

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-445/84-05

Docket: 50-445

Construction Permit: CPPR-126

Licensee: Texas Utilities Electric Company (TUEC)
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES), Unit 1

Inspection At: CPSES, Glen Rose, Texas

Inspection Conducted: January 6-March 13, 1984

Inspectors: *L. E. Martin*
L. E. Martin, Reactor Inspector
Region IV Task Force

4/19/84
Date

C. R. Oberg
C. R. Oberg, Reactor Inspector
Region IV Task Force

4/19/84
Date

Approved: *D. Hunnicutt*
D. Hunnicutt, Team Leader
Region IV Task Force

4/19/84
Date

Inspection Summary

Inspection Conducted January 6-March 13, 1984 (Report 50-445/84-05)

Areas Inspected: Special, unannounced inspection of allegations of poor work practices pertaining to safety-related supports. The allegations covered five separate items identified by the alleged to NRC personnel. All identified items pertained to the main steam pipe supports. This inspection involved 290 inspector-hours onsite by two NRC inspectors.

Results: Within the areas inspected, no violations or deviations were identified. The specific concerns could not be substantiated.

DETAILS1. Persons ContactedPrincipal Licensee Employees

- *J. T. Merritt, Assistant General Project Manager
- R. G. Tolson, Site Quality Assurance Supervisor
- B. G. Scott, Quality Engineering Supervisor
- *J. D. Hicks, Assistant Site QA Supervisor

Brown & Root, Inc. (B&R)

- S. Rynders, Superintendent
- R. Heabert, Superintendent
- R. Johnson, Superintendent, Unit 1
- B. Baker, Senior Project Welding Engineer

Other Personnel

Alleger

In addition, the NRC inspectors interviewed other B&R labor force and QC inspection personnel concerned with the allegation.

*Attended exit meeting on March 13, 1984.

2. Allegations Relating to Poor Work Practices

On November 22, 1983, an alleger made a sworn statement to the NRC regarding poor work practices at Comanche Peak. Subsequently on January 6 during a site visit and a followup discussion on January 26, 1984, the alleger identified concerns on five specific supports/restraints. The allegations were as follows:

a. Pipe Support MS-1-004-007-C72K

An excessive gap of 1" or more was noted during the fit-up of the bottom kicker and outrigger. This gap was welded in violation of fit-up limitations.

b. Pipe Whip Restraint and Pipe Support Structure M-17

The web of the structural support member (M-17) was cut out in the wrong location. Instead of reporting the problem and repairing according to procedure, it was filled in by unauthorized welding.

c. Pipe Support MS-1-003-009-C72K

The stanchions of this item were welded on the inside with "heliarc" and backwelded because of excessive gap. The upper stanchion had too much cutoff at "lower point." This was filled in by welding, grinding, and polishing.

d. Pipe Support MS-1-003-010-C72K

The bottom saddle was cut in four pieces. The left hand back piece did not fit due to curvature of the pipe. The piece was heated to a "cherry red" with rosebuds. A 20 ton hydraulic jack, a "come-along," and hammering were used to bend the metal into place. This was alleged to have been done under direct orders of a superintendent, a general foreman, and the supervising foreman.

e. Pipe Support MS-1-002-005-C72K

There was an excessive gap in the steel of the support box. The gap was between shim plates but the shim plates were enclosed without the problem being reported or corrected.

3. Inspection Results

a. Pipe Support MS-1-004-007-C72K

(1) General

The support members of MS-1-004-007-C72K were fabricated by NPS Industries and assembled onsite by B&R. This support is located on the Loop 1 main steam line inside Unit 1 containment. It is a large ASME Class 2 hanger (overall dimension approximately 26'x 5'x 10') utilizing two SMA-35-SC snubbers. The main structural member is supported from the wall by two "kickers" and "outriggers." The kickers are attached to the main members at approximately a 45 degree angle. The structural members are made of 1" CS plate. The two kickers are made of four plates approximately 14" wide and 11' long and four plates 13" wide and 11' long. They were field trimmed to suit needs.

MS-1-004-007-C72K was constructed in accordance with Gibbs & Hill (G&H) Specification 2323-MS-46A. ASME Section III, - Division I Subsection NF - Component Supports (Winter, 1974 Addenda) is the applicable code.

(2) Description of Allegation

The initial signed statement made by the alleged did not identify a specific problem with MS-1-004-007-C72K. However, during the site visit on January 6, 1984, the support was identified by the alleged as having an excessive gap (1" or more) between the main structural member and the kicker at fit-up. The kicker meets the main member at approximately a 45 degree angle. The excessive gap was welded closed.

After inspection of the kicker attachment weld (described below), the alleged was informed of the results. The alleged then indicated that the fit-up was correct on one side of the attachment only, and that the weld prep tapered out to an excessive gap of greater than one inch on the opposite side. See Figure 1.

(3) Review of Documentation

The documentation package for MS-1-004-007-C72K was reviewed and used as a basis for the inspection by the NRC inspectors. The following specific items were reviewed:

QC Component Checklist Att. 5
 Multiple Weld Data Card (MWDC) 57089
 Weld Filler Material Log (WFML)
 Material Identification Log (MIL)
 Hanger Inspection Report, dated September 22, 1982
 QC Checklist For Snubbers
 Snubber Modification Cards
 Inspection Report ANO 3525
 MT/PT 17187 MT
 Repair Process Sheet (RPS) R-2194
 Receiving Inspection Report (RIR) 18221
 Material Receiving Report (MRR) CP10295

(4) Observation

At the request of the NRC inspectors, the licensee had B&R grind and etch two areas on the support. Figure 2 shows the areas examined and the observation noted. In addition to the two etched areas examined, the NRC inspectors found that the weld joining the lower kicker to the main support member was consistent in appearance (approximately 1" wide) for the full length of both the upper and lower welds. On the inside angle of the kicker (45 degrees), a small edge of the weld prep (See Figure 3) was noted approximately 1-1/8" from the edge of

plate A. The bottom weld was similar in appearance. The support had been painted; however, the size of the weld was noted to be consistent with the requirements of the B&R drawings and consistent with the experience of the NRC inspectors for similar type welds. Additional destructive testing was not done based on the evidence noted.

The NRC inspectors also noted that to weld in the 45 degree angle and fill in a 1" gap would be extremely difficult. The alleged geometry of the gap and the positions from which a welder would have to work (overhead or on back) would suggest that the effort involved could not be done unnoticed by other personnel working in the area.

Figure 1

PLAN VIEW OF LOWER KICKER
JOINING MAIN STRUCTURAL MEMBER

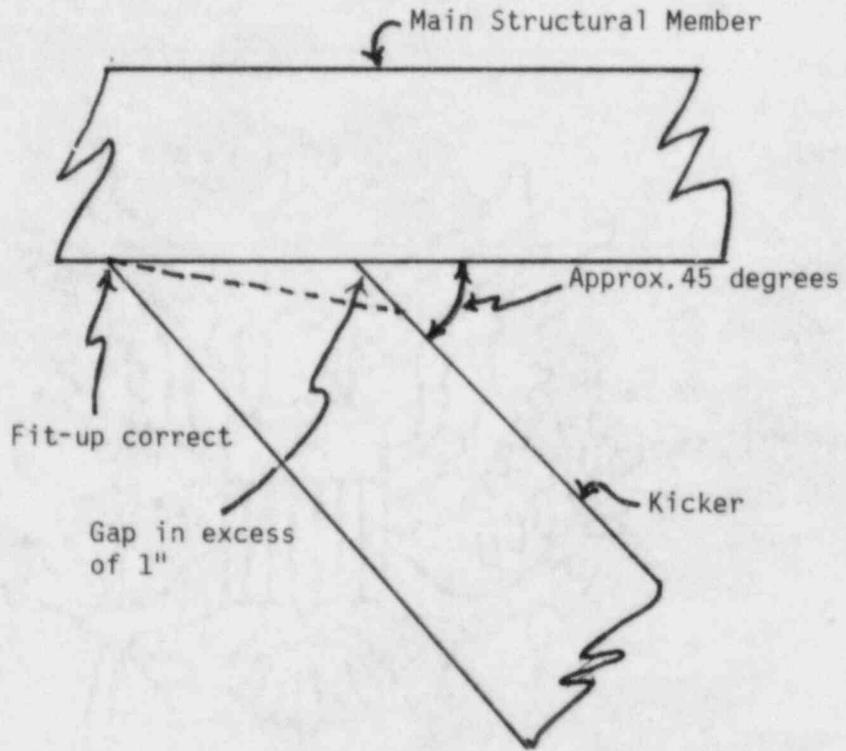
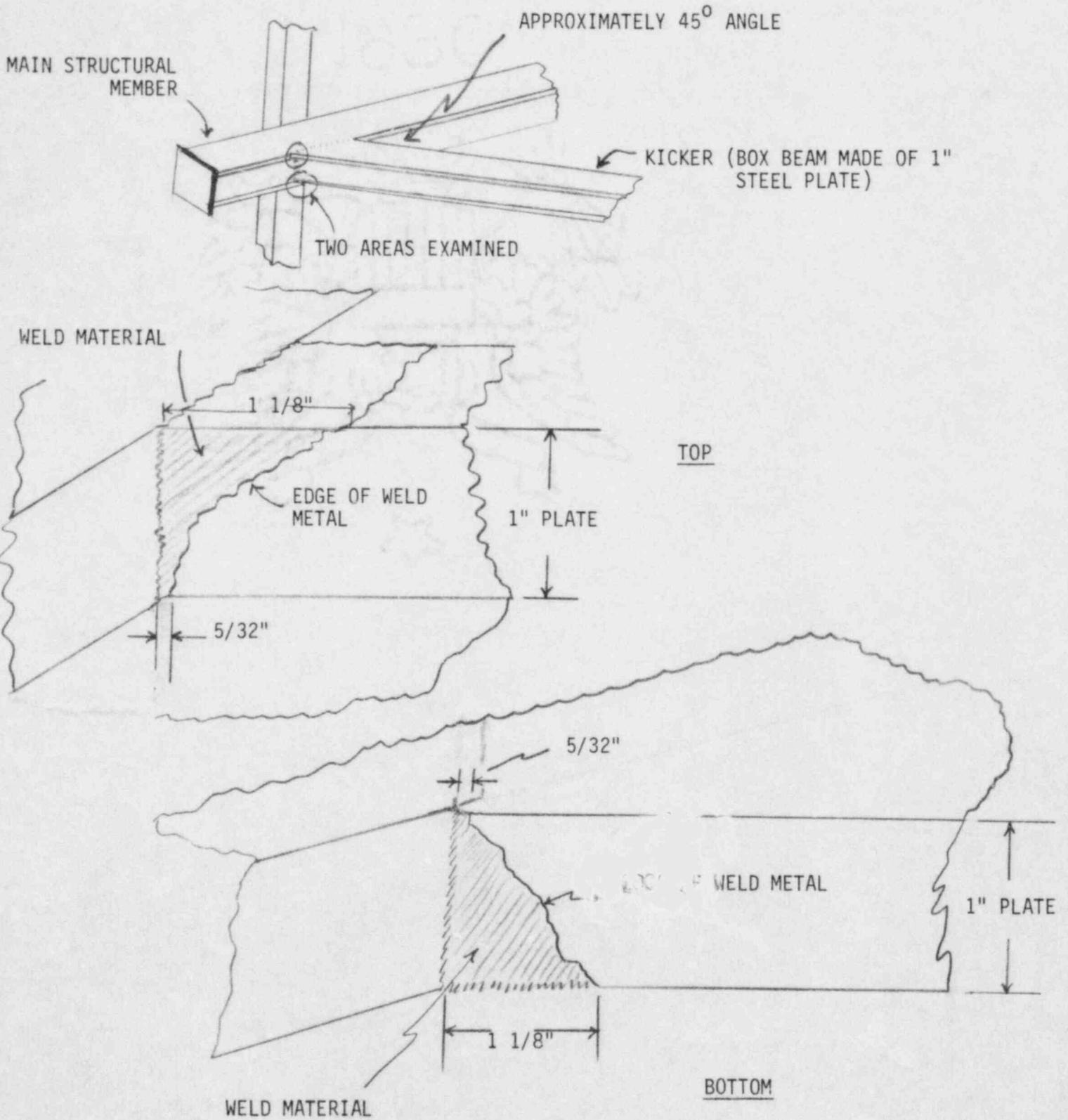


Figure (2)

(NOT TO SCALE)



(5) Conclusions

The NRC inspectors could not identify any evidence that would support the allegation regarding an excessive gap and unauthorized welding. There is evidence to support that the weld fit-up was done correctly. Observation of the etched areas and inspection of the remainder of the suspect weld confirmed that the requirements of the drawings were met. The requirement for weld preparation for the plates in question show that a 45 degree prep on a 1" plate for the full penetration weld with 1/8" clearance will give a 1" gap at the top of the area to be welded. See Figure 3. This is normal and according to procedures.

ASME Section III, Division 2, Paragraph NF5222 requires that all welds of Class 2, linear type supports be visually examined to the acceptance standards of NF-5360. No QC fit-up inspection is required. The QC inspection of welding on this support was completed on September 22, 1982, and found to be satisfactory. This was documented on the MWDC, No. 57089. The QC component support checklist also stated that all accessible welds were "reinspected and are in compliance with VCD" (Vendor Certified Drawings), dated November 9, 1983.

The allegation could not be confirmed based on the inspection record, discussion with other personnel working in the area, and direct observation of weld area which included grinding and etching of two areas on the weld.

b. Pipe Whip Restraint and Pipe Support Structure M-17

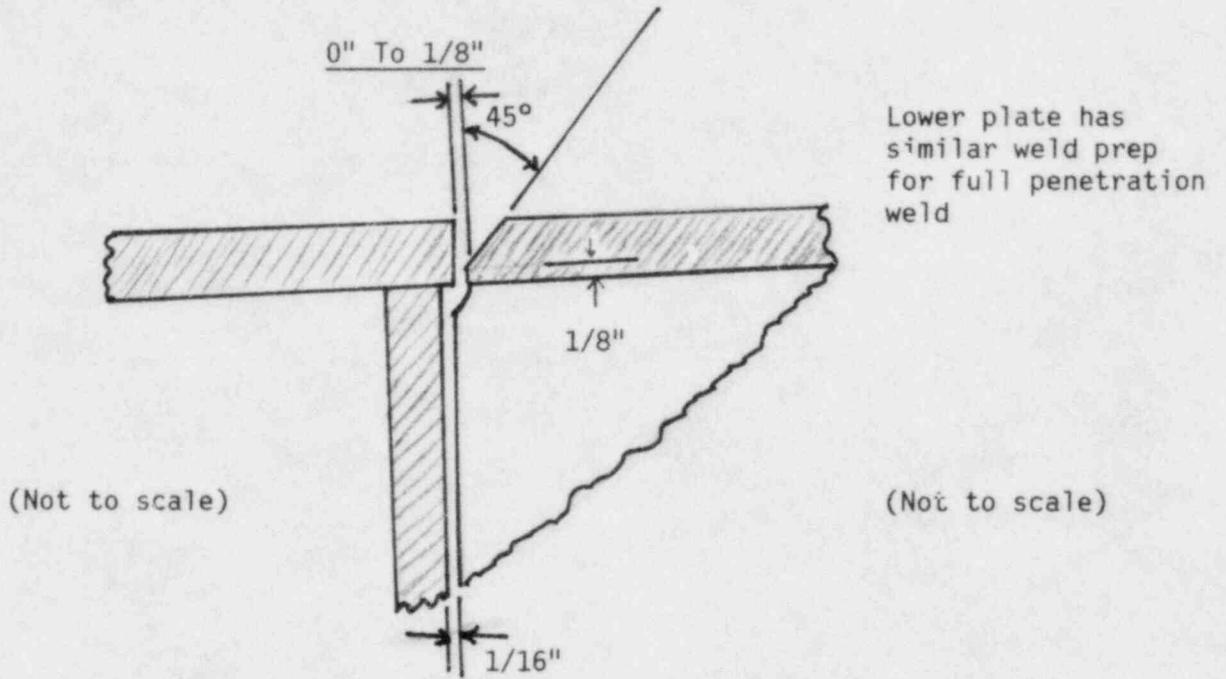
(1) General

Support Structure M-17 is a massive I-Beam made of 1-1/2" CS plates, 4' 3-1/2" tall, 2'4" wide and approximately 14' long. It is located inside containment, Unit 1, at elevation 905' level, azimuth approximately 345°. It supports two whip restraints, MS-1-001-903-C77W and MS-1-001-902-C77W, as well as pipe support hanger MS-1-001-007-C72K.

(2) Allegation Description

On January 6, 1984, during the site visit, the allogger identified a pipe whip restraint (MS-1-001-903-C77W) which he stated had been gouged and repaired without a procedure. Subsequently, on January 26, 1984, the problem was determined not to be with the restraint, but with the structural member, M-17. The web of the beam member was alleged to have been cut in the wrong location. The opening was filled in by welding without approval or authorization. No repair record or NCR was generated.

Figure 3



(3) Review of Documents and Procedures

The following documents were reviewed as they were applicable to structural member M-17:

Design Change Authorization (DCA) 14,115 Rev. 1-4
 CPSES Inspection Report MI-1063
 Construction Traveler MW83-6684-3400
 Construction Traveler CD80-027-3401
 Drawing 2223-S1-0583
 Drawing 2323-S1-0581
 MP/PT Report T 1169
 MP/PT Report 6242
 Repair Process Sheet (RPS) WDC 707479
 TUSI Ltr CPPA-31749 of July 8, 1983
 G&H ltr GTN-66866 of July 21, 1983

DCA 14,115 authorized a cut in the web of the structural member and the insertion of a 12" diameter pipe. This opening was to allow the attachment of NPSI MS-1-001-006-C72K to the support structure. The snubber goes through the pipe to the 32" main steam line.

(4) Observations

The NRC inspector examined M-17 in the specific area of the allegation. The sleeve in the beam web was found to be a slotted hole approximately 18"x 12"x 4". The sleeve was welded in place with a 1/2" fillet weld. Punch marks were noted on the south side to the left of the existing hole in the beam, however, no cut had been made in the metal. There was no visual evidence of welding that would indicate filling in of an unapproved cut or damage to the base metal.

Review of the documentation indicated that DCA 14,115 Rev. 1, had been accomplished and inspected by August 24, 1982. Revision 3 to this DCA removed the assigned 12" round pipe and slotted the structural member to install an elongated pipe 18"x 12"x 4". Revision 3 was authorized on September 22, 1983. This change was required due to the sleeve interfering with the snubber. This was noted during hot functional testing (HFT).

(5) Conclusions

The original modification to the beam was accomplished in August of 1982. HFT identified interference with the snubber. This prompted another change, which was done in October of 1983, thereby elongating the hole approximately 6". This modification was adequately documented in the support package.

No physical evidence was found that would indicate a wrong cut and subsequent unauthorized welding to repair the base metal. The area in question was smooth and clear of weld material. It is conceivable that Revision 3 could have removed any evidence of the alleged cut and rewelding. However, based upon the information stated above, the allegation was not substantiated.

c. Pipe Support MS-1-003-009-C72K

(1) General

MS-1-003-009-C72K is a large horizontal support utilizing two SMF-100-S0 snubbers. It is attached to an interior wall inside Unit 1 containment at elevation 893' 10". The support extends out from the wall approximately 7' and is 6'4" tall and 5' wide. The snubbers are attached to a strong back which is fastened to the main steam pipe by an upper and a lower stanchion. The stanchions are made of 20" diameter SCH-80 CS pipe. They are welded to the 32" main steam pipe, off center, giving one side of the stanchions a longer "lip" than the other.

(2) Allegation Description

During the site tour on January 6, 1984, the allegor stated that the bottom stanchion of MS-1-003-009-C72K had been buttered with a 1" weld after excess metal had been cut off. No NCR or repair procedure was initiated. The unauthorized work was done at the order of the foreman. Subsequently on January 26, 1984, the stanchion problem was characterized as pertaining to the top stanchion only. The upper stanchion was backwelded on the inside to seal up excessive gap in the fit-up. The stanchion was alleged to have been punchmarked by the allegor, and sent to the fab shop for cutting. Too much was cut off the lower "point". (By design, the stanchions are offset from the centerline of the 32" main steam pipe).

The supervising foreman was alleged to have filled in the "point" by welding and then grinding down the weld beads to give the appearance of the original pipe stanchions metal. The stanchions were back welded because of the excessive gap in fit-up.

(3) Review of Documentation and Procedures

The following documents were reviewed:

MS-1-003-009-C72K Hanger Package

QC Component Support Checklist Att. 5 VCD

MIL

MWDC 58332

Manager I.R. dated March 22, 1982

QC Checklist for Snubber Installation dated February 28, 1983,
and March 17, 1983

Snubber Modification Card 77357

Snubber Modification Card 77356

MWDC 80155

Hanger I.R. dated February 17, 1983, per IRN HOU 6696

MWDC 86576 per CMC 93665, R0

Hanger I.R. dated August 31, 1983

I.R. AM03582 dated December 2, 1983, VCD

MWDC R-196B for VCD

Hanger I.R. dated December 29, 1983

MWDC R-2104 VCD

CMC 67872

CMC 88117

CMC 93665

IRN H006696

MS-1-RB-03-004-Pipe Spool Package

MWDC 58333

Weld Filler Metal Log 58333

MT/PT Report for FW1 int./ext. MT

MT/PT Report for FW2 " " MT

VT for FW1 WDC 58333

VT for FW2 WDC 58333

B&R Welding Procedure Specification 11010 Revision 4,
September 12, 1979.

MWDC 58333 clearly indicates that E705-2 filler metal was to be used for the first two layers (root and hot pass). E7018 weld rod was to be used for remaining fill - dated January 21, 1982. The initial root had to be background and backwelded. Both the inside and outside welds were acceptable to QC per QI-QAP 10.2-1, Revision 1.

(4) Observations

Visual inspection of the outside of the stanchions and their attachment to the main steam pipe did not reveal any abnormal conditions. At the request of the NRC inspectors, a hole was drilled in the cover plates of the upper and lower stanchions. A borescope was then used to examine the welds from the inside of the stanchions.

A narrow bead of "helium arc" weld metal, E-705-2, was observed, (on the WDC 58333 - Weld 1 & 2). No excessive weld metal denoting out of tolerance gaps was noted. These stanchions had been visually inspected by QC at fit-up (February 22, 1982) and completion of the weld (February 24, 1982). No defects were noted. (Visual Examination Checklist WDC 58333).

The QC inspectors and welders (as available) who were involved with inspection of the fit-up and welding on the stanchions were questioned. The information contained in the support package pertaining to welding and fit-up was confirmed. Both the night shift and day shift worked on the stanchions. Backwelding was accomplished and checked to be satisfactory on WDC 58333 (February 26, 1982) by QC.

(5) Conclusions

There were three parts to this allegation:

- excessive gap existed at fit-up.
- backwelding was done due to excessive gap.
- the upper stanchion was cut wrong and was repaired by buttering by an unqualified welder.

An excessive gap in the fit-up of a full penetration weld would be greater than 1/8". The fit-up was inspected by QC personnel and documented as "satisfactory". Nothing out of the ordinary was noted by the QC inspector.

Backwelding inside the stanchion was documented on the WDC and found to be satisfactory per QF-QAP 10.2-1 (NDE-Liquid Penetrant Examination). Backwelding was accomplished in accordance with an approved welding procedure.

No evidence was found to indicate that the upper stanchion was cut incorrectly. None of the QC personnel or welders interviewed noted anything wrong with the fit-up or any other condition that would indicate incorrect cutting on the stanchion. It was determined through interviews that when a stanchion did not fit, grinding was done as necessary to achieve the correct fit-up.

The geometry of the stanchion (in the area of the lower tip) required the final weld to be wider in that area when compared to the remainder of the weld.

The conclusion, based on the evidence collected through direct inspection, review of applicable documents and interviews with labor and management personnel, was that the allegation could not be substantiated.

d. Pipe Support MS-1-003-010-C72K

(1) General

This support is a large ASME Code Class 2 pipe support located on the 893' 10" elevation of Unit 1, Containment Building. It extends approximately 4' out from the wall. The two support members parallel the 32" main steam line, one on top and one below. There is an upper and lower stanchion welded to the pipe, made of 20" schedule 60 pipe. The stanchions are, in turn, reinforced by 1-1/2" x 29" x 31" CS "saddle" plates also welded to the pipe. Two SMF-100-BA snubbers connect the main structure to the stanchions. See Figure 4.

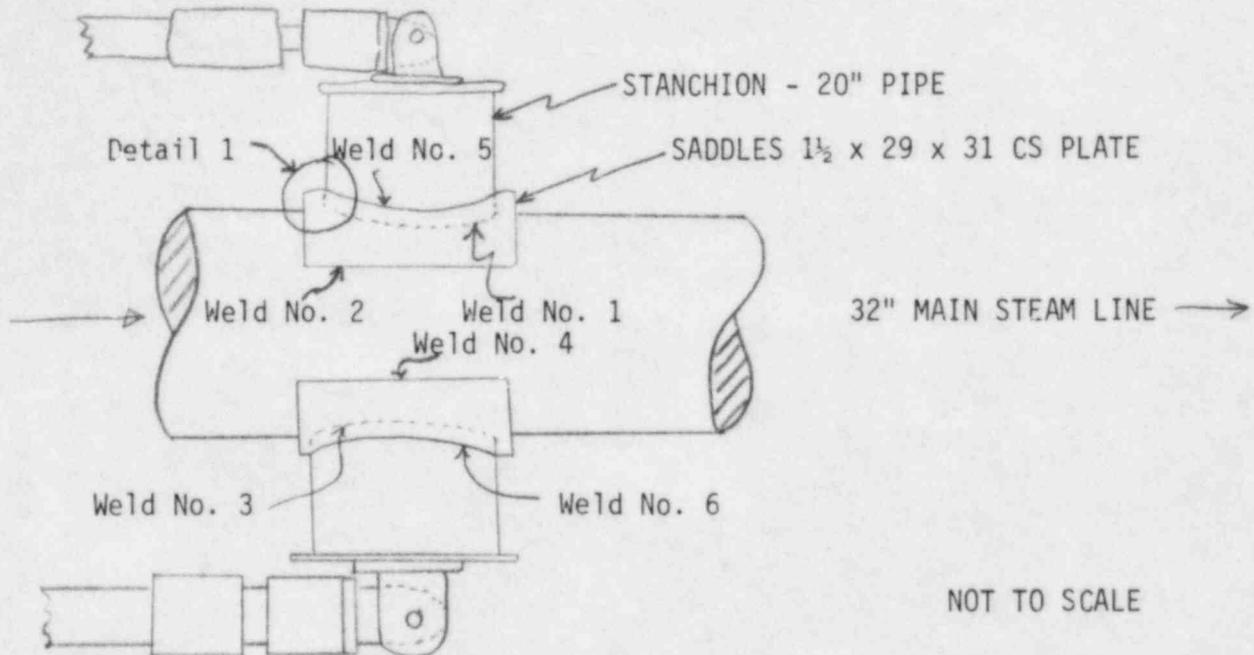
(2) Allegation Description

The allegor identified MS-1-003-010-C72K during the January 6, 1984, site tour. The specific problem identified was that the lower saddle had been heated to a "cherry red" condition and bent into shape around the main steam line using a come-a-long and a porta-power hydraulic jack.

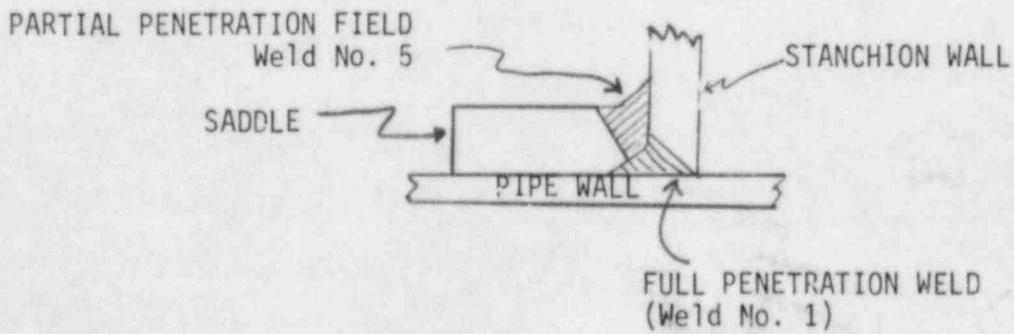
During the January 26, 1984, discussion, th allegor stated that the lower saddle (on MS-1-003-010-C72K) had been cut into four pieces, and that the left hand, back quadrant piece had been heated and bent into position with a porta-power unit, a 1 ton chain "come-a-long," and hammering. The heating and bending operation was not an approved method or procedure. In addition, the allegor stated that he, in company with a welder, went to B&R management with this allegation. To the best of the allegor's knowledge, nothing was done by B&R to resolve the problem.

Figure 4

DETAILS OF MS-1-003-010-C72K



Detail 1



(3) Review of Documents and Procedures

The following documents were reviewed:

MS-1-003-009-C72K

QC Component Support Checklist Att. 5 dated February 2, 1984
 MIL (Material Identification Log)
 MWDC #58332 & WFML
 Hanger I. R. dated March 22, 1982
 QC Checklist for Snubber Installation dated February 28, 1983,
 and March 17, 1983
 Snubber Modification Cards 77357 & 77356
 MWDC 80155 & WFML
 Hanger I.R. dated February 17, 1983
 MWDC R-435
 Hanger I.R. dated August 31, 1983
 MWDC 86576 & WFML
 I.R. AM03582 dated December 2, 1983
 MWDC R-1968
 Hanger I.R. dated December 29, 1983
 MWDC R-2104
 Hanger I.R. dated February 2, 1984

IRN M-1407	Traveler CS-2-483-902-A47W
CMC 93665	QCA 17,934
CMC 67872 R7	Drawings 2323-S1-0576
CMC 88117 R1	2323-S1-0581
IRN H6696	

Also looked at Spool MS-1-RB-03-04 for attachment of stanchion.

MWDC 58333 & 58333
 MT/PT for FW1 (Upper Stanchion) inside & out
 MT/PT for FW2 (Lower Stanchion) inside & out
 FW1 Backweld inside
 VT Checklists

MS-1-003-010-C72K

QC Component Support Checklist Att. 5
 MIL
 MWDC 45201
 Weld Filler Metal Log 45201
 MWDC 45197 & WFML
 MWDC 45120 & WFML
 MWDC 64147 & WFML

Hanger IR dated May 24, 1982
 Snubber Checklist
 I.R. AM03597 dated December 10, 1983
 MWDC R-2000 per NCR 12,500 R-3 & IRAM 3597
 Hanger I.R. dated February 8, 1984
 MWDC R-2019
 MT/PT Report 17145
 MWDC 45202 WFML

CMC 53580 R11
 MWDC R-2001

MS-1-002-005-C72K - Package was reviewed for drawings only.

(4) Observation and findings

The NRC inspector examined the documentation packages and inspected the support. The following was determined:

- MS-1-003-010-C72K stanchions were welded in place from July 13, 1981, to July 23, 1981 (WDC 45201)
- The upper saddle was cut in two pieces and repaired in accordance with CMC 53580. The item was cut incorrectly in fab shop.
- The lower saddle is one piece, with no visual indications that the saddle was split. It is smooth, without marks indicating that a chain or hydraulic jack was used to bend the saddle.
- The saddles were welded in place between August 11, 1981, to August 19, 1981 (WDC 45197).
- QC inspections of fit-up and welding indicate welds are "satisfactory."

The NRC inspector discussed this allegation with B&R personnel in order to clarify the issues. It was determined that a lower and upper pipe saddle had been cut in four pieces, but on a support identified as MS-1-003-007-C72K. This support is attached to the main steam piping by stanchions and 2" thick saddles similar to MS-1-003-010-C72K. However, the saddles, or reinforcing pads, were cut into four pieces as authorized by CMC 65236. This support was examined by the NRC inspector. The saddles had been modified, as indicated in the CMC; however, there was no evidence that would indicate heating and bending of the left rear quarter of the lower pad. There was also no visible evidence of bending of the pipe in the area of the saddles.

Identification of the problem to upper management in B&R appears to have been done as indicated by the allogger. This was confirmed by one B&R Superintendent. However, any further action taken on this matter by B&R management could not be identified. The supervisors involved do not remember any action, and the problem was not documented. It can only be assumed that none was taken.

(5) Conclusions

Based on the information obtained from B&R personnel, review of the support packages and direct observation of the supports, the allegation could not be substantiated. The original support identified did not have a saddle cut in four pieces. The support that did have a four piece saddle also had clear and direct authorization to make such a change.

Lack of response by B&R management to this concern identified by the allogger, indicated a lack of an effective system for followup on concerns noted by a laborer and there was a weakness in their management system. More recently, however, a system is in place to provide for identification and followup of this type of concern. No technical issue appears to exist.

e. Pipe Support, MS-1-002-005-C72K

(1) General

During the site visit, the allogger indicated to the NRC inspector that MS-1-003-903-C77W had been constructed with excessive gaps between shims. They were subsequently covered by plates so that the excessive gaps could not be seen.

Upon close inspection of MS-1-003-903-C77W and review of the restraint package, it was determined that the gaps between shims installed as part of the restraint support structure had been identified by QC on an NCR. Engineering had determined the as-built condition to be acceptable. This was told to the allogger on January 26, 1984. He then stated that MS-1-002-005-C72K was the support (identified from a drawing) in which there was a hidden gap in the steel that made up the support box. Review of the drawings for MS-1-002-005-C72K was done. No support box was found containing shims. Inspection of all pipe supports in the general area identified by the allogger was done by the NRC inspectors. No supports or restraints were found that would have fit the description of the type of structures of concern to the allogger.

(2) Conclusion

This allegation could not be confirmed based on the general information provided by the alleged or by inspection in the general area.

4. Exit Meeting

On March 13, 1984, the NRC inspector met with the alleged to discuss the findings of this inspection. The alleged stated that he was satisfied that his concerns had been considered sufficiently to determine if a valid problem had existed. He had no further concerns or questions. The NRC inspector offered to send the alleged a copy of the inspection report. This offer was declined.

Also on March 13, 1984, the NRC inspector met with licensee representatives identified in paragraph 1. The findings were discussed and acknowledged by the licensee. The senior resident inspector (construction) was informed of the findings.