL

Date: 4-13-83	Ref. Dwg. No.: 6180-F1-13-001				
Plant: DCPP	Unit: 1	Component: seismic Mods.	Location: Fuel Hand Bldg	Cal. Proc/Rev. Date: N-UT-5 4-4-83	
Block Type/No.: 11W-2,783168 DC	S.U. Cable Type/Length: BNC mdt / BNC BNC 6ft	Couplant Type/Visc.: Ultragel II 8226	Exam.Proc/Rev. Date: N-UT-5 4-4-83		

Instrument: Nortec 131D		Straight Beam	Straight Beam	Angle Beam 70° nom	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 271	Search Unit			Acrotech Gamma			0933 (S) MCT
Rej. off Damp. off	Serial No.			A20738			1001 (S) MCT
Rep. Rate 1K	S.U. Size			1/2" d			
Filter (+)	S.U. Freq.			2.25			
Temp. N/A	Wedge Type			Lucite			
	Beam Angle/Mode			70° meas shear			
Basic Ref. Level, Amp. (% Screen)/Db				80% 66db			
Scan Sensitivity, Db				80db			
Screen Distance, in.				5.0"			
Calib. Blocks, Type/No.				DC 11W-2,783168			

Noise, Linearity, and Resolution Verification ✓

6180-13-F1-006
EO

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
0-3	157'	FP	Butt	3/4					MCT A [illegible]/70 / RI	1
0-4	153'	FP	Butt	3/4					B [illegible]/70 / RI MCT	3

RE-EXAM/REPAIR 1

Continuation Sheets	Cal By: [signature] Level II	Exam By: [signature] Level II	Data Reviewed By:	Level

94

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level a	Decibels: Reference Level b	Decibels: Attenuation Factor c	Decibels: Indication Rating d	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Distance: Scan Face	Distance: X	Distance: Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70	/	64	66	0	-2	3/8	A	1.0	.36	A	6 1/8 6 1/2	11/16	RI		EO-3
2	70	/	69	66	3	0	1/2	A	2.26	.75	A	10 3/8 10 7/8	1 3/4	NRI		EO-3
3	70	/	70	66	1	3	3/8	A	1.5	.49	B	10 3/8 11.0	1 1/4	RI		EO-4
4	70	/	74	66	1	7	3/8	C	1.35	.44	B	7 1/4 7 5/8	1 3/8	NRI		EO-4

FOR INFORMATION ONLY

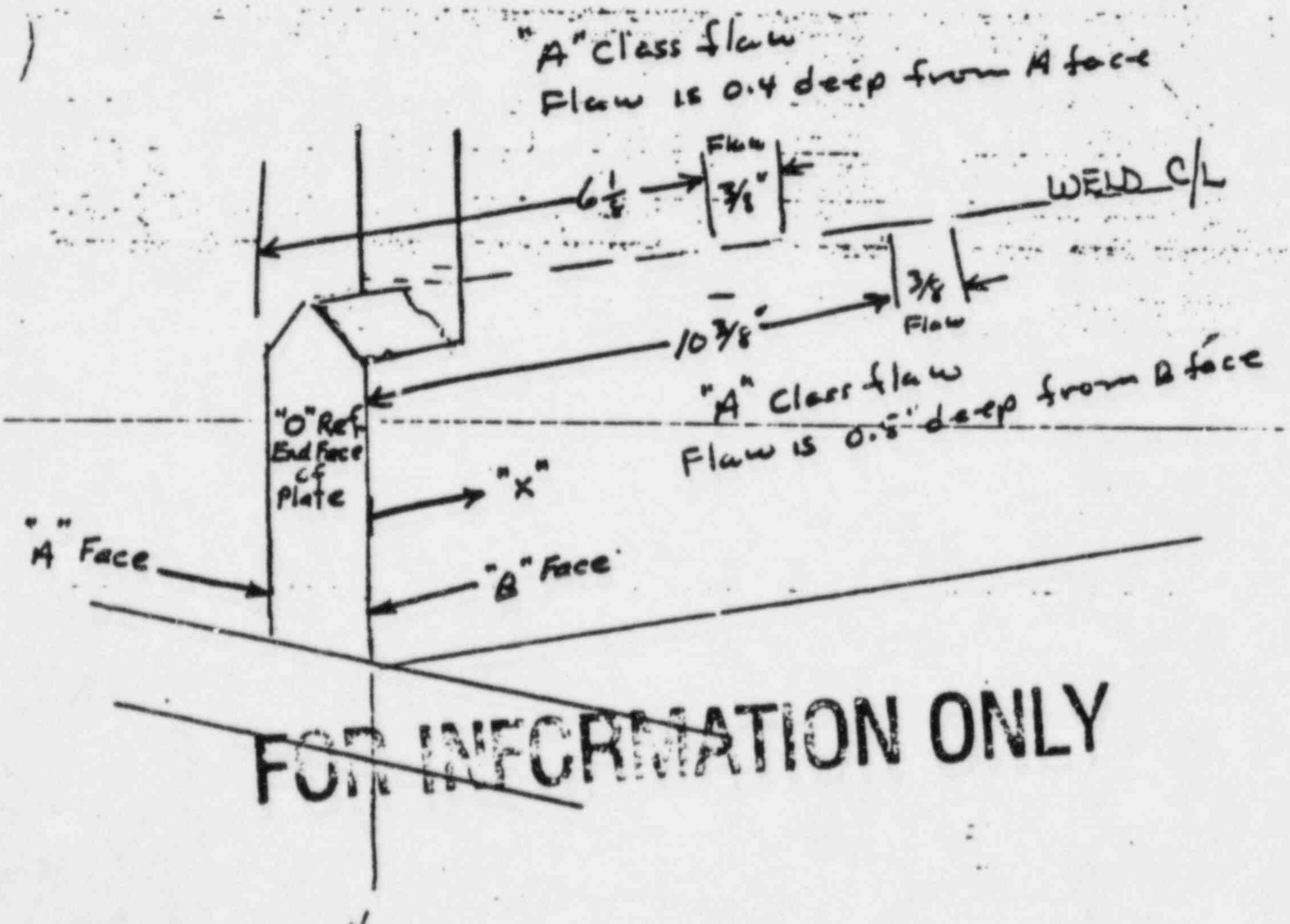
4-13-83

95

Date 4-13-83

Package No. EO

Detail Drawing No. 6180-F1-13-006



FOR INFORMATION ONLY

96

RASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL			Date 4-19-83	Ref. Dwg. No. 6180-F2-13-002 rev 9
Plant DCPP	Unit 1	Component Seismic Mods	Location Fuel Handling Bldg.	Cal. Proc/Rev. Date N-UT-5 4-4-83
Block Type/No. DC-NWE-783168	S.U. Cable Type/Length BNC-Most/BNC-BNC 6'		Couplant Type/Visc.	Exam.Proc/Rev. Date N-UT-5 4-4-83

Instrument NORTEC 131-D		Straight Beam	Straight Beam	Angle Beam 70° NOM	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			8:40 (L)
Rej. OFF Damp. OFF	Serial No.	D11949		A20738			8:20 (S)
Rep. Rate 1K	S.U. Size	3/4" ⌀		1/2" ⌀			8:35 (S)
Filter +	S.U. Freq.	2.25 MHz		2.25 MHz			
Temp. N/A	Wedge Type	NONE		Lucite			
	Beam Angle/ Mode	0° Longitud		69° Meas Shear			
Basic Ref. Level, Amp. (% Screen)/Db		70% 42DB		80% 57DB			
Scan Sensitivity, Db		42 DB		71 DB			
Screen Distance, in.		2.5"		5.0"			
Calib. Blocks, Type/No.		Base Metal		DC-NWE			
Noise, Linearity, and Resolution Verification ✓							

6180-F1-13-0076

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
E-0-1	153'	FP	Butt	3/4"	12"		NRI		B70°/RI	1
E-0-2	153'	FP	Butt	3/4"	12"		NRI		A70°/NRI	

REPAIR EXAM. No. 1

FOR INFORMATION ONLY

Continuation Sheets	Cal By: Level II	Exam By: Level II	Data Reviewed By: Level

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

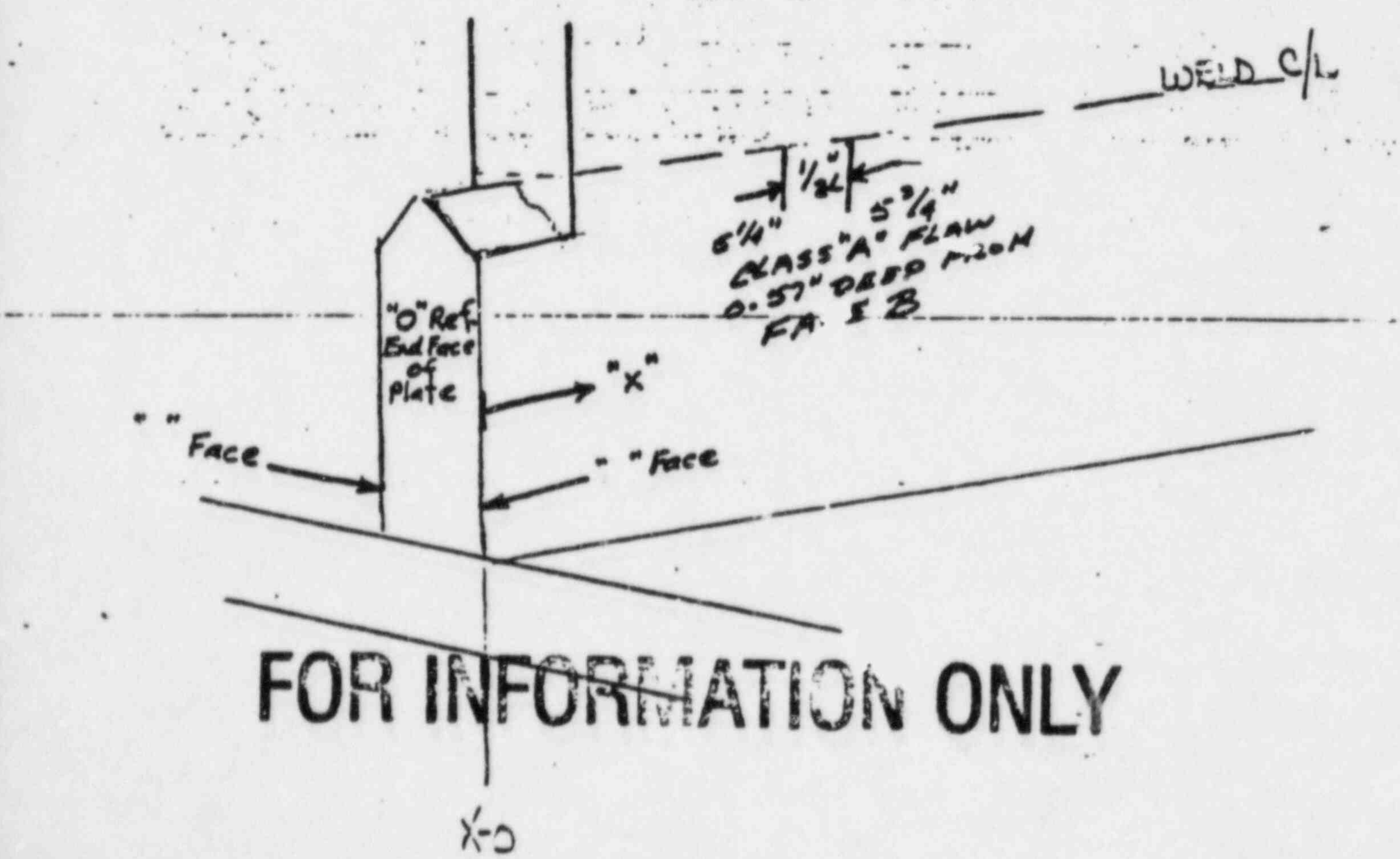
Transducer Angle	Path, V. W. etc.	Decibels				Defect (see Figure 11)					Distance		Discontinuity Evaluation	~~Zone No.~~ [illegible]	Remarks Including Weld No., Dwg. No., Sketch No.
		Indication Level a	Reference Level b	Attenuation Factor c	Indication Rating d	Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	X	Y			
70°	1	62	57	1	+4	5 1/4 5 3/4	A	1.74	.51	B	5 1/2"	1"		1/2	E-0-1

FOR INFORMATION ONLY

Date 4-19-83

Package No. EO

Detail Drawing No. 6180-F1-13-0



N-4 1-5
Rev 0

RASONIC EXAMINATION OF GROOVE WELDS EXAMINATION RECORD

GENERAL				Date 4-17-83	Ref. Dwg. No. 6180-F1-13-001
Plant DCPP	Unit 1	Component Seismic Mods	Location Fuel Handling Bldg		Cal. Proc/Rev. Date N-UT-5 4-4-83
Block Type/No. IIW-2 783170 DC	S.U. Cable Type/Length BNC-BNC BNC-MDOT 6ft		Couplant/Type/Visc. Ultragel II #8226		Exam. Proc/Rev. Date N-UT-5 4-4-83

Instrument		Straight Beam	Straight Beam	Angle Beam	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Nortec 131-D				70° nom			
Serial No. 276	Search Unit	Aerotech Gamma		Aerotech Gamma			15:49 (in) GMET
Rej. OFF Damp. OFF	Serial No.	D11952		F05943			1559 out GMET
Rep. Rate 1000	S.U. Size	3/4" ϕ		1/2" ϕ			
Filter +	S.U. Freq.	2.25		2.25			
Temp. N/A	Wedge Type	N/A		Lucite			
	Beam Angle/ Mode	0° Long		70° meas shear			
Basic Ref. Level, Amp. (% Screen)/Db		70% 49db		80% 58db			
Scan Sensitivity, Db		49db		72db			
Screen Distance, in.		2.5"		5.0"			
Calib. Blocks, Type/No.		Base Metal		IIW-2 DC			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-006
EO

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Examination Results NRI or RI: Straight Beam Face a or b	Straight Beam Face c	Angle Beam Face/Angle/ Result	Indication Number (Corresp. to Rept. of Ind.)
-3	153'	FP	B, T	3/4	12½		NRI		B/70/NRI	
-4	153'	FP	B, T	3/4	12½		NRI		A/70/NRI	

Re-exam/Repair 2

Continuation Sheets	Cal By: Level	Exam By: Level	Data Reviewed By: Level

FOR INFORMATION ONLY

100

GENERAL

Plant	Unit	Component	Location	Date	Ref. Dwg. No. REV-10
DCPP	1	SEISMIC MODS	FUEL HANDLING BLDG.	4-22-83	6180-F1-13-001

Block Type/No.	S.U. Cable Type/Length	Couplant Type/Visc.	Cal. Proc/Rev. Date	Exam.Proc/Rev. Date
DC-HWC-783169	BNC-MDOT/BNC-BNC 6	ULTRAGEL II 8226	N-UT-5/0 4-4-83	N-UT-5/0 4-4-83

Instrument NORTEC-131-D		Straight Beam	Straight Beam	Angle Beam 70° NOM	Angle Beam	Angle Beam	Cal. Checks Time/Initials
Serial No. 276	Search Unit	AEROTECH GAMMA		AEROTECH GAMMA			14:00 (I)
Rej. Damp. OFF OFF	Serial No.	D11952		E05943			14:15 (S)
Rep. Rate 1K	S.U. Size	3/4" DIA		1/2" DIA			14:45 (S)
Filter +	S.U. Freq.	2.25 MHZ		2.25 MHZ			
Temp. N/A	Wedge Type	NONE		LUCITE			
	Beam Angle/Mode	0° LONGITUD		69° MEAS SHEAR			
Basic Ref. Level, Amp. (% Screen)/Db		70% 42 DB		80% 57 DB			
Scan Sensitivity, Db		42 DB		71 DB			
Screen Distance, in.		2.5"		5.0"			
Calib. Blocks, Type/No.		BASE METAL		DC HWC-783169			

Noise, Linearity, and Resolution Verification ✓

6180-F1-13-006 EO

Weld Ident. No.	Additional Ident. & Elev. (ft.)	Joint Type	Joint Conf.	T (in)	Weld Length	TF (in)	Straight Beam Face a or b AND	Straight Beam Face c	Angle Beam Face/Angle/Result	Indication Number (Corresp. to Rept. of Ind.)
F-0-1	153'	FP	BUTT	3/4"	12"		B/NRI		370°/NRI	1
F-0-2	153'	FP	BUTT	3/4"	12"		A/NRI		A70°/NRI	

Examination Results NRI or RI

RE EXAM. / REPAIR NO-2

FOR INFORMATION ONLY

Continuation Sheets	Cal By: [signature] Level	Exam By: [signature] Level II	Data Reviewed By: Level

101

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level (a)	Decibels: Reference Level (b)	Decibels: Attenuation Factor (c)	Decibels: Indication Rating (d)	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance X	Distance Y	Discontinuity Evaluation	~~Zone No.~~ LENGTH	Remarks Including Weld No., Dwg. No., Sketch No. EO
1	70°	/	63	57	3	-3	5 7/8 3 1/2	A	2.25	.75	3	5 1/4	1 1/2	NRI	3/8	E-0-1

NOTE: INDICATION NO-1 IS BASE METAL ON SIDE "A" AND CAN BE DAMPED ON SIDE "A" SURFACE.
STRAIGHT BEAM EXAM. OF AREA SHOWED SLIGHT TIME SHIFT ON THE BACK-WALL ECHO.

FOR INFORMATION ONLY

J.E. 102

PACIFIC GAS AND ELECTRIC COMPANY

GENERAL COMPUTATION SHEET

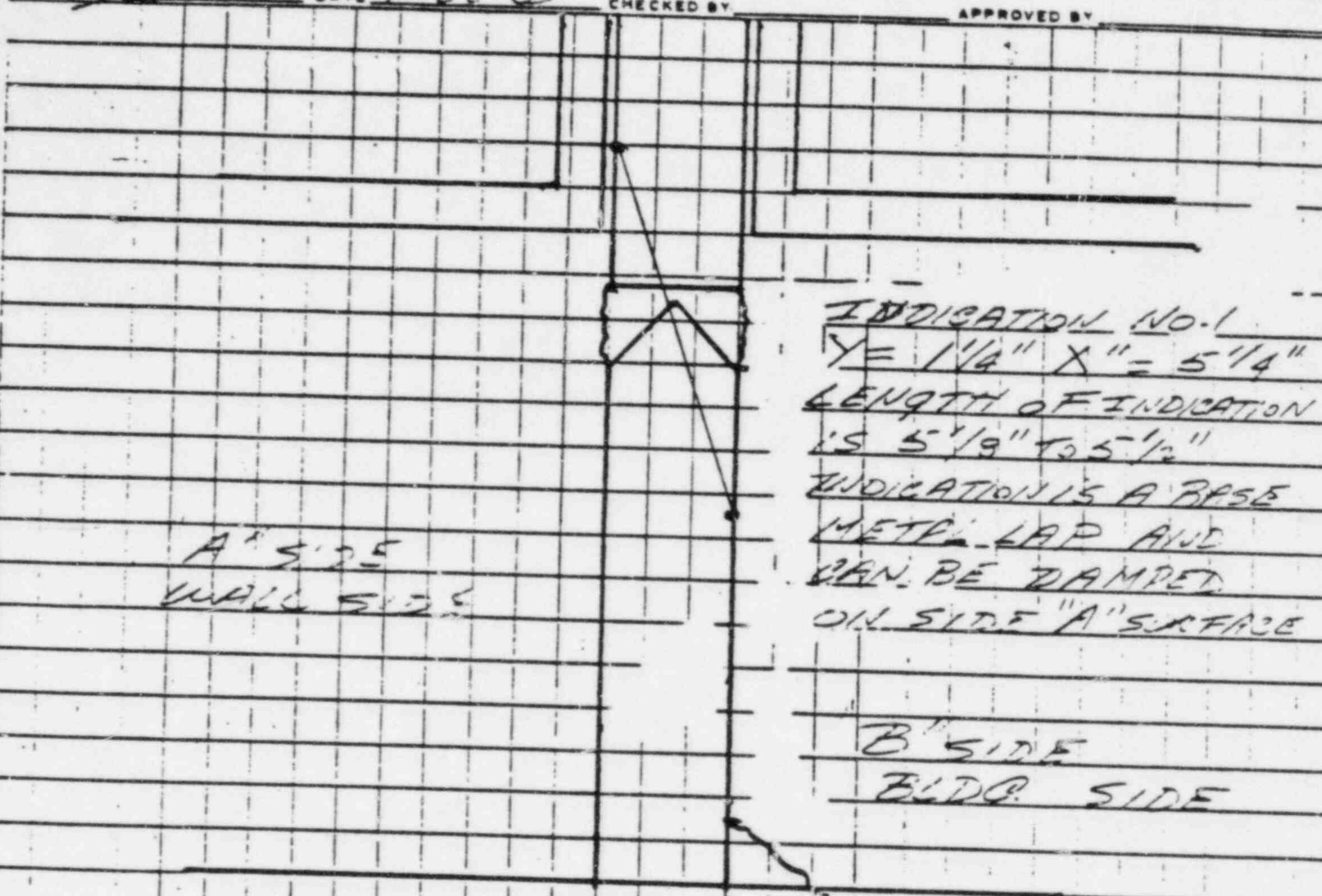
SHEET NO. 3 OF 3 SHEE

JOB FILE NO.

LOCATION

SUBJECT EO-1

MADE BY [signature] DATE 4-27-83 CHECKED BY APPROVED BY



FOR INFORMATION ONLY

103

WELD INSPECTION SHEET

CONN. NO. E O

WELD NO. 4 * WELD PROC. SPEC(S) USED ____ LOC/COORD. 12 8 ; V 1

DRAWING 6180-FHB-006 [7] WPS-19 / QCP-5A UNIT 1 ELEV. 153

INSPECTOR Bob Bancroft TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-8-83 USED E7018 INITIATING DOC. C6180 [1]

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	N/A		Rod heat #
RJB		Fit-up	N/A		Rod diameter
N/A		N.D.E. (where applicabe	N/A		Fit-up
Material		CW 050850	N/A		Welder I.D.
P.O.&HT#		H7 3140646	N/A		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 3WF2	RJB		Rod heat # 3WF2
RJB		Rod diameter 1/8"	RJB		Rod diameter 1/8
RJB		Visual Inspection	RJB		Visual Inspection
N/A		N.D.E. type			N.D.E. type
RJB		Welder I.D. BE	RJB		Welder I.D. BE
RJB		Preheat 50°	RJB		Preheat 50°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☑ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☑ N/A

ADDITIONAL REMARKS: DON SAVORY / BE

REF NCR 8833XR-60 [1] * #3 REPAIRED with #4 RJB 6-29-83

WELD completely REMOVED AND REPLACED

2ND REPAIR MADE PER QCP-5A & NCR# 8833XR-60 4/17/83 JM

This is to certify that the above weld(s) have been inspected in accordance with The Howard P. Foley Company Quality Procedures, and have been found acceptable.

FOR INFORMATION ONLY

DATE __________ Q.C. INSPECTOR __________

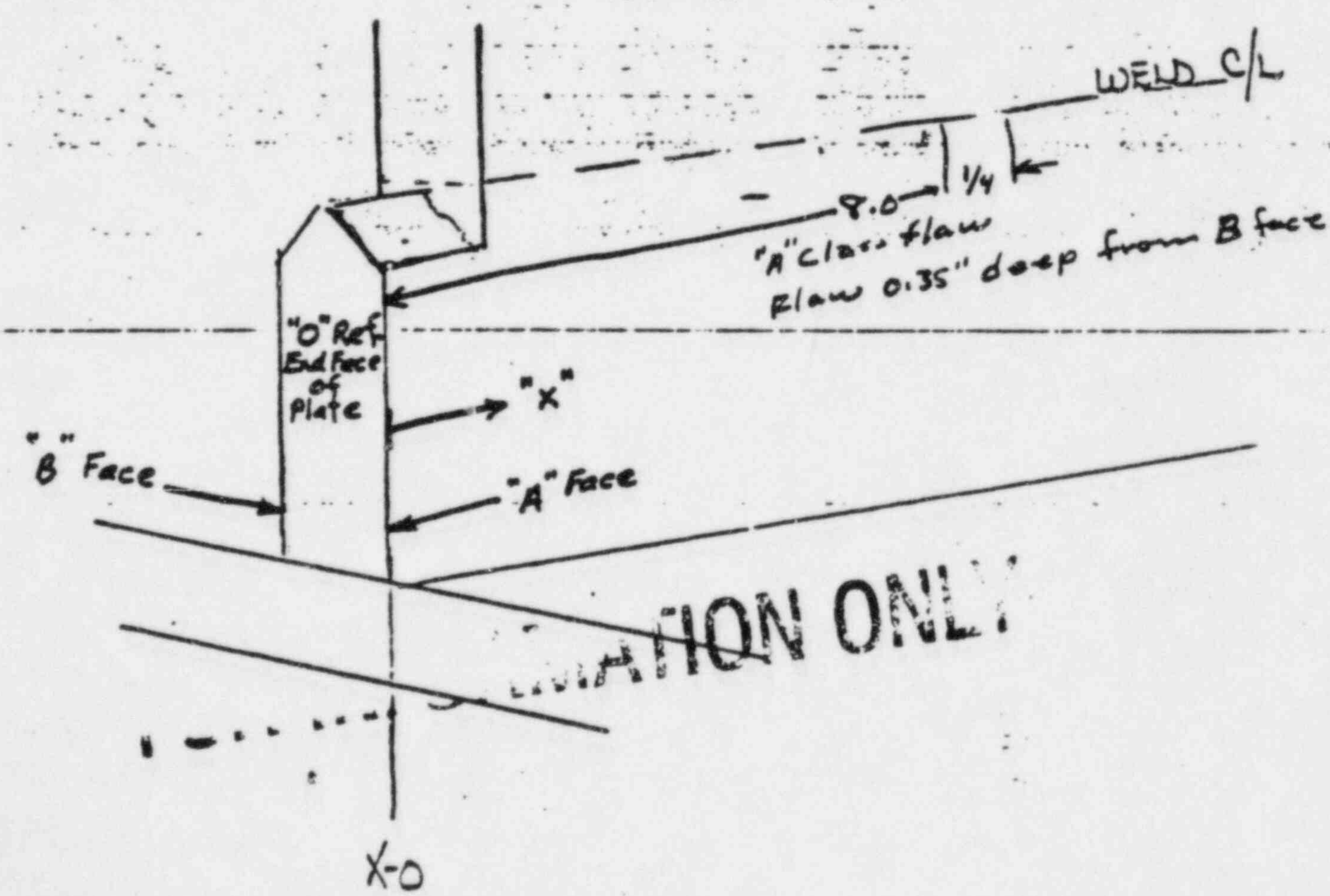
HPF VIII 3-31-83

104

Date 4-11-83

Package No. EQ

Detail Drawing No. 6180-F1-13-007



WELD INSPECTION SHEET

CONN. NO. EG

WELD NO. 4 WELD PROC. SPEC(S) USED ______ LOC/COORD. 14-7 & V-1

DRAWING 6180-FH3-006 △1 WPS-19 / QCP-5-A UNIT 1 ELEV. 15-3

INSPECTOR Bob BANCROFT TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-13-83 USED E7018 INITIATING DOC. C-6180 △1

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	NA		Rod heat #
RJB		Fit-up	NA		Rod diameter
NA		N.D.E. (where applicabe	NA		Fit-up
Material P.O.SHT#		CW 050950	NA		Welder I.D.
		HT 3140646	NA		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 2H3	RJB		Rod heat # 2H3 / 20531*
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8 / 3/32
RJB		Visual Inspection	RJB		Visual Inspection
NA		N.D.E. type			N.D.E. type
RJB		Welder I.D. W5	RJB		Welder I.D. W5
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 100% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: D. BAILENGER — W5 REF NCR 7833XR-60 △1
THIS WELD WAS MADE TO REPAIR DEFECT FOUND THRU NDE INSP. AND 2" EACH SIDE OF DEFECT WAS REMOVED AND REPLACED
(* 1 STICK USED AT TOP OF WELD ADJACENT TO CHANNEL)

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE ______________ Q.C. INSPECTOR ______________________

HPF VIS 3-31-83

FOR INFORMATION ONLY

INFORMATION ONLY

106

THE HOWARD P. FOLEY COMPANY

INDOCTRINATION AND TRAINING

DATE 4.30.83 TIME 8:00

PERSONNEL ATTENDING:
See attached

MEETING CONDUCTED BY: Andy Kridle

SUBJECTS PRESENTED:

1. QCP-5A, interpass cleaning and Backgouging.
2. 8833XR-60A
3.

REMARKS: Discussed: par. 7.5. Preheat and interpass temps par 8.10 Backgouging of full pen joints.

FOR INFORMATION ONLY

HPF/QI&T 12-7-82 REVIEWED BY R.A. Carter DATE: 4/30/83

THE HOWARD P. FOLEY COMPANY

TRAINING PROGRAM ATTENDANCE

LOCATION: F.H. DATE: 4-30-83

SUBJECT: OCPSA par 7.5, 8.10 TIME: 8:00

NAME	CLASSIFICATION	NAME	CLASSIFICATION
Don Page	E&O Foreman		
Joe C. Smith	T.W. Supt.		

FOR INFORMATION ONLY

12-7-82

H.P. FOLEY
QUICK FIX DESIGN CHANGE
FOR STRUCTURAL STEEL

QFDC NUMBER 1-257

SUBJECT Weld Repairs per NCR 8833XR-60 CLASS I

LOCATION Fuel Handling Bldg. Unit 1

DESCRIPTION: Reference EDR's No. 1008, and 819.

Problem: Due to problems of welding ~~channel~~ additional PL to connection PL as addressed on EDR 1008, welds cannot be made without fusing channels to PL's.

Solution: Remove all bolts holding existing C15's in place. Move C15's out of the way to make welds per NCR 8833 XR-60. Install new bolts and torque.

For Reference Only: This QFDC pertains to connections CN, EO, & BM

REFERENCE DRAWING 6180-F1-13-006 & -007 Rev.'s 7 (both dwg's)

ATTACHMENTS YES NO PAGES (INCLUDE THIS SHEET) 1

CONSTRUCTION MAY PROCEED David Collins DATE 4/13/83

PARTIES INVOLVED HPF Field Eng. Dennis Hurlbut DATE April 12, 1983

HPF PROD. FOREMAN Bill McCreery DATE 4-13-83

HPF-Q/C SUPERVISOR [signature] DATE 4-13-83

P.G.& E. QC INSPECTOR [signature] DATE 4/13/83

P.G.& E. PROJ. ENG. REV.: DATE

DISTRIBUTION:

Original - QCE
Copy - OPEG
- P.G.& E. QC Civil
- Production (1 "work copy", 1 "info only")
- HPF-E (1)
- Q/C (1)

WORK COPY

INFORMATION ONLY

109

CIVIL

UNIT I ☐

UNIT 2 ☐

Nº 1008

THE HOWARD P. FOLEY COMPANY

PRODUCTION ENGINEERING DEPT.

ENGINEERING DISPOSITION REQUEST

To F. M. Russell/P. Palomo Subject Repair per NCR 8833XR-60

From Dennis Humbert WR C-6180

Problem Reference EDR 819. Some full Penetration welds detailed on dwgs. 6180-F1-13-006 & 007 have defects and require repair per NCR 8833XR-60. Some of these welds that require repair are on plates that were raised in elevation per EDR 819. Repair of these welds will cause C15 to be fused to these EL'S & to existing WTs. Is this condition acceptable? If this condition is not acceptable, please advise on how to proceed.

Signed Dennis Humbert Date April 09 1983

Reply Not acceptable. Either insulate to prevent fusion to channels or loosen & spread [illegible] as required to prevent the fusion. Submit proposed method for approval.

Signed E H Gunter Date 4/11/83

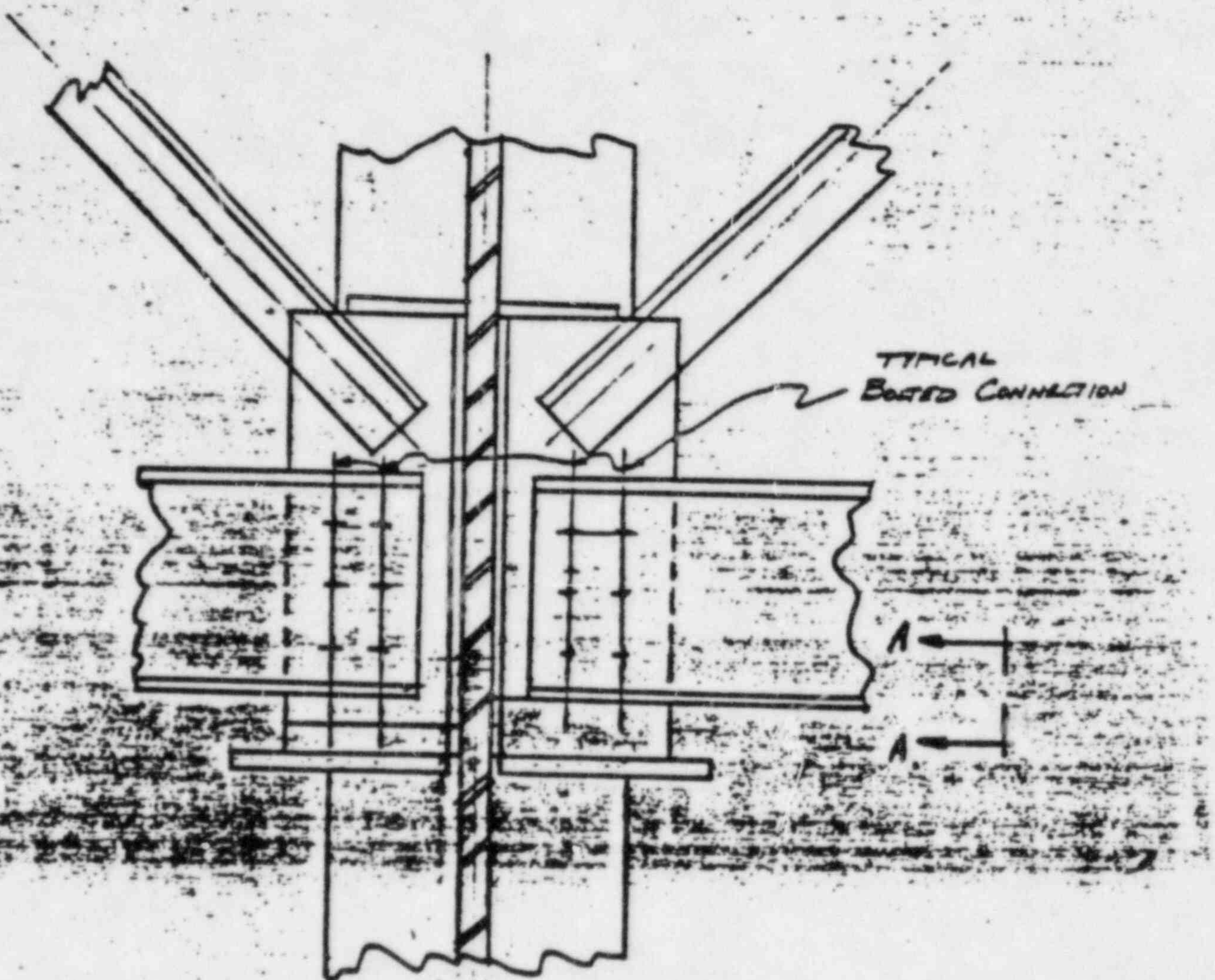
Forrest M. Russell 4-11-83

FOR INFORMATION ONLY

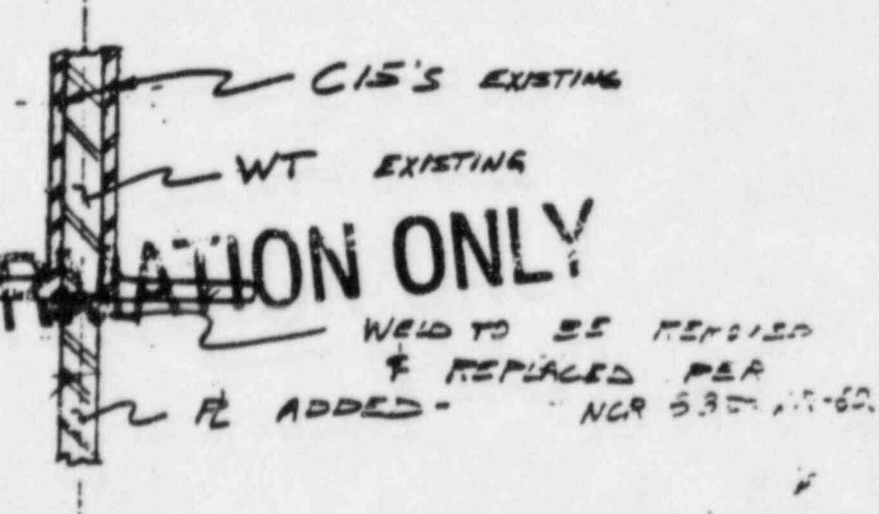
Note: ORIGINAL LOST.

110

Civil EDR 1008 (Attach.)
Pg. 2 of 2
April 09, 1983



2/006 PARTIAL DETAIL



DUE TO WT BEING CUT FLUSH WITH BOTTOM OF C15's WHEN REMOVING DEFECTIVE WELD METAL & REPLACING, WELD METAL WILL TIE C15 TO WT.

TYPICAL SEC A-A

UNIT I [x]
UNIT II [x]

CIVIL

HM
BP
VT
RR
BC
LF-4
BB-4

No. 819

THE HOWARD P. FOLEY COMPANY
PRODUCTION ENGINEERING DEPT.
ENGINEERING DISPOSITION REQUEST

FEB 8 1983

FEB 7 1983

To: F.M. Russell/S. Gragg   Subject: F.H.B. Modifications

From: B. Price   W/R CC-6180

Problem: Ref. EDR #792. At Col. 14-1 and S-9, Connection BM, the existing WT was cut flush with the bottom of the existing 2[15. This will result in pieces B006 and E006 being raised about 1" in elevation. 1) Is this acceptable? 2) Will this be acceptable in other locations?

Signed: [signature]   Date: 2-7-83.

Reply: 1.) YES
2.) YES

Provide As builts as req'd.

Signed: Forrest M. Russell   Date: 2-8-83

FOR INFORMATION ONLY

HM
BP
VT
RR-
ZF- 6
BC- 6
BB- 6

UNIT I
FEB 3 1983
UNIT II

CIVIL

Nº A 792

RECEIVED
JAN 29 1983

THE HOWARD P. FOLEY COMPANY
PRODUCTION ENGINEERING DEPT.
ENGINEERING DISPOSITION REQUEST

To E. M. Russell/B. Gragg   Subject F.H.B. Modifications

From B. Price   W/R #C-6180

Problem At Col. 12' on V'Line, Connection EN, the existing WT was cut flush with the bottom of the existing 2[15. This will result in pieces B006 and E006 being raised about 1" in elevation. Is this acceptable?

FOR INFORMATION ONLY

Signed [signature]   Date 1/29/83

Reply Yes

Signed [signature]   Date 2-3-83

NONCONFORMANCE REPORT

Page 1 of 1 | 8833XR-60
YES [x] NO [ ] ATTACHMENTS
Date: 4-6-83
HOLD TAG # 8833XR-60
[ ] REMOVED
DATE

DESCRIPTION:

CONNECTIONS: BH,BL,BM,BN & BI

W.R. #6180

REF. NUMBER N/A

UNIT I [x] UNIT II [ ] LOCATION Fuel Handling Building CLASS I [x] NON-CLASS I [ ]

INSPECTION CRITERIA: DRAWING [x] SPECIFICATION [ ] PROCEDURE [ ]

DOCUMENT TITLE AND NUMBER:

6180-F1-13-006 & 007

DESCRIPTION OF NONCONFORMANCE: (Including Cause)

1. Nondestructive Testing (Ultrasonic Test) U.T. on the foregoing connections revealed flaws. (See attached Examination Reports)
2. N.D.E. Column on Q.C. Weld Inspection Sheets was marked N/A.

CAUSE:

1. ~~Suspect weld shrinkage.~~
2. N.D.E. Column inadvertently marked.

Robert A. Carter 4/6/83 | Robert A. Carter 4/6/83 | [signature] 4-6-83
INITIATED BY DATE | QUALITY MANAGER DATE | PROJECT MANAGER DATE

DISPOSITION INCLUDING MEANS TO PREVENT RECURRENCE:

Repair welds per OCP-5A. Remove weld metal a minimum of 2" each side of the indication Reweld and reinspect visually and ultrasonically. Annotate original WIS to indicate this nonconformance.

Means to prevent recurrence: 1. Hold training meeting with production supervision regarding ~~distortion and shrinkage control as well as~~ welding technique as well as proper interpass weld cleaning & back gouge.

2. Hold training meeting with QC supervision to discuss nondestructive testing requirements and interpass weld cleaning.

DISPOSITION BY DATE | PROJECT MANAGER [signature] 4-7-83 DATE

Robert A. Carter 4/7/83
QUALITY MANAGER DATE

PACIFIC GAS AND ELECTRIC CO. DATE

FOR INFORMATION ONLY

DISPOSITION ACCOMPLISHED

INFORMATION ONLY

Superceded by NCR 8833XR-60 △ Date 4/7/83

PROJECT MANAGER DATE

114

ASONIC EXAMINATION OF GROOVE WELDS Rev. 0 Page 2 of 3

REPORT OF INDICATIONS

CORRESPONDING EXAMINATION RECORD SHEET NO.

Indication Number	Transducer Angle	Path, V. W. etc.	Decibels: Indication Level (a)	Decibels: Reference Level (b)	Decibels: Attenuation Factor (c)	Decibels: Indication Rating (d)	Defect (see Figure 11): Length/Direct. (x and/or y)	Indication Class	Sound Path Distance	Depth from Surface/a, b, or c	Scan Face	Distance: X	Distance: Y	Discontinuity Evaluation	Zone No.	Remarks Including Weld No., Dwg. No., Sketch No.
1	70	\	64	62	0	2	1/4	A	1.09	.35	B	8.44 8.0	1	R I		EQ-4

RE-EXAM/REPAIR 1

FOR INFORMATION ONLY

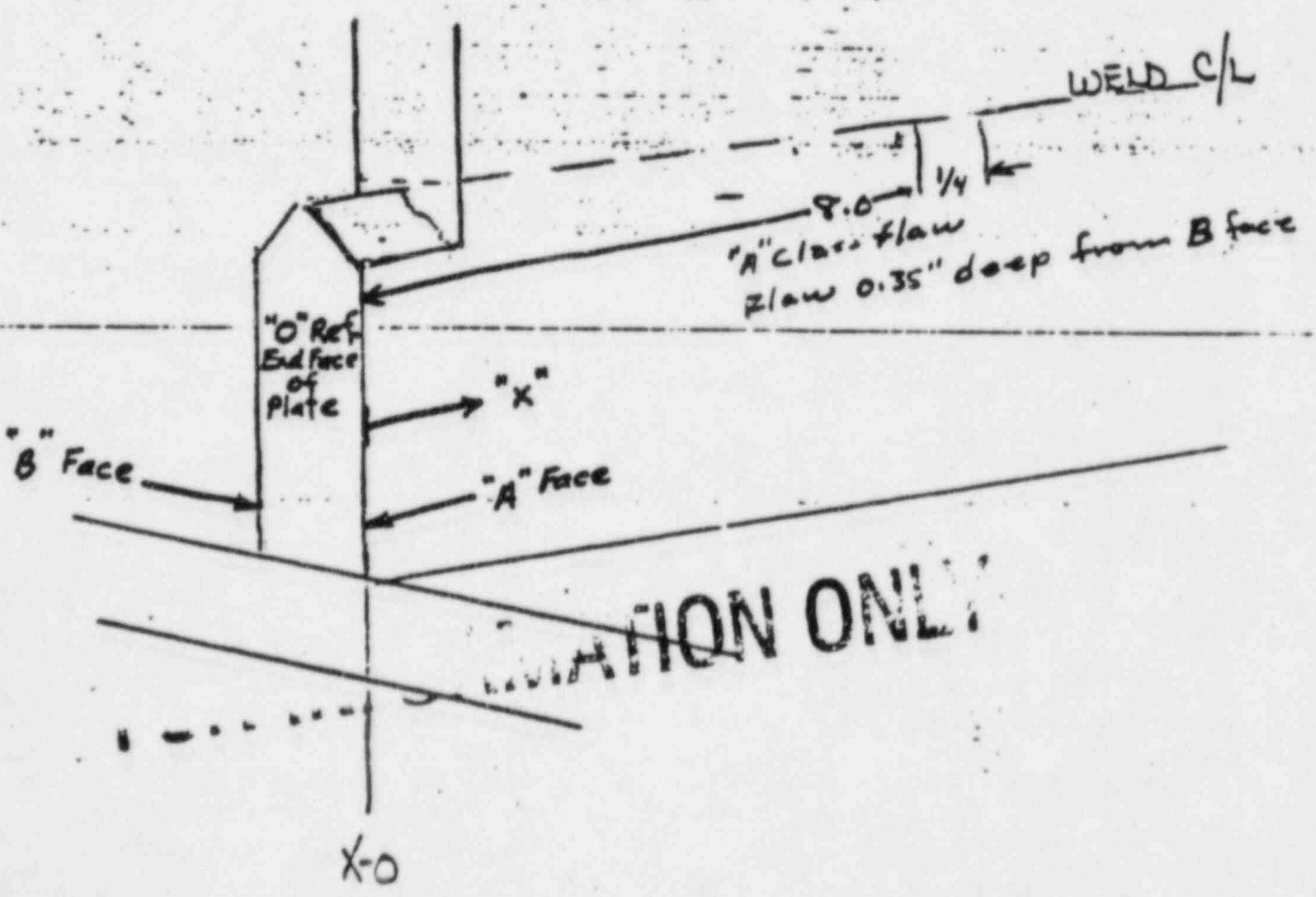
JGW
4-11-83

115

Date 4-11-83

Package No. EQ

Detail Drawing No. 6180-F1-13-007



WELD INSPECTION SHEET

CONN. NO. EG

WELD NO. 4 WELD PROC. SPEC(S) USED LOC/COORD. 14-7 & V-1

DRAWING 6180-FH3-006 △2 WPS-19 / QCP-5-A UNIT 1 ELEV. 153

INSPECTOR Bob BANCROFT TYPE OF WELDING ELECTRODE PIECE E006 TO EXISTING STEEL

DATE 4-13-83 USED E7018 INITIATING DOC. C-6180 △1

ACPT	RJCT	EDGE PREP AND FIT-UP	ACPT	RJCT	TACKING
RJB		Edge preparation	NA		Rod heat #
RJB		Fit-up	NA		Rod diameter
NA		N.D.E. (where applicabe	NA		Fit-up
Material P.O.&HT#		CW050950	NA		Welder I.D.
		HT 3K0646	NA		Preheat

ACPT	RJCT	ROOT PASS INSPECTION	ACPT	RJCT	FINAL PASS INSPECTION
RJB		Rod heat # 2H3	RJB		Rod heat # 2H3 / 20531*
RJB		Rod diameter 1/8	RJB		Rod diameter 1/8 / 3/32
RJB		Visual Inspection	RJB		Visual Inspection
NA		N.D.E. type			N.D.E. type
RJB		Welder I.D. W5	RJB		Welder I.D. W5
RJB		Preheat 150°	RJB		Preheat 150°

MULTIPASS 10% INSPECTION ☐ ACCEPT ☐ REJECT ☒ N/A

MAXIMUM 600°F INTERPASS (Ref. Sec. 7.5) ☐ ACCEPT ☐ REJECT ☒ N/A

ADDITIONAL REMARKS: D. BAllENger — W5 REF N.C.R. 8833XR-60 △1

THIS WELD WAS MADE TO REPAIR DEFECT FOUND THRU NDE INSP. AND 2" EACH SIDE OF DEFECT WAS REMOVED AND REPLACED

(* 1 STRINGER AT TOE OF WELD ADJACENT TO CHANNEL)

FOR INFORMATION ONLY

This is to certify that the above weld(s) have been inspected per AWS D1.1 and The Howard P. Foley Company Quality Procedures, and have been found to be acceptable.

DATE ______ Q.C. INSPECTOR ______

HPF VIE 3-31-83

INFORMATION ONLY

117

THE HOWARD P. FOLEY COMPANY

INDOCTRINATION AND TRAINING

DATE 4-30-83 TIME 8:00

PERSONNEL ATTENDING:
See attached

MEETING CONDUCTED BY: Andy Kridle

SUBJECTS PRESENTED:
1. QCP-6A, interpass cleaning and Backgouging.
2. 8833XR-60A
3.

REMARKS: Discussed par. 7.5, Preheat and interpass temps par 8.10 Backgouging of full pen joints.

FOR INFORMATION ONLY

HPF/QI&T 12-7-82 REVIEWED BY R. A. Carter DATE: 4/30/83

THE HOWARD P. FOLEY COMPANY

TRAINING PROGRAM ATTENDANCE

F.H.

DATE: 4-30-83

OCPSA ... 7.5 3.10

TIME: 8:00

NAME	CLASSIFICATION	NAME	CLASSIFICATION
Doug Pope	I.W. Foreman		
C. Smith	I.W. Supt.		

FOR INFORMATION ONLY

12-7-82

119

Attachment V

Concern #168

Task: Allegation or Concern No. 168

ATS No.: RV-84-A-0022 BN No.:

Characterization

Foley did not properly grout base plate anchor bolts.

Implied Significance to Plant Design, Construction, or Operation

The staff's face value assessment is that this concern is of minimal safety significance and even if true would not seriously degrade the operability of the diesel fuel oil transfer system.

Assessment of Safety Significance

The alleger specifically referred to support No. 20/85R in the diesel generator fuel oil vault of Unit 1. Specifically, the alleger referred to an instance where a U-Bolt hole had been drilled through a weld attaching a shim plate to the support. Also, he stated that one of four anchor bolts in a baseplate had allegedly been improperly grouted, as evidenced by an excessively large amount of grout which had leaked out of the grout cap onto the surrounding floor area. Thus, the alleger concluded that the anchor bolt hole was not properly filled with grout. The alleger states that the first condition was wrongly accepted by field engineering and that Foley improperly accepted the anchor bolt grouting.

The staff considers that extensive evaluation of this concern is not likely to result in any significant new management or quality performance issues.

Action Required

This item will be turned over to PG&E for evaluation and response. The licensee will be required to provide the results of their evaluations, and any necessary corrective actions, to the staff in writing.

Attachment U

Concern #153

Task: Allegation or Concern No. 153

ATS No.: RV 84A017

BN No.:

Characterization

Foley specifies 1/8" welds on 3/32 clamp material.

Implied Significance to Plant Design, Construction, or Operation

The staff's initial assessment indicates that this issue is of minimal safety significance.

Assessment of Safety Significance

The alleger's concern is that an oversize weld is being specified (i.e. 4/32" (1/8) to 3/32 clamp material). The staff had previously examined welding in this area (uni-strut/superstrut) and found no significant problems.

The staff's evaluation indicate that this issue would not result in any new significant management or quality performance issue.

Action Required

This item will be turned over to PG&E for evaluation and response. The licensee will be required to provide the results of their evaluation and the necessary corrective action to the staff in writing.

P1331 90° CLAMP FOR RACEWAY SUPPORTS IS REQUIRED TO BE TORQUED TO 85 FT-LBS WHICH: (1) CANNOT BE ACHIEVED FOR THE INNER BOLTS, (2) RELAXES AFTER SEVERAL DAYS, & (3) APPEARS EXCESSIVE

Attachment T

Concern #152

Task: Allegation or Concern No. 152

ATS No.: RV 84A017 BN No.:

Characterization

Concerns with installation of P1331 conduit clamps (torque achievement, relocation, excess).

Staff Position

The alleger stated in a group meeting on January 17, 1984 that P1331, a 90° clamp for raceway supports is required to be torqued to 85 ft. lbs which: (1) cannot be achieved for the inner bolts, and (2) relaxes after several days, and (3) appears excessive.

The staff's face valve assessment of this issue indicates that there is not a major significant problem in terms of public health and safety or management breakdown. Also, clamp issues in general are known issues that have been responsibly handled.

Action Required

This issue will be turned over to PG&E for response. The licensee will be required to provide a written response to their findings and corrective actions.

1/8" WELDS ARE SPECIFIED TO WELD 3/32" CLAMPS TO 1/4" STRUT MATERIAL FOR RACEWAY HOLD-DOWNS. ie: DCN DC2-EC-18034, WOR. REQUEST E-5195, SUPPORT 2G-91-5-247

Attachment S

Concern #151

Task: Allegation or Concern No. 151

ATS No.: RV 84A017 BN No.:

Characterization

(1) Foley installs too many conduits on supports; (2) inspection reject rate is too high for supports. (No specifics were provided)

Implied Significance to Plant Design, Construction, or Operation

The staff's face value assessment of this issue is that it constitutes minimal safety significance.

Assessment of Safety Significance

The staff's review determined: (1) The licensee has specified definitive design and installation criteria for the maximum number and size of conduits that may be installed on a particular support, and (2) this allegation is vague, with no specific examples provided. The alleger did not provide any documentation, conduit support locations, or other information to support this allegation. The staff and NRC consultants (Lawerence Livermore Laboratory) have examined several hundred conduit supports in the past without identifying any significant problems.

Staff Position

The staff's evaluations indicate that this issue would not result in any new significant management or quality performance issues.

Action Required

This item will be turned over to the licensee for evaluation and response. The licensee will be required to provide the results of their evaluation and any necessary corrective actions to the staff in writing.

CRAFTSMEN DO NOT FOLLOW CONTRACTOR DIRECTIONS. ie: TOO MANY CONDUITS ARE OFTEN PLACED ON A SUPPORT. INSPECTION REJECT RATE IS TOO HIGH FOR RACEWAY SUPPORTS.

Attachment R

Concern #148

Task: Allegation or Concern No. 148

ATS No.: RV 84A015 **BN No.:**

Characterization

Foley Q.C. identifying unsatisfactory work in progress were told to wait until completion, then reject. (No specific examples were provided by the alleger)

Assessment of Safety Significance

The staff considers that this concern, albeit excessively costly if implemented, would not necessarily result in an unacceptable final product. The PG&E and Foley philosophy regarding in process inspection has been that a hold point is assigned on a work process sheet if an inspection, critical to final quality and unobservable after work completion, is necessary and required by procedure. Based upon the staff's knowledge of past practices and philosophy in this area and the vague nature of the allegation, the staff considers that exhaustive evaluation of this issue would not likely result in any new management or quality performance issues.

Action Required

This item will be turned over to PG&E for evaluation and response. The licensee will be required to provide the results of their evaluations, and any necessary corrective actions, to the staff in writing.

No Number. 148	1/17/84	QC INSPECTORS IDENTIFYING UNSATISFACTORY WORK IN PROGRESS HAVE BEEN TOLD TO WAIT UNTIL THE WORK IS COMPLETE, THEN REJECT THE WORK.

Attachment P

Concern #144

Task: Allegation or Concern No. 144

ATS No.: RV-84-A-0015 BN No.

Characterization

Foley installs P110 conduit clamps too close to channel edges and they may slip out.

Implied Significance to Plant Design, Construction, or Operation

Disengagement of the conduit clamp would result in a conduit being not supported as required by design criteria and may invalidate the assumptions of the seismic analysis.

Assessment of Safety Significance

The staff was aware of this concern. During plant tours conducted in the examination of other allegations, the "staff" examined the installed condition of over 100 P110 conduit clamps. This examination did not identify any instances of obvious concern for the clamp slipping out of the channel. Thus the staff's face value assessment does not indicate that this issue would result in any new significant management or quality performance issue.

Action Required

This item will be turned over to PG&E for evaluation and response. The licensee will be required to provide the results of their evaluation, and any necessary corrective actions, to the staff in writing.

No Number 144	1/17/84	P1100 CONDUIT CLAMPS ARE TOO CLOSE TO THE EDGE OF STRUT SUPPORTS AND MAY SLIP OFF. THIS WAS AN ISSUE AT ONE OF THE WNP PLANTS

Attachment O

Concern #141

Task: Allgeation or Concern No. 141

ATS No.: RV-84-A-0015 **BN No.:**

Characterization

Foley performed transverse welding across beams (Installation of Unistrut). (No specifics were provided)

Assessment of Safety Significance

This allegation is extremely vague. The alleger could provide no specific examples. Based upon the depth of examination and the associated findings of other welding related allegations, the staff's face value assessment is that exhaustive examination of this allegation would not result in any new management or quality performance issues.

Action Required

This item will be turned over to PG&E for evaluation and response. The licensee will be required to provide the results of their evaluation, and any necessary corrective actions, to the staff in writing.

No Number 141	1/17/84	GENERAL QUESTION: IS TRANSVERSE WELDING OF UNISTRUT ACROSS THE TOP OR BOTTOM OF A BEAM ALLOWABLE? IT DOES NOT APPEAR CONSISTENT WITH THE AWS CODE.

Attachment N

Concern #123

Task: Allegation or Concern No. 123

ATS No.: RV-83-074 **BN No.:**

Characterization

Improper acceptance of welder qualification tests.

Staff Position

The staff considered this concern and observed that the alleger references a specific time period wherein a QC inspector was not present in the Pullman welder qualification area observing the conduct of welder qualification tests. The allegation is very narrow in scope and the staff considers that exhaustive staff examination would have a low potential for yield of any new management significant quality performance issue.

The staff had previously examined the general conduct of the welder qualification program (See NRC Report 50-275/83-37). These examinations likewise failed to yield any new management, quality performance or technical issues.

Action Required

This issue will be turned over to PG&E for resolution. The licensee will be required to provide written response of their findings and any necessary corrective actions.

No. 103 RV-83-74 (123) (HH)	12/14/83	PG&E did not receive authorization from the Building Commissinier to accept evidence of previous welder qualification test.

Attachment X

Concern #170

Allegation or Concern No. 170

Characterization

Pullman may have lost pipe traceability due to inadequate training of Fab Shop Inspectors.

It was alleged that a Pullman shop inspector was given an assignment and didn't know that copies of the Field Warehouse Requisition (FWR) form were to be routed to QA, and it was his perception that FWR's were being reconstructed by field inspection to verify material traceability.