660

LAW OFFICES OF

BISHOP, LIBERMAN, COOK, PURCELL & REYNOLDS

1200 SEVENTEENTH STREET, N. W.

WASHINGTON, D. C. 20036

(202) 857-9800

TELEX 440574 INTLAW UI

IN NEW YORK

BISHOP, LIBERMAN & COOK

26 BROADWAY

NEW YORK, NEW YORK 10004

(212) 248-6900

TELEX 222767

April 16, 1984

Peter B. Bloch, Esquire
Atomic Safety and
Licensing Board
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Dr. Walter H. Jordan
881 West Outer Drive
Oak Ridge, Tennessee

Dr. Kenneth A. McCollom, Dean
Division of Engineering,
Architecture & Technology
Oklahoma State University
Stillwater, Oklahoma 74078

Subj: Texas Utilities Electric Company, et al.
(Comanche Peak Steam Electric Station,
Units 1 and 2), Docket Nos. 50-445 and 50-446

Gentlemen:

In accordance with the Board Chairman's request, Applicants hereby provide documentation regarding the disposition of a construction deficiency involving weld indications on a pipe whip restraint which was reported to the NRC as a potentially reportable deficiency (pursuant to 10 C.F.R. §50.55(e)) in September, 1982. As indicated by this documentation, Applicants determined, upon engineering evaluation of the weld indications, that the matter was not a reportable deficiency and so notified the NRC on December 27, 1982. Applicants note that this potential deficiency involved welds on the large pipe whip restraint located outside containment which has been labelled the "George Washington Bridge." The Board will recall it viewed this structure during its site tour in June, 1983.

Also enclosed are copies of NRC I&E Reports documenting NRC review and acceptance of Applicants' evaluation and disposition of the matter. I&E Report 83-12/83-07 documents NRC acceptance of Applicants' evaluation of the weld indications. I&E Report 83-24/15 addresses the significance of two cracks

D503

in the subject welds, finding they would have had no adverse structural impact if they had not been detected. Also enclosed is the NCR documenting the disposition of the weld indications.

Sincerely,

William A. Horin

William A. Horin
Counsel for Applicants

cc: W/ Attachments: Board and parties
cc: W/O Attachments: Remainder of Service List

1
673

FILMED CORRESPONDENCE

DOCKETED
USNRC

'84 APR 19 A10:30

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

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D803

8404190131

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Sincerely,

William A. Horin

William A. Horin
Counsel for Applicants

cc: W/ Attachments: Board and parties
cc: W/O Attachments: Remainder of Service List

TUQ-1419

TEXAS UTILITIES GENERATING COMPANY

OFFICE MEMORANDUM

To J. B. Goerge Glen Rose, Texas September 30, 1982

Subject Comanche Peak Steam Electric Station
CP-82-12

The attached form documents a construction deficiency recently verbally reported to the NRC. Please assign an engineer to evaluate this deficiency working directly with C. T. Brandt to resolve this problem.

We need to jointly determine by October 21, 1982, if this deficiency is formally reportable under 10CFR50.55(e).

Thank you for your cooperation.

R. G. Tolson
TUGCO Site QA Supervisor

RGT/bll
Attachment
cc: D. N. Chapman
G. R. Purdy
B. C. Scott
C. T. Brandt
M. R. McBay

cc rented

DESIGN/CONSTRUCTION
SIGNIFICANT DEFICIENCY ANALYSIS REPORT

I.D. NUMBER 04

UNIT	STRUCTURE	SYSTEM	COMPONENT	SAFETY CLASS
1	SAFEGUARD	Pipe Whip Rest.	Whip Restraint	—

Description of Deficiency: ○ Design ⊗ Construction (MFG)

WELDS DO NOT MEET AWS D1.1-80.
See NCR M82-01589 (attached)

Identified by	Time	Date	TUGCO QA Notified	Time	Date	Format
CONST.	—	—	C T. BRANDT	1030	9/29	NCR M82 01589

ANALYSIS:

1. Preliminary engineering analysis indicates safety of plant operations adversely affected had deficiency gone undetected. ○ YES ○ NO ⊗ UNKNOWN
   Explain briefly: ENG. ANALYSIS IS UNAVAILABLE AT THIS TIME

2. Deficiency considered significant ⊗ YES ○ NO POSSIBLE
   a. Generic implications on other plants ⊗ YES ○ NO POSSIBLE
   b. QA Program Breakdown ⊗ YES ○ NO APPARENT
   c. Design per SAR performance criteria ⊗ YES ~~⊗ NO~~ CAB
   d. Construction not as specified and extensive evaluation or repair required to meet design criteria. ⊗ YES ○ NO
   e. Construction Deficiency discovered after QC acceptance ⊗ YES ○ NO
   f. Could deficiency have gone undetected ⊗ YES ○ NO
   g. System test meets SAR performance criteria ○ YES ○ NO NA
   h. System test results require extensive evaluation and redesign ○ YES ○ NO NA
   i. System test failure can be corrected by internal adjustment or replacement with standard component ○ YES ○ NO NA
   j. Does deficiency require testing and analysis to answer part i above ⊗ YES ○ NO

CONCLUSION:

Deficiency reported ~~under 50.55(e)~~ TO NRC ⊗ YES ○ NO

By: C T Brandt
Date: 9/30
Time: 900 AM

NRC CONTACT	Date	Time	TUGCO REPRESENTATIVE	I.D. NUMBER
R. G. TAYLOR	9/30/82	900 AM	C. T. BRANDT	CP-82-12

cc: D.N. Chapman
J.T. Merritt
Functional QA/QC Manager/Supervisor C T BRANDT

TEXAS UTILITIES GENERATING CO.

COMANCHE PEAK STEAM ELECTRIC STATION
NONCONFORMANCE REPORT ( )

NCR No. M-82-01589

UNIT	STRUCTURE/SYSTEM	ITEM/COMPONENT	TAG/ID NUMBER	LOCATION OR ELEVATION	RIR NO.
1	Safeguards Bldg.	Pipe Whip Restraint	See Attached	852' (Floor)	N/A

REPORTING PERSONNEL

NONCONFORMING CONDITION

Pipe whip restraints supplied by NPS industries (See Attached) have weld indications that are not acceptable per AWS D1.1-80.

4 Hold tags applied.

REFERENCE DOCUMENT: NPSI Ref. Dwg. E-117 & 118 AWS D1.1-80 REV _____ PARA _____

REPORTED BY: B. Baker DATE: 9, 29, 82

QE

QE REVIEW/APPROVAL: [signature] DATE: 9,29,82

ACTION ADDRESSEE: J. B. George/Kissinger DEPARTMENT: Engineering

ACTION ADDRESSEE

DISPOSITION:

REWORK _____ REPAIR _____ USE AS IS _____ SCRAP _____

ENG. REVIEW/APPROVAL DATE: / /

QE

QE REVIEW APPROVAL: DATE: / /

DISPOSITION VERIFICATION & CLOSURE: DATE: / /

COMMENTS:

D-120	1.	W between D-121-14 & D-150-10	U.C.	
	2.	W-29	U.C.	
	3.	W-18	U.C.	
	4.	W-43	I.F.	
	5.	W-42	U.S.	
	6.	W-40	I.F.	
	7.	W-41	I.F.	
	8.	W-6	U.C.	
	9.	W-10	U.C.	
	10.	W-35	I.F.	
	11.	W-8	U.C.	
	12.	W-1	I.F.	
	13.	W-15	U.C.	
	14.	W-2	U.C.	
D-149	1.	W-36	U.C.	
	2.	W-20		
	3.	W-15	I.F.	
	4.	W-46	U.C.	
	5.	W between D-150-10 & D-150-1	U.C.	
	6.	W-4	C.L.	
D-151	1.	W-4	U.C.	
	2.	W-28	U.S.	
	3.	W-49	U.C.	
	4.	W-3	U.C.	
D-153	1.	W-15	C.L. & U.C.	(Plate stamped as D-150-10 shown revised on DWG. as D-150-12)
	2.	W-50	U.C.	
	3.	W-49	INC. W.	
	4.	W between D-154-1 & D-121-14 INC. W		
	5.	W-51	U.C. & B.M.D.	
	6.	W-52	U.C. & INC. W.	
	7.	W-47		
	8.	B.M.D. to Plate D-150-11 (east)		
	9.	B.M.D. to Plate D-154-1 (east of Plate D-150-9)		
D-155	1.	W-48	U.C.	
	2.	W-47	U.C.,C.L., POR.	
	3.	W-46	U.C.,C.L.	
	4.	W-45	U.C.,C.L.	
	5.	W-19	U.C.	
	6.	W-42	U.C.	
	7.	W-43	U.C.	
	8.	W-14	U.C.	
	9.	W-9	U.C.	
D-157	1.	W-48	Crack	
	2.	W-47	U.C.	
	3.	W-46	U.C.	
	4.	W-45	I.F.	
	5.	W-20	U.C.	
	6.	W-32	B.M.D.	
	7.	W-26	U.C.	

cont'd

D-157	8. W-14	U.C.
	9. W-25	U.C.
D-159	1. W-2	U.C.
	2. W-8	U.C.
	3. W-5	U.C.
	4. W-33	I.F.
	5. W-51	U.C.
	6. W-37	U.C.
	7. W-20	U.C.
	8. W-22	U.C.
	9. W-28	U.C.,U.S. (throat)
	10. W-26	U.S.
D-138	1. W-58	U.C.
	2. W-161	contour
	3. B.M.D. on Plate D-139-5 (above 2nd col. from N.,west side)	
	4. B.M.D. on Plate D-139-4 (2nd col. from N., west side)	
	5. B.M.D. on Plate D-138-1-4 (Adj. to W-162)	
	6. B.M.D. on Plate D-139-4 (3rd col. from N., east side)	
	7. W-74	U.C.
	8. W-149	U.C.

D-122 & D-175 (assuming looking east on prints & that D-122 describes top half & D-175 describes bottom half)

#1 (Northern-most)

D-122-1	1. W-9	U.C.
	2. W-20	U.C.
D-175	1. W-2	U.S.

#2 (3rd from N.)

D-122-1	1. W-8	U.C.

D-140

D-140-1-A East

	1. W-147	U.C. (N. and S. sides)
	2. W-10	U.C.
	3. W-12	U.C.
	4. W-145	U.C. (N. & S.)
	5. W-143	U.C. (S.)
	6. W-141	throat & U.C. (N. & S.)
	7. W-22	U.C.
	8. W-139	U.C.

Basemetal damage D-148-1,cold lap, Adj. to W-139 (S.)

D-140-1-B East

East side of W-2 Adj. to W-135 (S.)
U.C.,cold lap
Basemetal damage D-148-4 Adj. to W-131 (N.) & Adj. to W-30
Basemetal damage D-140-1-1 between W-133 (S.) & W-131 (N.)

cont'd

D-140-1-B East

1. W-131	U.C. (S.)
2. W-31	U.C.
3. W-129	U.C. (.S.)
4. W-125	U.C. (N.)
5. W-121	throat (N.)
6. W-119	I.F.,U.C. (N.&S.)
7. W-117	U.C. (S.)
Basemetal damage D-140-1-1 Adj. to W-117	U.C. (S.)

D-140-1-C East

1. W-111	U.C. (S.)
2. W-107	U.C. (N. & S.)
Basemetal damage D-148-2 between W-107 (N.) & W-109 (S.)	
3. W-51	U.C.
4. W-62	U.C.
5. W-61	U.C.
6. W-53	U.C.
7. W-101	U.C. (N.)
8. W-99	I.F. (N.)
9. W-97	I.F. & U.C. (S.)
10. W-66	U.C.
11. W-73	U.C.
12. W-95	U.C. (S.)
13. W-93	U.C. & POR. (N. & S.)
14. W-76	U.C.
Basemetal damage D-140-1-1 adj. to W-115 (N.)	
15. W-115	U.C. (S.)
16. W-86	U.C.
17. W-89	I.F. (S.)

D-140-1-C West

Basemetal damage D-148-2 adj. to W-88 (S.)	
1. W-80	U.C.
2. W-82	U.C.
3. W-114	U.C. (N.)
Arc strike D-148-4 between W-82 & W-114 (N.)	
4. W-2	U.C. (Between W-114 (N.) & W-90 (S.)) (And between W-92 (N.) & W-94 (S.))
5. W-92	U.C. (N.)
6. W-94	U.C. (N.)
7. W-67	U.C.
8. W-96	U.C. (N.)
9. W-69	U.C.
Basemetal damage D-148-4 between W-96 (N.) & W-70	
10. W-98	U.C. (S.) & undersized weld
11. W-100	U.C. (S & N.)
12. W-2	U.C. between W-96 (N.) & W-98 (S.)
Basemetal damage D-148-2 between W-98 (N.) & W-100 (S.)	
Arc strike D-148-1 between W-98 (N.) & W-100 (S.)	
13. W-102	POR. (N.)
14. W-104	U.C. (S.& N.)
15. W-55	U.C.
16. W-57	U.C.
17. W-2	U.C. between W-104 (N.) & W-106 (S.)
18. W-106	U.C. & POR (S.)

cont'd

D-140-1-C West

Basemetal damage Plate D-140-1-1 between W-104 (N.) & W-106 (S.)
B.M.D. Plate D-148-4 adj. to W-104 (N.)

19. W-59	U.C.
20. W-110	U.C. (S.)
21. W-116	POR. (S.)

Arc strike D-148-4 adj. to W-118 (N.)
Basemetal damage D-140-1-1 between W-118 (N.) & W-120 (S.) & adjacent to W-118 (N.)

22. W-122	POR (S.)
23. W-2	U.C. between W-122 (N.) & W-124 (S.)
24. W-124	INC. Weld (N.)
25. W-2	U.C. between W-124(N.) & W-126(S.)
26. W-126	U.C. (S.)
27. W-2	U.C. between W-128 (N.) & W-130 (S.)

B.M.D. D-140-1-1 adjacent to W-130 (S.)

D-140-1-A West

B.M.D. D-148-2 between W-134 (N.) & W-136 (S.)

1. W-138	U.C. (S. & N.)
2. W-25	U.C.
3. W-23	cracked tack
4. W-140	U.C. (S.)
5. W-13	U.C.
6. W-146	U.C. (N.)
7. W-4	crater

DATE: 9 / 30 / 82 Date:

ILITY	NOTIFICATION	ITEM OR EVENT	REGIONAL ACTION
REPORTS MUST INCLUDE SPEECHES (SEE POLICY GUIDE NO. B-26, REV. 1), PAO MEETINGS, OTHER IMPORTANT GS (IN REGION OFFICE), AND A LISTING OF IMPORTANT VISITORS (INCLUDING APPLICABLE NRC PERSONNEL). CK OF PAGE FOR ADDITIONAL SPACE*.			
TRUCTION che Peak 1 -445	Verbal to SRIC on 9/30/82	POTENTIAL 50.55(e) Item: The licensee's welding engineering department has initiated a non-conformance report indicating that a substantial number of vendor welds in large safety-related pipe whip restraint do not meet the requirements of AWS D.1.1, the specified welding code for the component. The component was supplied by NPS Industries and was inspected and accepted at the vendors facility by the licensee's source inspection organization. The reported defects include undercut, lack of fusion, cracks although the amount per weld has not been documented nor evaluated by the design engineer for structural effect. The licensee will file a report on this matter within thirty days.	

NOTE: STATUS OF UNUSUAL SPECIAL INSPECTIONS OR INVESTIGATIONS ARE TO BE INCLUDED IN THE DAILY REPORTS EVERY THURSDAY.

BRANCH SIGNATURE

* CHECK HERE IF BACK OF PAGE CONTAINS INFORMATION ☐

CPPA-24,150

T. .S UTILITIES SERVICES INC.

OFFICE MEMORANDUM

To R. G. Tolson Glen Rose, Texas October 21, 1982

Subject COMANCHE PEAK STEAM ELECTRIC STATION
SDAR CP-82-12
PIPE WHIP RESTRAINT UNACCEPTABLE WELDS
REF: TUQ-1419

In response to your direction forwarded per the referenced correspondence, please be advised our investigation is incomplete at this time. We are continuing our evaluation and anticipate completion within sixty (60) days. A complete report shall be forwarded by Monday, December 20, 1982.

M. R. McBay
Engineering Manager

MRM/RPB/PC/cp

cc: ARMS
J. B. George
R. A. Jones
R. M. Kissinger
J. D. Hicks
R. D. Gentry

TEXAS UTILITIES GENERATING COMPANY
2001 BRYAN TOWER-DALLAS, TEXAS 75201-3050

R. J. GARY
EXECUTIVE VICE PRESIDENT
AND GENERAL MANAGER

October 25, 1982
TXX-3584

Mr. G. L. Madsen, Chief
Reactor Project Branch 1
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012

Docket Nos.: 50-445
50-446

COMANCHE PEAK STEAM ELECTRIC STATION
PIPE WHIP RESTRAINT WELD INDICATIONS
FILE NO.: 10110

Dear Mr. Madsen:

On September 30, 1982, we verbally informed your Mr. R. G. Taylor of a deficiency regarding weld indications in certain pipe whip restraints.

We are continuing our evaluation and anticipate completion by January 3, 1983.

Very truly yours,

for R. J. Gary

RJG:aq

cc: NRC Region IV - (0 + 1 copy)

Director, Inspection & Enforcement (15 copies)
U. S. Nuclear Regulatory Commission
Washington, DC 20555

CPPA-25,096

TEXAS UTILITIES SERVICES INC.

OFFICE MEMORANDUM

To M.R. McBay - Engineering Manager Glen Rose, Texas November 24, 1982

Subject COMANCHE PEAK STEAM ELECTRIC STATION
PIPE WHIP RESTRAINT UNACCEPTABLE WELDS
SDAR-CP-82-12
NCR-M-82-01589

Attached is a copy of the detailed descriptions of the defective welds on the George Washington Bridge Restraint Structure. This information has been reviewed by G & H Structural and found to have no adverse affects on the design function of the structure (Ref. GTT-9241).

Cracks in welds are attributed to field erection and would be repaired inaccordance with normal project procedures. The NCR will be dispositioned accordingly.

R.M. Kissinger
Project Civil Engineer

RMK/sgf
cc: ARMS
C.R. Hooton

~~D-120~~	1.	W between D-121-14 & D-150-10	U.C. 3/16" x 7/32" x 3/64" DEEP, 1/8" x 5/32" x 3/64" DEEP
	2.	W-29	U.C. 1/4" x 3/16" x 1/16" DEEP
	3.	W-18	U.C. 1/8" DIA. x 3/16" DEEP
	4.	W-43	I.F. 1/8" x 3/32" x 3/32" DEEP
	~~5.~~	~~W-42~~	~~U.S.~~
	6.	W-40	I.F. 1/16" x 1/8" x 3/32" DEEP
	7.	W-41	I.F., U.S. 1/16" x 1/8" x 3/32" DEEP (I.F.), 1" x 1" x 3/16" DEEP (U.S.
	8.	W-6	U.C. 1/4" x 1/4" x 1/16" DEEP
	9.	W-10	U.C. 3/4" x 3/32" x 3/64" DEEP
	10.	W-35	I.F. 5/32" x 1/8" x 3/32" DEEP
	11.	W-8	U.C. 1/4" x 3/8" x 3/32" DEEP
	12.	W-1	I.F. 1/16" x 3/64" x 1/8" DEEP
	13.	W-15	U.C. 1/8" x 1/4" x 1/16" DEEP
	14.	W-2	U.C. 1/4" x 3/16" x 1/16" DEEP
D-149	1.	W-36	U.C. 1" x 3/32" x 1/16" DEEP, 1/2" x 1/8" x 3/32" DEEP
	2.	W-20	U.C. 3/32" DIA. x 3/32" DEEP
	3.	W-15	I.F. 1" x 3/8" AT END OF WELD
	4.	W-46	B.M.D., U.C. 1/4" x 3/16" x 1/16" DEEP, 1/4" x 1/8" x 3/32" DEEP, 3/8" x 3/16" x 3/32" DEEP, 3/8" x 1/8" x 1/16" DEEP (B.M.D.
	5.	W ~~between D-150-10 &~~ -32 W-31 ~~D-150-1~~	U.C. ~~U.C.~~ I.F. 3/32" x 3/16" x 3/16" DEEP
	6.	W-4	C.L. 1 1/8" LONG
D-151	1.	W-4	U.C. 7/32" x 3/16" x 1/16" DEEP
	2.	W-28	U.S. 1" x 3/8" x 7/64" DEEP
	3.	W-49	U.C. 7/32" x 3/32" x 1/16" DEEP
	4.	W-3	U.C. 3/16" x 5/32" x 1/16" DEEP
D-153	1.	W-15	C.L. & U.C. → 1/4" LONG (C.L.), 1" LONG (C.L.), 1/8" x 3/8" x 1/16" DEEP (U.C.) 3/4 LONG (C.L.)
	2.	W-50 1/4" x 7/32" x 1/16" DEEP, 1/2" x 3/8" x 3/32" DEEP	U.C. (Plate stamped as D-150-10 shown revised on DWG. as D-150-12)
	3.	W-49	INC. W. 3/8" LONG, 1 1/8" LONG
	4.	W between D-154-1 & D-121-14 INC. W	→ 5/16" x 3/4" x 1/4" DEEP
	5.	W-51 5/16" x 7/32" x 3/64" DEEP (U.C.), 1/4" LONG (INC. W)	U.C. & B.M.D., INC. W. → 5/8" x 1/4" x 3/32" DEEP (B.M.D.) 5/8" x 1/4" x 3/64" DEEP (B.M.D.)
	6.	W-52	U.C. & INC. W. 3/8" x 3/16" x 1/16" DEEP (U.C.), 1" LONG (INC. W), 1/4" LONG (INC. W)
	7.	W-47	U.C. → 1/8" x 1/4" x 3/32" DEEP
	8.	B.M.D. to Plate D-150-11 (east)	→ 1/2" x 1/8" x 3/32" DEEP
	9.	B.M.D. to Plate D-154-1 (east of Plate D-150-9)	→ 5/16" x 1/4" x 3/32" DEEP, 1/4" x 3/16" x 1/16" DEEP
D-155	1.	W-48	~~U.C.~~, I.F., C.L. 3/8" x 3/8" (I.F.), 1/2" LONG (C.L.)
	2.	W-47	U.C., C.L., POR. 25" x 1/4" x 1/8" DEEP, 25" x (1/4" - 3/4") x 1/16" DEEP
	3.	W-46	U.S., U.C., C.L. 24" x 1/16" DEEP, 1 1/2" LONG x 3/8" (U.S.), 10" LONG (C.L.), 1" x 1/2" x 1/16" DEEP (U.C.)
	4.	W-45	U.C., C.L. 24" LONG (C.L.), 5/16" x 1/8" x 1/16" DEEP (U.C.), 3/8" x 3/8" x 3/16" DEEP
	5.	W-19	U.C. 1/4" x 1/4" x 1/16" DEEP
	6.	W-42	U.C. 3/4" x 1/4" x 1/8" DEEP
	7.	W-43	U.C. 1/4" x 1/4" x 1/8" DEEP
	8.	W-14	~~U.C.~~ I.F. 1/8" x 1/8" x 1/8" DEEP
	9.	W-9	U.C. 3/4" x 1/4" x 1/8" DEEP
D-157	1.	W-48	Crack 4" LONG
	2.	W-47	U.C. 3/32" x 5/32" x 1/8" DEEP
	3.	W-46	U.C. 3/8" x 3/32" x 5/32" DEEP
	4.	W-45	I.F. 5/16" x 1/32" x 3/32" DEEP
	5.	W-20	U.C. 3/4" x 1/4" x 1/16" DEEP
	6.	W-32	B.M.D. 3/16" x 3/16" x 3/32" DEEP
	7.	W-26	U.C. 1/8" x 3/16" x 1/8" DEEP

cont'd

D-157
8. W-14 — U.C. 12" × 1/8" × 1/32" DEEP
9. W-25 — U.C. 3/16" × 1/16" × 1/32" DEEP

D-159
1. W-2 — U.C. 1/4" × 1/8" × 1/8" DEEP
2. W-8 — ~~U.C.~~ C.L. 1/2" LONG
3. W-~~28~~ 6 — ~~U.C.~~ B.M.D. 1" × 1/8" × 1/16" DEEP
4. W-33 — I.F. 3/4" × 1/8" × < 3/32" DEEP
5. W-51 — U.C. 9 1/2" TOTAL LENGTH × 1/4" × 3/64" DEEP *
6. W-37 — U.C. 2" × 1/4" × 1/8" DEEP
7. W-20 — U.C. 1" × 3/16" × 1/8" DEEP
8. ~~W-22~~ — U.C.
9. W-28 — U.C., U.S. (throat) 1/2" × 1/8" × 1/8" DEEP (U.C.), 1/16" DEEP (U.S.)
10. ~~W-26~~ — U.S.
* SEE OTHER SIDE — W-15 — U.C. 10" × 1/16" × 1/16" DEEP

D-138
1. W-58 — U.C. 3/8" × 1/8" × 3/32" DEEP
2. W-161 — contour 1/8" × 1/8" × 3/32" DEEP
3. B.M.D. on Plate D-139-5 (above 2nd col. from N., west side) → 1/2" × 3/8" × 9/32" DEEP
4. B.M.D. on Plate D-139-4 (2nd col. from N., west side) → 2" × 5/16" × 3/32" DEEP, 1/4" × 3/16" × 1/8" DEEP
5. B.M.D. on Plate D-138-1-4 (Adj. to W-162) → 1/2" × 3/8" × 1/8" DEEP
6. B.M.D. on Plate D-139-4 (3rd col. from N., east side) { 1/2" × 1/8" × 1/16" DEEP, 1/4" × 1/8" × 3/64" DEEP, 3/16" DIA. × 1/16" DEEP ; 9/16" × 1/8" × 3/32" DEEP, 3/8" × 1/4" × 1/8" DEEP, 3/16" × 3/16" × 3/32" DEEP, 3/16" × 1/8" × 1/16" DEEP }
7. W-74 — U.C. 3/4" × 3/16" × 1/16" DEEP
8. W-149 — U.C. 1 1/4" TOTAL LENGTH × 1/8" × 3/64" DEEP *

D-122 & D-175 (assuming looking east on prints & that D-122 describes top half & D-175 describes bottom half)

(Northern-most)
D-122-1
1. W-9 — U.C. 1/8" × 1/8" × 1/8" DEEP
2. W-20 — U.C., I.F. 3/16" × 1/8" × 3/64" DEEP (U.C.), 1/8" × 1/8" × 1/8" DEEP (I.F.)

D-175
1. W-2 — U.S. 1" × 15/16" × 1/8" DEEP

(3rd from N.)
D-122-1
1. W-8 — U.C. 1/4" × 1/16" × 1/16" DEEP

D-140

D-140-1-A East
1. W-147 — 5/8" × 3/16" × 1/16" DEEP, 3/4" × 3/8" × 1/8" DEEP ← U.C. (N. and S. sides), C.L. → 3/4" TOTAL LENGTH × 1/8" × 3/64" DEEP *, 1/2" LONG (C.L.)
2. W-10 — U.C. 1 1/4" TOTAL LENGTH × 1/8" × 3/64" DEEP *
3. W-12 — U.C. 1 5/8" TOTAL LENGTH × 1/4" × 1/16" DEEP *
4. W-145 — U.C. (N. & S.) 3/4" × 3/16" × 3/64" DEEP, 1/4" × 1/8" × 1/16" DEEP
5. W-143 — U.C. (S.) 5/8" × 1/8" × 1/16" DEEP
6. W-141 — C.L., throat ~~& U.C.~~ (N. & S.) 5/16" LONG (C.L.), 4 1/2" LONG (THR.)
7. W-22 — U.C. 1" TOTAL LENGTH × 1/8" × 3/64" DEEP *
8. W-139 — U.C., C.L. 1 1/2" TOTAL LENGTH × 1/8" × 1/32" DEEP (U.C.), 1/4" LONG (C.L.) *

Basemetal damage D-148-1, ~~cold lap,~~ Adj. to W-139 (S.) → 5/16" DIA. × 1/16" DEEP

D-140-1-8 East
East side of W-2 Adj. to W-135 (S.)
U.C., cold lap → 3/4" LONG (C.L.), 2 5/8" × 5/16" × 3/32" DEEP (U.C.)
Basemetal damage D-148-4 Adj. to W-131 (N.) & Adj. to W-30 → 1/4" DIA. × 1/32" DEEP (@ W-131), 7/16" × 1/4" × 3/64" DEEP (@ W-30)
Basemetal damage D-140-1-1 between W-133 (S.) & W-131 (N.) 3/8" × 3/16" × 3/32" DEEP, 1/8" × 1/16" × 1/16" DEEP

* WIDTH AT WIDEST POINT, DEPTH AT DEEPEST POINT

cont'd

D-140-1-B East

1. W-131 — U.C. (S.) 10" x 5/16" x 1/4" Deep
2. W-31 — U.C. 1/4" x 3/16" x 3/16" Deep
3. W-129 — U.C. (S.) 1" x 3/16" x 3/16" Deep
4. W-125 — U.C. (N.) 1/4" x 3/16" x 3/16" Deep
5. W-121 — throat (N.) 5" total length
6. W-119 — I.F., U.C. (N. & S.) 3/16" x 1/4" x 1/4" Deep, (I.F.) 1/4" length
7. W-117 — U.C. (S.) 2 3/4" x 3/16" x 3/16" Deep

Basemetal damage D-140-1-1 Adj. to W-119 (N.) — U.C. (S.) ~~2" x 3/16" x 3/16" Deep~~ 3/16" x 1/4" x 1/4" Deep, 1/4" x 3/16" ~~Deep~~

D-140-1-C East

1. W-111 — U.C. (S.) 5/16" x 3/16" x 1/4" Deep
2. W-107 — U.C. (N. & S.) 1/4" x 1/4" x 1/4" Deep, 1/4" x 1/4" x 1/4" Deep

Basemetal damage D-148-2 between W-107 (N.) & W-109 (S.) 1/4" x 1/4" x 3/16" Deep

3. W-51 — U.C. 1/4" x 1/4" x 1/4" Deep
4. W-62 — U.C. 1/4" x 1/4" x 1/4" Deep
5. W-61 — U.C. 1/4" x 3/16" x 3/16" Deep
6. W-53 — U.C. 1/4" x 1/4" x 1/4" Deep, 1/4" x 1/4" x 1/4" Deep
7. W-101 — U.C. (N.) 3/16" x 3/16" x 3/16" Deep
8. W-99 — I.F. (N.) 1/4" length
9. W-97 — I.F. & U.C. (S.) 1/4" x 1/4" x 3/16" Deep, 1/4" length (I.F.)
10. W-66 — U.C. 1/4" x 1/4" x 1/4" Deep, 1/4" x 3/16" x 1/4" Deep
11. W-73 — U.C. 1/4" x 3/16" x 1/4" Deep
12. W-95 — U.C. (S.) 1/4" x 1/4" x 3/16" Deep
13. W-93 — U.C. & POR. (N. & S.) Bc-1" length UC. 1/4" x 3/16" x 3/16" Deep
14. W-76 — U.C. 1/4" x 1/4" x 3/16" Deep

Basemetal damage D-140-1-1 adj. to W-115 (N.) 1/4" x 1/4" x 3/16" Deep

15. W-115 — U.C. (S.) 1/4" x 3/16" x 1/4" Deep
16. W-86 — U.C. 3/16" x 1/4" x 1/4" Deep
17. W-89 — I.F. (S.) 1/4" length

1/4" x 1/4" Deep, 1/4" x 1/4" x 1/4" Deep, 1/4" x 3/16" x 3/16" Deep, 1/4" x 1/4" x 1/4" Deep, 1/4" x 1/4" x 1/4" Deep

D140-1-C West

Basemetal damage D-148-2 adj. to W-88 (S.) 1" x 1/4" x 3/16" Deep, 1/4" x 3/16" x 3/16" Deep, 1/4" x 1/4" x 1/4" Deep, 1/4" x 1/4" x 1/4" Deep

1. W-80 — U.C. 13/16" x 1/4" x 3/16" Deep
2. W-82 — U.C. 1/2" x 1/16" x 1/16" Deep
3. W-114 — U.C. (N.) 4 [illegible] x 3/32" x 1/16" Deep

Arc strike D-148-4 between W-82 & W-114 (N.) 3/16" x 1/4" x 1/16" Deep

4. W-2 — U.C. (Between W-114 (N.) & W-90 (S.)) 1/16" x 1/16" x 1/16" Deep (And between W-92 (N.) & W-94 (S.)) 1/16" x 1/16" x 1/16" Deep
5. W-92 — U.C. (N.) 3" x 1/16" x 1/16" Deep
6. W-94 — U.C. (N.) 2" x 1/16" x 1/16" Deep
7. W-67 — U.C. 1/2" x 1/16" x 1/16" Deep
8. W-96 — U.C. (N.) 1" x 1/16" x 1/16" Deep
9. W-69 — U.C. 1/2" x 1/16" x 1/32 Deep

Basemetal damage D-148-4 between W-96 (N.) & W-70 Length 2" x 1/16" x 1/16" Deep

10. W-98 — U.C. (S.) & Undersized weld 1" UC. 1/16" x 1/16" x 1/16"
11. W-100 — U.C. (S & N. (S.) 1/16" x 1/16" x 1/16" Deep (N.) 1/2" x 1/16" x 1/16" Deep
12. W-2 — U.C. between W-96 (N.) & W-98 (S.) 1/16" x 1/16" x 1/16" Deep

See Back of this page *

Basemetal damage D-148-2 between W-98 (N.) & W-100 (S.)

Arc strike D-148-1 between W-98 (N.) & W-100 (S.) 1/2" x 1/4" x 1/16 Deep

13. W-102 — POR. (N.) 4" x 1/32"
14. W-104 — U.C. (S.& N.) (S.) 13" x 1/16" x 1/16" Deep (N.) 1/2" x 1/16" x 1/16" Deep
15. W-55 — U.C. 12" x 1/16" x 1/16" Deep
16. W-57 — U.C. 10" x 1/16" x 1/16" Deep
17. W-2 — U.C. between W-104 (N.) & W-106 (S.) 1/16" x 1/16" x 1/16"
18. W-106 — U.C. & POR (S.) Bc.- 1/2" x 1/4"

UC.- 1/4" x 1/16 x 1/16 Deep

* D-159 (CONT.)	W-45	I.F., U.S. 1/4" x 1/4" x 1/8" DEEP (I.F.), 21" LONG (U.S.).
	W-46	U.S. 1" LONG
	W-47	U.C., C.L. 2" x 1/8" x 1/8" DEEP, 2" x 1/8" x 3/32" DEEP
	W-48	U.C. 24" x 1/8" x 1/16" DEEP
	WELD BETWEEN R D-150-10 AND R D-121-14	B.M. D. 4 1/2" x 3/4" x 1/32" DEEP
	W-34	U.S., I.F. BELOW FLUSH (U.S.), 8 1/4" x 1" x 1/32" DEEP

D-140-1-C West

See Below * Basemetal damage Plate D-140-1-1 between W-104 (N.) & W-106 (S.)
B.M.D. Plate D-148-4 adj. to W-104 (N.) 3/32" x 3/16" x 1/32" Deep
19. W-59 U.C. 5/8" x 1/4" x 3/16" Deep
20. W-110 U.C. (S.) 3/8" x 1/4" x 1/32" Deep

D-140-1-B West

21. W-116 POR. (S.) 3/16" x 1/4" x 1/16" Deep → Rec. 20"
Arc strike D-148-4 adj. to W-118 (N.) 1/2" x 1/8" x 1/64" Deep

See Below * Basemetal damage D-140-1-1 between W-118 (N.) & W-120 (S.) & adjacent to W-118 (N.)
22. W-122 POR (S.) 2" Length
23. W-2 U.C. between W-122 (N.) & W-124 (S.) 1/8" x 1/8" x 1/8" Deep
24. W-124 INC. Weld (N.) 1/4" Length
25. W-2 U.C. between W-124 (N.) & W-126 (S.) 1/4" x 3/32" x 1/16" Deep
26. W-126 U.C. (S.) 13/16" x 3/32" x 3/64" Deep
27. W-2 U.C. between W-128 (N.) & W-130 (S.) 1" x 1/8" x 3/32" Deep
B.M.D. D-140-1-1 adjacent to W-130 (S.) 3/32" x 1/8" x 3/64" Deep, 3/16" x 3/8" x 5/64" Deep

D-140-1-A West

B.M.D. D-148-2 between W-134 (N.) & W-136 (S.) 1/8" x 1/4" x 3/64" Deep
1. W-138 U.C. (S. & N.) 1/4" x 3/8" x 3/32" Deep
2. W-25 U.C. 1/2" x 1/4" x 1/16" Deep
3. W-23 cracked tack 3/8" length
4. W-140 U.C. (S.) 5/8" x 1/4" x 1/32" Deep
5. W-13 U.C. 3/16" x 1/8" x 3/64" Deep
6. W-146 U.C. (N.) 1/2" x 3/4" x 1/16" Deep
7. W-4 crater 1/2" x 5/8" x 1/8" Deep

* Basemetal damage Plate D-140-1-1 between W-104 (N.) & W-106 (S.)
Multiple Gouge Marks ~~done an area~~ 1 1/2" in length, 1" in width, ~~depth of gouges~~ 1/8" maximum. Spatter in same area, 3/32" x 3/16", protruding 1/16".

* Basemetal damage D-140-1-1 between W-118 (N.) & W-120 (S.) & adjacent to W-118 (N.)
1" x 1/4" x 1/32" Deep; 3/8" x 5/16" x 1/8" Deep, 7/16" x 1/4" x 3/64" Deep, 3/8" x 1/4" x 1/16" Deep

* Base Metal Damage D-148-2 between weld 93 (N.) and weld 100 (S.)

Total of 6 gouge marks at this area
(1) Length 1" Width $\frac{1}{8}$" depth $\frac{3}{32}$"
(2) Length 1" Width $\frac{1}{8}$" depth $\frac{1}{16}$"
(3) Length $\frac{3}{16}$" Width $\frac{1}{8}$" depth $\frac{3}{16}$"
(4) Length $\frac{1}{4}$" Width $\frac{1}{4}$" depth $\frac{3}{32}$"
(5) Length $\frac{1}{4}$" Width $\frac{1}{4}$" depth $\frac{1}{8}$"
(6) Length 1" Width $\frac{1}{4}$" depth $\frac{1}{8}$"

arno
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Rec 11-22-82
4:15 PM
EDF

TUGCO GRSE

428813 GHNY UI
MSG KM216

NOVEMBER 22, 1982

TUSI SITE

GTT-9241

JOB 2323

ATTENTION: J.P. GEORGE/R.M. KISSINGER

SUBJECT: UNACCEPTABLE WELDS

REFERENCE: NCR M-82-01589

AS REQUESTED WE HAVE REVIEWED THE WELDS IDENTIFIED IN THE REFERENCE NCR. THESE WELDS HAVE BEEN IDENTIFIED AS NOT BEING ACCEPTABLE PER ASDI1-80. WE HAVE INVESTIGATED THE STRUCTURES INVOLVED AND HAVE DETERMINED THAT THESE WELD DEFICIENCIES WOULD NOT ADVERSELY AFFECT THE DESIGN FUNCTION OF THE STRUCTURES.

IN THOSE FEW CASES WHERE CRACKS IN WELDS HAVE BEEN OBSERVED THEY ARE TO BE FIELD REPAIRED AND ARE NOT INCLUDED IN OUR INVESTIGATION.

R.Z. PALLARD/E.L. BEZKOR/A.M. KENKRE/S. SENGUPTA
GIBBSHILL NEW YORK

428813 GHNY UI

TUGCO GRSE
.....
428813 GHNY UI

INTEROFFICE MEMO

December 2, 1982

TO: W. E. Baker

FROM R. Blackett

SUBJECT: Reinspection of Pipe Whip Restraints 2323-SI-0671
Drawing E-117, Unit #1, Safeguard Building

Reinspection of the subject restraints has revealed discrepancies in addition to those previously reported.

The additional discrepancies are detailed on Attachment #1

The following abbreviations are applicable.

AS	Arc strike on base metal adjacent to the weld.
E	East
FS	Far side
IF	Incomplete fusion either between weld and base metal, or between weld beads.
IP	Incomplete penetration
NS	Near side
S	South
T	Insufficient throat dimension
UC	Undercut
US	Undersize weld
WP	Unacceptable weld profile

Note: All undercut dimensions are given as: length x width x depth. If no third dimension is given, depth is greater than 1/32".

R. Blackett
Staff Assistant, Special Projects

cc: R. Tolson
Tom Brandt

PIPE WHIP RESTRAINT DISCREPANCIES ATTACHMENT #1

ASSEMBLY #	WELD #	DISCREPANCIES	REMARKS
4 D-120-1	3 FS	UC	3/8" x 3/32" x 1/16"
		UC	3/8" x 3/32" x 1/16"
		UC	1¼" x 3/32" x 3/64"
15 D-120-1	3 NS	UC	4½" x 1/16" x 3/64"
		UC	1" x 1/8" x 3/64"
		UC	5½" x 3/16" x 1/16"
3 D-120-1	11	UC	1 ½" x 3/32" x 1/16"
14 D-120-1	12 NS	UC	20" x 3/16" x 1/16"
2 D-120-1	13 FS	UC	7/8" x 3/32" x 1/16"
		UC	1 3/4" x 3/32" x 1/16"
7 D-120-1	13 NS	UC	19½" x 3/16" x 1/16"
		UC	3/16" x 3/16" x 3/32"
9 D-120-1	13 NS	UC	18½" x 1/8" x 1/16"
8 D-120-1	14 NS	UC	8½" x 3/16" x 1/16"
12 D-120-1	16	IF	1½" LENGTH
11 D-120-1	17	IF	4 3/4" LENGTH
1 D-120-1	18	UC	½" x 3/32" x 1/16"
		UC	5/8" x 1/8" x 1/16"
		UC	3/4" x 3/32" x 3/32"
10 D-120-1	18	UC	1/8" x 1/16" x 1/16"
5 D-120-1	19	UC	1¼" x 3/32" x 1/16"
6 D-120-1	40	IP	LENGTH INDETERMINATE
17 D-120-1	41	IP	3/4" WIDE, LENGTH INDETERMINATE
		IP	¼" WIDE, LENGTH INDETERMINATE
16 D-120-1	46 NS	US	2½" LENGTH

215 D-138-1-D	148	IP	3/8"
191 D-138-1-B	167	IP	¼"
200 D-138-1-B	173	UC UC	1¼" x 3/16" ¼" x 1/8"
228 D-138-1-B	175	UC	1¼" x ¼"
227 D-138-1-B	177	UC	¼" x 1/16"
202 D-138-1-C	178	UC	3/8" x 3/16" x 1/16"
224 D-138-1-C	185	UC	¼" x 1/16" x 1/16"
207 D-138-1-D	188	UC	3/16" x 3/32"
214 D-138-1-D	281	CRACK	7/16" LENGTH
178 D-140-1-C	1	UC	7½" x ¼"
175 D-140-1-C	2	IF	1 1/8" LENGTH
185 D-140-1-B	2	UC IF IF	3/4" x 3/16" 2" 2 3/8"
161 D-140-1-B	31	UC	3/8" x 1/16"
182 D-140-1-B	43	UC	14½" x 1/8"
181 D-140-1-B	45	IF	1½"
173 D-140-1-C	89 S	UC	½" x 1/16"
174 D-140-1-C	89 N	UC	3/8" x 1/16"

176 D-140-1-C	90	UC	3/4" x 3/16"
		UC	3/16" x 1/16"
170 D-140-1-C	93 N	UC	7/8" x 3/16"
171 D-140-1-C	93 S	UC	3/8" x 3/16"
		UC	1/8" DIA. X 3/32" DEEP
		UC	3/16" x 3/32" x 3/32"
177 D-140-1-C	94	UC	17" x 3/16"
169 D-140-1-C	95 N	US	6"
		UC	1/8" DIA.
179 D-140-1-C	96	UC	4" x 3/16"
168 D-140-1-C	97 S	WP	4½" LENGTH
		UC	3/8" x 1/16"
167 D-140-1-C	99 S	UC	1½" x 1/16"
		IF	3 3/4"
166 D-140-1-C	101 S	UC	2½" x ¼"
164 D-140-1-C	103 N	UC	¼" x ¼"
165 D-140-1-C	103 S	UC	7/8" x ¼" x 3/32"
163 D-140-1-B	111	UC	3/16" x 1/16"
		UC	3/4" x 1/8"
180 D-140-1-B	112	UC	3/16" DIA. X 1/16" DEPTH
172 D-140-1-C	115	UC	32" x ¼"
		T	3/16" x 3/32"
162 D-140-1-B	117	UC	3/16" x 1/16"
183 D-140-1-B	124	UC	3/8" x 1/16"
		UC	3/16" DIA. X 3/32" DEPTH

160	D-140-1-B	125	UC	½" x 3/32"
184	D-140-1-B	126 N	UC	½" x 1/16"
			UC	3/4" x 1/16"
159	D-140-1-B	127	IF	1"
			UC	3/8" x 1/16"
158	D-140-1-A	141	UC	¼" x 1/16"
186	D-140-1-B	144	UC	¼" DIA. X 3/64" DEPTH (2 PLACES)
157	D-140-1-A	149	UC	1¼" x 3/16"
			UC	1" x ¼"
35	D-149-1	3 FS	UC	3/4" x 1/8"
			UC	1" x 1/16"
			UC	4¼" x 1/8"
32	D-149-1	4	IF	3/8" LENGTH
36	D-149-1	5 FS	UC	7" x 1/8"
37	D-149-1	5 NS	UC	½" x 1/8"
			UC	¼" x 3/32" x 3/32"
20	D-149-1	11	UC	3/8" x 1/8"
			UC	½" x 3/16" (2 PLACES)
			UC	½" x 1/8" (2 PLACES)
			UC	26½" x 3/16"
39	D-149-1	11	UC	3/8" x 1/16"

18 D-149-1	13	US	1" x 1/8"
		UC	1 3/8" x 1/8"
		UC	3/4" x 1/8"
		UC	1" x 1/8"
		UC	3/4" x 1/8"
		UC	½" x 1/8"
40 D-149-1	13 FS	UC	½" x 1/16"
		UC	3/8" x 1/16"
41 D-149-1	15	IF	¼" WIDTH
		IF	1¼" LENGTH
26 D-149-1	16	UC	1" x 1/16" x 1/16"
30 D-149-1	16	UC	3/8" x 1/16"
		UC	3/4" x 1/8" x 3/32"
28 D-149-1	22 FS	UC	3/4" x 1/8"
		UC	½" x 1/16"
29 D-149-1	25	UC	3/4" x 1/8"
27 D-149-1	30	UC	¼" x 1/16"
38 D-149-1	43 NS		UNIDENTIFIED LINEAR INDICATION 5" LENGTH
31 D-149-1	45 FS	IF	1½" LENGTH
		UC	¼" x 3/32"
33 D-149-1	46		WELD IS ½" SHORT OF BEING FULL LENGTH
		UC	¼" x 1/16" x 3/32"

21 D-149-1	47 FS	UC	3/4" x 1/8" x 3/32"
		UC	3/4" x ¼" x 3/16"
		UC	½" x ¼" x 1/8"
34 D-149-1	47 NS	IF	1 3/4" LENGTH
		UC	¼" x 3/16" (2 PLACES)
19 D-149-1	48	US	3" LENGTH
		UC	3" x 1/8"
		UC	3/8" x 1/8" x 3/64"
		UC	3/16" x 1/16" x 3/64"
24 D-149-1	50	IP	LENGTH INDETERMINATE
23 D-149-1	53	IF	LENGTH INDETERMINATE
22 D-149-1	54	IF	LENGTH INDETERMINATE
25 D-149-1	55	IF	3/8" LENGTH
		IF	¼" WIDTH, LENGTH INDETERMINATE
60 D-151-1	3 NS	IF	3/8"
62 D-151-1	4 NS	UC	1/8" DIA.
57 D-151-1	5 NS	UC	1 1/8" x 1/16"
		IF	2½" LENGTH
46 D-151-1	6	IF	¼" LENGTH
49 D-151-1	8	UC	½" x 1/8"
		UC	¼" x 1/8"
		UC	3/16" x 1/16"

59 D-151-1	9 NS	UC	3/16" DIA.
61 D-151-1	9 NS	UC	2½" x 1/8"
66 D-151-1	9 NS	UC	½" x 3/16" x 3/16"
48 D-151-1	10	UC	11½" x 1/8"
		UC	3/8" x 1/8"
53 D-151-1	11	UC	29" (INTERMITTANT) x 1/8"
45 D-151-1	12	UC	¼" x 1/16"
		UC	3/8" x ¼"
		UC	2½" x 5/16" x 1/16"
47 D-151-1	12 FS	UC	¼"DIA.
44 D-151-1	13 FS	UC	3/16" x 3/32" x 3/64"
		UC	1/8" DIA. x 1/16" DEPTH
		UC	3/16" x 1/16" x 3/64"
54 D-151-1	13 NS	UC	1" x 1/16"
42 D-151-1	29 FS	UC	¼" x 1/8" x 1/16"
52 D-151-1	29 NS	WP	6" LENGTH
		UC	½" x 1/16"
51 D-151-1	33 NS	UC	½'" x 1/8"
43 D-151-1	34	UC	3/4" x 3/16" x 3/64"
67 D-151-1	46 FS	UC	3/4" x 1/8" x 1/16"
		UC	½" x 3/4" x 1/16"

65 D-151-1	47	UC	8½" x 1/8"
50 D-151-1	48	UC	9 1/8" x 1/8"
64 D-151-1	49 NS	UC	4" x 1/8"
		IF	½" LENGTH
63 D-151-1	50 NS	UC	3/8" x 1/8"
56 D-151-1	51 NS		HOLE IN WELD 3/16" DIA. X 1/16" DEPTH
58 D-151-1	51 FS	IF	1 1/8" LENGTH
55 D-151-1	52 NS	IF	1"
130 D-153-1	2 FS	UC	3/16" x 1/16"
76 D-153-1	3 NS	UC	1¼" x 1/8"
		UC	½" x 1/16" (2 PLACES)
		UC	¼" x 1/16"
		WP	1½" LENGTH
		UC	5" x 1/16"
		UC	½" x 1/16" (2 PLACES)
126 D-153-1	3 FS	UC	3/16" x 1/16"
129 D-153-1	5 NS	UC	3/16" x 1/16"
132 D-153-1	6 FS	UC	¼" x 1/16" (2 PLACES)
127 D-153-1	7 FS	UC	¼" x 1/8"
71 D-153-1	10 NS	UC	¼" x 1/8"
		AS	3/16" DIA., DEPTH INDETERMINATE
136 D-153-1	10 FS	UC	½" x 1/8" x 3/32"
		UC	1/8" DIA. X 1/16" DEPTH

70 D-153-1	11 NS	AS	½" x 3/16" DEPTH INDETERMINATE
134 D-153-1	11 NS	UC	1½" x 1/16"
135 D-153-1	12 FS	UC UC UC	½" x 1/16" (2 PLACES) ¼" x 1/16" 2½" x ¼"
68 D-153-1	13 NS	UC	1½" x 1/16"
137 D-153-1	15 FS	UC	¼" x 1/16" (3 PLACES)
79 D-153-1	16 NS	UC	1 1/8" x 5/16" x 1/8"
78 D-153-1	18 NS	UC	2½" x 1/8"
125 D-153-1	20 FS	UC	2½" x 1/8"
80 D-153-1	21 NS	UC	3/8" x 3/16"
77 D-153-1	23 NS	IF CRACK	6" LENGTH 3½" LONG
122 D-153-1	23 FS	UC	¼" x 1/16" (2 PLACES)
123 D-153-1	25 FS	UC	¼" x 1/16" (4 PLACES)
124 D-153-1	28	UC	3/16" x 1/16"
128 D-153-1	46 NS		2" WP, IF, UC CONCURRENTLY
131 D-153-1	46 FS	IF	3/8"
133 D-153-1	47 FS	UC	3/4" x 1/16" (5 PLACES)
69 D-153-1	50 NS	UC	¼" x 1/16"
73 D-153-1	50 FS	UC AS	¼" x 1/8" (3 PLACES) 3/4" x ¼" x 3/32"

72 D-153-1	51 FS	UC	¼" x 1/16"
		UC	3/16" x ¼"
		AS	3/4" x ¼"
		AS	1 " x 3/16"
75 D-153-1	51 NS	UC	¼" x 1/16"
74 D-153-1	52		WELD IS 1" LESS THAN REQUIRED LENGTH ON EACH END.
		UC	¼" x ¼" x 1/8"
138 D-153-1	57 FS	UC	3/4" x 3/16" x 1/8"
		UC	3/8" x ¼" x 1/8"
149 D-155-1	1 FS	UC	¼" x 3/32"
146 D-155-1	7 FS	UC	¼" x 1/16"
143 D-155-1	11 FS	UC	½" x 1/16" (3 PLACES)
		UC	1" x 1/8" x 3/32"
139 D-155-1	13 NS	UC	3/16" x 1/16"
142 D-155-1	13 FS	UC	3" x 1/8"
		UC	2½" x 1/8"
		UC	3/8" x 1/16"
		UC	1¼" x 1/8"
		UC	3/16" DIA. x 1/16" DEPTH
148 D-155-1	20 FS	UC	½" x 1/16"
		UC	3/8" x 3/16"
		UC	¼" x 1/16"
147 D-155-1	22 FS	UC	¼" x 3/32"
144 D-155-1	41 FS	UC	¼" x 3/16" x 3/32"
140 D-155-1	48 FS	UC	5/8" x 3/16"
141 D-155-1	48 NS		7" WP, UC, IF CONCURRENTLY
		UC	3/8" x 1/16"

145 D-155-1	52 FS	UC	½" x 1/16"
93 D-157-1	1 NS	UC	3/4" x 1/8"
92 D-157-1	8	AS	¼" DIA.
97 D-157-1	8 NS	UC UC	3/4" x 1/8" ¼" x 1/16"
94 D-157-1	9 NS	IF	½" LENGTH
91 D-157-1	11 FS	UC	¼" x 1/16" (4 PLACES)
87 D-157-1	13 FS	UC	3/8" x 1/16" (2 PLACES)
100 D-157-1	13 NS	UC UC	¼" x 1/16" (2 PLACES) 3" x 1/16"
90 D-157-1	14 FS	UC IF	3/4" x 1/8" x 3/32" 1/8" DIA.
86 D-157-1	15	UC	¼" x 1/8"
102 D-157-1	15 NS	UC	¼" x 1/16"
101 D-157-1	16 NS	UC	3/4" x 1/16"
103 D-157-1	18	UC UC UC	½" x 1/8" (2 PLACES) 1¼" x 3/16" 3/4" x 1/8"
83 D-157-1	19 FS	UC	5/8" x 3/16"
85 D-157-1	19 FS	UC	¼" x 1/16" (2 PLACES)

82 D-157-1	22 FS	UC	¼" x 1/16"
		UC	3/8" x 1/16" (2 PLACES)
		UC	4" x 1/16"
154 D-157-1	22 FS	UC	1 1/8" x 3/16"
155 D-157-1	22 NS	UC	3/16" Dia. x 3/32" deep
		UC	½" x 3/8" x 1/16"
104 D-157-1	23 NS	UC	23" x 1/8" x 1/16"
81 D-157-1	25 FS	UC	¼" x 1/16" (2 PLACES)
		UC	3/4" x 1/16"
		UC	3/8" x 1/16"
156 D-157-1	25 FS	UC	3/16" x 1/8"
		US	2" LENGTH
89 D-157-1	38	IF	5/16" LENGTH
153 D-157-1	45 NS	UC	1 5/8" x 3/16"
99 D-157-1	46 NS		WELD IS 1 1/8" SHORT OF REQUIED LENGTH
		AS	1½" x 3/16"
		UC	½" x 1/8" (5 PLACES)
		WP	24" LENGTH
152 D-157-1	46 FS		2" UC, IF CONCURRENTLY. ¼" LESS THAN THAN REQUIRED LENGTH
96 D-157-1	47 NS	UC	1¼" x 3/16" x 1/16"
		IF	2" LENGTH
		AS	¼" DIA.

98 D-157-1	47 FS	UC	½" x 3/32"
95 D-157-1	48 FS	UC	¼" x ¼" x 3/32" (2 PLACES)
		UC	½" x 1/8" (3 PLACES)
		UC	1¼" x 3/16"
84 D-157-1	49 FS	UC	¼" x 1/16" (2 PLACES)
88 D-157-1	50	UC	¼" x 1/16" (2 PLACES)
		UC	½" x 1/16" (3 PLACES)
		IF	5/16" WIDTH
151 D-157-1	54	IF	1½"
105 D-159-1	3 NS	UC	4" x 1/8"
		UC	½" x 1/8"
120 D-159-1	3 FS	UC	½" x 3/16"
106 D-159-1	4 NS	UC	1½" x 3/16"
		UC	3/16" x 1/16" x 3/64"
109 D-159-1	4 FS	IF	24" LENGTH
118 D-159-1	5 W	UC	3/8" x 3/16" x 1/16"
119 D-159-1	5 E	IF	1/8" x 1/32"
121 D-159-1	7 FS	UC	¼" x 1/16"
117 D-159-1	9	UC	3/4" x ¼" x 1/16"
114 D-159-1	10 NS	UC	3 3/4" x 3/16"
115 D-159-1	12	UC	3/8" x 1/8"
		AS	3/8" x ¼"
110 D-159-1	21 Bot.	UC	3/8" x 1/16"

111 D-159-1	21 Top	UC	2" x 1/8"
113 D-159-1	33	IF	3/4" LENGTH
108 D-159-1	45 NS	UC	¼" x 1/16" (4 PLACES)
		UC	½" x 3/16"
107 D-159-1	46 FS	IF	3/4"
		UC	1¼" x 1/8"
112 D-159-1	47 FS	UC	1 1/8" x 3/16"
		UC	3/8" x 1/16"
		IF	3/8" LENGTH
116 D-159-1	48 FS	UC	3/16" x 1/16"
230 D-122-1 #1	2 BOT.	UC	3/16" x 3/4"
188 D-122-1 #1	5	UC	3 1/8" x 3/16"
		UC	4" x 5/16"
		UC	½" x 3/16"
187 D-122-1 #1	11	UC	1 1/8" x 3/16"
189 D-122-1 #1	23 W	UC	1 1/8" x ¼"
226 D-122-1 #2	2	UC	¼" x 3/32" x 1/16"
194 D-122-1 #2	5 BOT.	UC	3/4" x ¼" x 3/32"
198 D-122-1 #2	5	UC	1 1/8" x 3/8" x 3/32"
197 D-122-1 #2	8		HOLE IN WELD 3/16" x 1/16"
196 D-122-1 #2	12	UC	3/16" x 1/16"
195 D-122-1 #2	22 BOT.	UC	1½" x 3/16" x 3/32"
216 D-122-1 #3	4 BOT.	UC	1 1/8S x 3/16"

222 D-122-1 #3	4 E	IP	1/8"
210 D-122-1 #3	5	UC	1 1/8" x ⅛"
218 D-122-1 #3	6 BOT.	UC	2⅛" x ⅛"
		UC	1⅛" x ⅛"
219 D-122-1 #3	6 TOP	UC	1 3/4" x 5/16"
		UC	⅛" DIA.
		UC	7" x 5/16" x 3/32"
		UC	1 3/4" x ⅛"
223 D-122-1 #3	6 BOT.	UC	6⅛" x ½" x 1/16"
		UC	1⅛" x ½" x 1/16"
217 D-122-1 #3	9 BOT.	UC	3/8" x 3/16"
221 D-122-1 #3	9 E	UC	5/16" x ⅛"
		UC	3/8" x 1/16"
209 D-122-1 #3	10 BOT.	UC	1" x 3/16"
220 D-122-1 #3	13 E	IP	3/16"
208 D-122-1 #3	14	US	3/8" x ½'
205 D-122-1 #4	20	US	⅛" DIA. X 3/32" DEPTH
229 D-122-1 #4	23 TOP	UC	1 1/8" x ⅛"
150 D-152-1-2		UC	2" x ⅛" x 1/16"

Plate D-161-1-2: Base metal damage 1½" x 3/16" x 1/8"

Plate D-138-1-4: Unacceptable base metal repair, 6" Dia. (2 places)

DUPT

SH 258

DECEMBER 9, 1982

SSB 2323

PREP. BY DHK
DATE 12-15-82
CHKD. BY SSB
DATE 12-16-82
CHECK METHOD I
REV. A 2

TUSI SITE

SSB-125C, SET 1

GTT-9291

JOB 2323

ATTENTION: J.B. GEORGE/R.M. KISSINGER/C.R. HOOTON

SUBJECT: UNACCEPTABLE WELDS

REFERENCE: 1) NCR M-82-01589
2) GTT-9241

REFERENCE(2) PROVIDED RESPONSE TO NCR IN REFERENCE (1). FOLLOWING IS THE INTERPRETATION OF THE INPUT RECEIVED FROM SITE WHICH IS THE BASIS OF CONCLUDING THAT THE AS BUILT WELDS WOULD NOT ADVERSELY AFFECT THE DESIGN FUNCTION OF THE STRUCTURES. THE PURPOSE OF THIS TELEX IS TO CONFIRM THE CLARIFICATIONS OBTAINED VIA TELECONS.

1) U.C. - UNDER CUT IN BASE METAL. DIMENSIONS GIVEN ARE LENGTH X WIDTH X DEPT OF THE UNDERCUT IN THE BASE METAL.

2) U.S. - UNDER SIZE OF WELD. DIMENSIONS GIVEN ARE LENGTH X WIDTH X DEPTH = DESIGN DEPTH - U.S.

3) BMD - BASE METAL DEFECT. DIMENSIONS GIVEN ARE LENGTH X WIDTH X DEPTH OF THE DEFECTIVE PART OF METAL.

4) IF - INCOMPLETE FUSION BETWEEN THE WELD AND BASE METAL. DIMENSIONS GIVEN PERTAIN TO THE LENGTH, X WIDTH X DEPTH OF THE WELD. IT IS ASSUMED THAT FOR THE LENGTH GIVEN, THE SUBJECT WELD IS QUESTIONABLE AND IS IGNORED.

5) CL: COLD LAP - INADEQUATE FUSION BETWEEN DIFFERENT PASSES OF WELD - SPECIFIED BY LENGTH ONLY.

6) POROSITY: POROUS WELD - DIMENSIONS GIVEN ARE LENGTH X WIDTH DEPTH OF POROSITY.

7) CRATER: DISCONTINUITY IN WELD - DIMENSIONS GIVEN ARE THE LENGTH X WIDTH X DEPTH OF THE CRATER.

8) ARC STRIKE: ARC STRIKE IN BASE METAL - DIMENSIONS GIVEN ARE THE LENGTH X WIDTH X DEPTH OF THE STRIKE IN BASE METAL.

9) GOUGING: GOUGE MARKS IN BASE METAL -- DIMENSIONS GIVEN ARE THE LENGTH X WIDTH X DEPTH IN BASE METAL.

PLEASE RECONFIRM.

R.E. BALLARD/E.L. BEZKOR/A.M. KENKRE/S. SENGUPTA
GIBBSHILL NEWYORK

429769 GHNY UI

SSR

JOB NO: 2323
BOOK NO: SSB-125C SGT 1 RGV. 2
SH. NO: 260
INITIATED BY: SSR 12/15/82
VERIFIED BY: MNS 12/16/82

Rcv: 82IM/2.00096 Line: 2A

GH ENG A NYK

TUGCO GRSE
DECEMBER 9, 1982

12/9/82

TWX: 14035

ATTN: R.E. BALLARD

ATTN: ED BEZKOR

SUB: ADDITIONAL WELD ANOMALIES ON G.W.B.

REF: 1) NCR-M-82-01589
2) GTT-9291

INITIAL WELD ANOMALIES WERE IDENTIFIED IN REF. 1 AND ACCEPTED BY REF. 2; HOWEVER, ADDITIONAL INSPECTION HAS IDENTIFIED ADDITIONAL WELD ANOMALIES NOT PREVIOUSLY COVERED BY REF. 1 AND 2. THIS ADDITIONAL INFORMATION WAS HAND CARRIED BY MR. K.L. SCHEPPELE ON 12-7-82. PLEASE PROVIDE AN IMMEDIATE REVIEW OF THESE ADDITIONAL IDENTIFICATIONS. THIS REVIEW IS REQUIRED FOR PREPARATION OF THE FINAL RESPONSE TO SDAR-CP-82-12 WHICH IS DUE ON 12-20-82. YOUR REVIEW SHOULD BE COMPLETE BY 12-16-82. OR SOONER.

R.M. KISSINGER
PROJECT CIVIL ENGR.
CPSES JOBSITE

RMK/GR

GH ENG A NYK

Time: 14:34 12/09/82 PST
Connect Time : 116 seconds

SSB-125C, SET 1

PREP. BY		REV.
DATE	12-20-82	A
CHKD. BY	MNS	
DATE	12/20/82	
CHECK METHOD	—	

SR 264

TUSI SITE

910-8908-660

DECEMBER 13, 1982

GTT - ~~9301~~ 9302

JOB 2323

ATTENTION: J.B. GEORGE/M. McBAY/R.M. KISSINGER/W.H. CROWE

SUBJECT: ADDITIONAL WELD ANOMALIES ON G.W.B.

REFERENCE: 1) TWX-14035

THE HAND CARRIED INFORMATION ON THE ABOVE REFERENCE ITEMS NEEDS FURTHER CLARIFICATION AND AMPLIFICATION.

THE FOLLOWING ARE THE ITEMS :

1) DEPTH OF UNDERCUT NOT GIVEN ON ALL UC DEFINED ON SHEET 2 TO 16.
2) CLARIFICATION BY SKETCH NEEDED ON 'NS' AND 'FS' FILLET WELDS AT "CROSS" JOINTS WITH 4 FILLET WELDS. THIS PROBLEM ARISES IN ALL SHEETS.
3) CONFIRM THAT NUMBER PRECEEDING THE ASSEMBY NO. IS NOT RELEVANT.
4) FOR D-138-1-D, PROVIDE DETAILS OF UNDERFILL FOR THE FULL PENETRATION WELD.
5) FOR D-138-1-D, THE WELD NO. 281 SHALL BE 221. PLEASE CONFIRM.
6) FOR D-140-1-C WELD 1 AND D-140-1-B WELD 2, PLEASE PROVIDE THE ACTUAL LOCATION OF 'UC' AND 'IF' DUE TO THE CRITICAL NATURE OF THE AREA.

JOB 2323
SSB-125C, SET 1 SH 265

GTT - 9302
PAGE-2

December 13, 1982

7) PROVIDE MORE INFORMATION ON THE FOLLOWING AREAS:

A) D-149-1 WELD #15

B) D-149-1 WELD #43 NS

C) D-149-1 WELD #50, 53, 54

D) D-153-1 WELD #46 NS

E) D-155-1 WELD #48 NS

F) D-157-1 WELD #25 FS

G) D-122-1 WELD #14

H) D-120-1 WELD # 40 AND 41

PREP. BY SSe
DATE 12-10-82
CHKD. BY AMK
DATE 12/10/82
CHECK METHOD —
REV. A

8) FOR D-159-1 WELD #4FS, WE ARE PROCEEDING WITH THE INTERPRETATION THAT THE TOTAL 24" LENGTH OF WELD HAS 'IF' DIFICIENCIES. PLEASE CONFIRM.

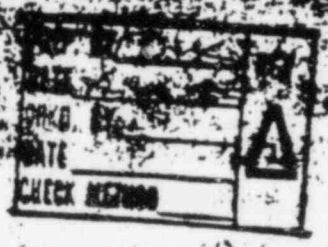
9) WITH RESPECT TO THE LAST TWO ITEMS (BMD AND UNACCEPTABLE BM REPAIRS) PLEASE CONFIRM THAT NO G&H REVIEW AND DISPOSITION IS REQUIRED.

R.E. BALLARD/E.L. BEZKOR/A.M. KENKRE/S. SENGUPTA

CONFIRMATION: Helen Leong, 11th floor

Paul A. Ng

SS.



12/15/82

Rcv: 82IM/2.00117 Line: 2A

GH ENG A NYK

TUGCO GRSE

DECEMBER 15, 1982
TWX #14,055
ATTN: R. E. BALLARD / E. L. BEZIKOR / A. M. KENKRE

SUB: G.W.B. NCR M-82-01589
REF: GTT-9291

THIS TWX IS TO CONFIRM THAT YOUR INTERPRETATIONS IN GTT-9291 ARE CORRECT.

IF MORE INFORMATION IS NEEDED PLEASE ADVISE.

M. R. MCBAY
ENGINEERING MANAGER
CPSES JOBSITE

MRM:RMK:WHC:ERY
CC: ARMS / FILE

GH ENG A NYK

Time: 12:09 12/15/82 EST
Connect Time : 56 seconds

TEXAS UTILITIES SERVICES INC.

P. O. BOX 1001 · GLEN ROSE, TEXAS 76043

CPPA-25,810

December 16, 1982

R.E. Ballard
Gibbs & Hill, Inc.
393 7th Ave.
New York, NY 10001

COMANCHE PEAK STEAM ELECTRIC STATION
ADDITIONAL WELD ANOMALIES
ON G.W.B. NCR M-82-01589
REF: GTT 9302

Dear Mr. Ballard:

This letter is to clarify items 1 through 9 on the referenced GTT letter.

Items:

1. See attached sheets for depth of under cut.

2. See attached sketch for clarification of notation for fillet welds at "cross" joints.

3. The number preceding the assembly number is a number assigned on site and is not revelant for your purposes.

4. See attached sheets for depth of underfill.

5. The weld number is 221 instead of 281.

6. See attached sheets for locations.

7. The under-cut depth is given on the attached sheets, and the IF, IP and linear indication will have to be evaluated by exploratory grinding.

8. Weld No. 4FS is to be changed to 12FS and 1/4 fillet weld may be used for evaluation.

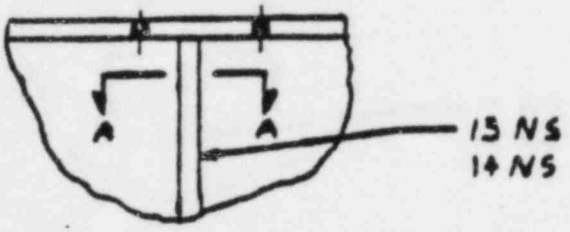
9. The BMD and unacceptable BM repair will have to be reviewed. The locations of the welds will be furnished on TWX-14,067.

Very truly yours,

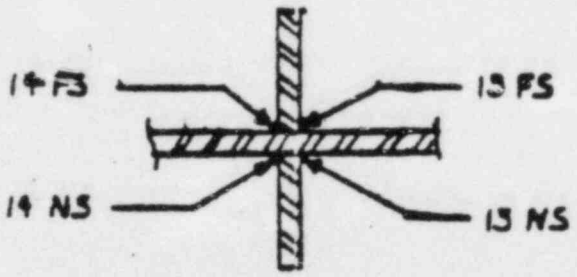
CRHouston

for R.M. Kissinger
Project Civil Engineer

RMK/WHC/sgf
cc: ARMS OL



PARTIAL D-157-1



SECTION A-A

Brown & Root, Inc. HOUSTON, TEXAS		CONT. NO 38-1196
TITLE ITEM 2: CLARIFICATION OF WELD NOTATIONS		DWG. NO. CPPA-25, 810
OWNER TEXAS UTILITIES SERVICES, INC.		
LOCATION OF PROJECT C.P.S.E.S. GLEN ROSE, TEXAS		
DRAWN BY CHECKED APPROVED	DATE	SHT.

To: Sen Gupta
H-H-N.Y.

(2)

13	D-120-1	47 FS	UC	8½" x 3/16" x 1/16"
			UC	½" x 3/16" x 1/16"
201	D-138-1-B			PLATE ADJACENT TO WELD 173. BASE METAL DAMAGE 3/8" x ¼" x 1/8"
225	D-138-1-C	2 E	UC	3/8" x 1/16" x 3/64"
211	D-138-1-D	31	US	7" (UNDERFILL - 3/32")
			IF	3/8"
			US	6" LENGTH (UNDERFILL 1/16")
			US	3" LENGTH (UNDERFILL 1/16")
			US	2½" LENGTH (UNDERFILL 5/32")
			US	1 1/8" LENGTH (UNDERFILL 1/16")
			US	1¼" LENGTH (UNDERFILL 1/16")
212	D-138-1-D	33 W	IP	4"
213	D-138-1-D	33 E	IP	1" x 1/16"
			UC	5/8" x ¼" x 1/16"
			UC	3/4" x 3/32" x 1/16"
231	D-138-1-A	37	IP	5/16"
190	D-138-1-A	60	UC	1 1/8" x 1/8" x 1/16"
			UC	3/8" x 1/16" x 1/16"
192	D-138-1-B	74 E	UC	½" x 1/16" x 1/16"
193	D-138-1-B	79	UC	1" x ¼" x 1/16"
203	D-138-1-C	97	UC	12½" x 3/16" x 1/16"
			UC	10" x 3/16" x 1/16"
199	D-138-1-C	99	UC	1½" x 3/16" x 3/32"
204	D-138-1-C	111 W	UC	½" x 1/8" x 1/16"
206	D-138-1-D	127	UC	3/16" x 1/16" x 1/16"

215	D-138-1-D	148	IP	3/8"
191	D-138-1-B	167	IP	½"
200	D-138-1-B	173	UC UC	1½" x 3/16" x 1/16" ½" x 1/8" x 1/16"
228	D-138-1-B	175	UC	1½" x ½" x 1/16"
227	D-138-1-B	177	UC	½" x 1/16" x 1/16"
202	D-138-1-C	178	UC	3/8" x 3/16" x 1/16"
224	D-138-1-C	185	UC	½" x 1/16" x 1/16"
207	D-138-1-D	188	UC	3/16" x 3/32" x 1/16"
214	D-138-1-D	221	CRACK	7/16" LENGTH
178	D-140-1-C	1	UC	7½" x ½" x 1/16" (Bwt. W-92 & 94)
175	D-140-1-C	2	IP	1 1/8" LENGTH (1' S. of W-90)
185	D-140-1-A	2	UC IP IP	3/4" x 3/16" x 1/16" (1' S of W-136 2" (6" S. of W-140) 2 3/8" (3" N. of W-142
161	D-140-1-B	31	UC	3/8" x 1/16" x 1/16"
182	D-140-1-B	43	UC	14½" x 1/8" x 3/64"
181	D-140-1-B	45	IP	1½"
173	D-140-1-C	89 S	UC	½" x 1/16" x 1/16"
174	D-140-1-C	89 N	UC	3/8" x 1/16" x 1/16"

176	D-140-1-C	90	UC	3/4" x 3/16" x 5/64"
			UC	3/16" x 1/16" x 5/64"
170	D-140-1-C	93 N	UC	7/8" x 3/16" x 1/16"
171	D-140-1-C	93 S	UC	3/8" x 3/16" x 1/8"
			UC	1/8" DIA. X 3/32" DEEP
			UC	3/16" x 3/32" x 3/32"
177	D-140-1-C	94	LF	17" x 3/16"
179	D-140-1-C	96	UC	4" x 3/16" x 1/16"
168	D-140-1-C	97 S	WP	4½" LENGTH (UF - 1/16")
			UC	3/8" x 1/16" x 1/16"
167	D-140-1-C	99 S	UC	1½" x 1/16" x 1/16"
			IF	3 3/4"
166	D-140-1-C	101 S	UC	2½" x ⅛" x 1/16"
164	D-140-1-C	103 N	UC	⅛" x ⅛" x 1/16"
165	D-140-1-C	103 S	UC	7/8" x ⅛" x 3/32"
163	D-140-1-B	111 N.	UC	3/16" x 1/16" x 1/16"
			UC	3/4" x 1/8" x 1/16"
180	D-140-1-B	112	UC	3/16" DIA. X 1/16" DEPTH
172	D-140-1-C	115	UC	32" x ⅛" x 3/64"
162	D-140-1-B	117	UC	3/16" x 1/16" x 3/64"
183	D-140-1-B	124	UC	3/8" x 1/16" x 1/16"
			UC	3/16" DIA. X 3/32" DEPTH
160	D-140-1-B	125	UC	½" x 3/32" x 1/16"
184	D-140-1-B	126 N	UC	½" x 1/16" x 1/16"
			UC	3/4" x 1/16" x 1/16"

159	D-140-1-B	127	IF	1"
			UC	3/8" x 1/16" x 3/64"
158	D-140-1-A	141	UC	¼" x 1/16" x 3/64"
186	D-140-1-B	144	UC	¼" DIA. X 3/64" DEPTH (2 PLACES)
35	D-149-1	3 FS	UC	3/4" x 1/8" x 1/16"
			UC	1" x 1/16" x 1/16"
			UC	4¼" x 1/8" x 1/16"
32	D-149-1	4	LF	3/8" LENGTH
37	D-149-1	5 NS	UC	½" x 1/8" x 3/64"
			UC	¼" x 3/32" x 3/32"
20	D-149-1	11 N.	UC	3/8" x 1/8" x 3/64"
			UC	½" x 3/16" x 3/64" (2 PLACES)
			UC	½" x 1/8" x 3/64" (2 PLACES)
			UC	20½" x 3/16" x 3/64"
39	D-149-1	11 S.	UC	3/8" x 1/16" x 3/64"
18	D-149-1	13 NS	UC	1" x 1/8" x 3/64"
			UC	1 3/8" x 1/8" x 3/64"
			UC	3/4" x 1/8" x 3/64"
			UC	1" x 1/8" x 3/64"
			UC	3/4" x 1/8" x 3/64"
			UC	½" x 1/8" x 1/16"
40	D-149-1	13 FS	UC	½" x 1/16" x 3/64"
			UC	3/8" x 1/16" x 3/64"
41	D-149-1	15	IF	¼" WIDTH (@ end of weld)
			IF	1¼" LENGTH (depth indeterminate)

26 D-149-1	16	UC	1" x 1/16" x 1/16"
30 D-149-1	16	UC	3/8" x 1/16" x 1/8"
		UC	3/4" x 1/8" x 3/32"
28 D-149-1	22 FS	UC	3/4" x 1/8" x 3/64"
		UC	½" x 1/16" x 3/64"
29 D-149-1	25	UC	3/4" x 1/8" x 1/16"
27 D-149-1	30	UC	½" x 1/16" x 1/16"
38 D-149-1	43 NS		UNIDENTIFIED LINEAR INDICATION 5" LENGTH
31 D-149-1	45 FS	IF	1½" LENGTH
		UC	½" x 3/32" x 3/64"
33 D-149-1	46		WELD IS ½" SHORT OF BEING FULL LENGTH
		UC	½" x 1/16" x 3/32"
21 D-149-1	47 FS	UC	3/4" x 1/8" x 3/32"
		UC	3/4" x ½" x 3/16"
		UC	½" x ½" x 1/8"
34 D-149-1	47 NS	IF	1 3/4" LENGTH
		UC	½" x 3/16" x 1/16" (2 PLACES)
19 D-149-1	48	US	MORE THAN 1/16" UNDERSIZE, ½" (1/8" FILLET)
		UC	3" x 1/8" x 3/64"
		UC	3/8" x 1/8" x 3/64"
		UC	3/16" x 1/16" x 3/64"

24 D-149-1	50	IP	LENGTH INDETERMINATE (@ end of weld)
23 D-149-1	53	IP	LENGTH INDETERMINATE
22 D-149-1	54	IP	LENGTH INDETERMINATE
25 D-149-1	55	IP	3/8" LENGTH
		IP	¼" WIDTH, LENGTH INDETERMINATE
60 D-151-1	3 NS	IP	3/8"
62 D-151-1	4 NS	UC	1/8" DIA. x 3/64"
57 D-151-1	5 NS	UC	1 1/8" x 1/16" x 3/64"
		IP	2½" LENGTH
46 D-151-1	6	IP	¼" LENGTH
49 D-151-1	8 FS	UC	½" x 1/8" x 1/16"
		UC	¼" x 1/8" x 1/16"
		UC	3/16" x 1/16" x 1/16"
59 D-151-1	9 NS	UC	3/16" DIA. x 1/16" DEEP
61 D-151-1	9 NS	UC	2½" x 1/8" x 1/16"
66 D-151-1	9 NS	UC	½" x 3/16" x 3/16"
48 D-151-1	10	UC	11½" x 1/8" x 3/64"
		UC	3/8" x 1/8" x 3/64"
53 D-151-1	11 NS	UC	29" (INTERMITTANT) x 1/8" 5/64"

(8)

45 D-151-1	12 FS	UC	¼" x 1/16" x 3/64"
		UC	3/8" x ¼" x 3/64"
		UC	2½" x 5/16" x 1/16"
47 D-151-1	12 FS	UC	¼"DIA. x 1/16"
44 D-151-1	13 FS	UC	3/16" x 3/32" x 3/64"
		UC	1/8" DIA. x 1/16" DEPTH
		UC	3/16" x 1/16" x 3/64"
54 D-151-1	13 NS	UC	1" x 1/16" x 3/64"
42 D-151-1	29 FS	UC	¼" x 1/8" x 1/16"
52 D-151-1	29 NS	WP	6" LENGTH (¼" FILLET)
		UC	½" x 1/16" x 1/16"
51 D-151-1	33 NS	UC	½'" x 1/8" x 1/16"
43 D-151-1	34	UC	3/4" x 3/16" x 3/64"
67 D-151-1	46 FS	UC	3/4" x 1/8" x 1/16"
		UC	½" x 3/4" x 1/16"
65 D-151-1	47	UC	8½" x 1/8" x 1/16"
50 D-151-1	48	UC	9 1/8" x 1/8" x 1/16"
64 D-151-1	49 NS	UC	4" x 1/8" x 1/16"
		IF	½" LENGTH
63 D-151-1	50 NS	UC	3/8" x 1/8" x 3/64"
56 D-151-1	51 NS		HOLE IN WELD 3/16" DIA. X 1/16" DEPTH
58 D-151-1	51 FS	IF	1 1/8" LENGTH

55 D-151-1	52 NS	IF	1"
130 D-153-1	2 FS	UC	3/16" x 1/16" x 1/16"
76 D-153-1	3 NS	UC	1½" x 1/8" x 3/64"
		UC	½" x 1/16" x 3/64" (2 PLACES)
		UC	¼" x 1/16" x 3/64"
		WP	1½" LENGTH (¼" FILLET)
		UC	5" x 1/16" x 3/64"
		UC	⅛" x 1/16" x 1/16" (2 PLACES)
126 D-153-1	3 FS	UC	3/16" x 1/16" x 3/64"
129 D-153-1	5 NS	UC	3/16" x 1/16" x 3/64"
132 D-153-1	6 FS	UC	¼" x 1/16" x 1/16" (2 PLACES)
127 D-153-1	7 FS	UC	¼" x 1/8" x 3/64"
71 D-153-1	10 NS	UC	¼" x 1/8" x 3/64"
		AS	3/16" DIA., DEPTH x 1/64"
136 D-153-1	10 FS	UC	½" x 1/8" x 3/32"
		UC	1/8" DIA. X 1/16" DEPTH
70 D-153-1	11 NS	AS	½" x 3/16" DEPTH 1/64"
134 D-153-1	11 NS	UC	1½" x 1/16" x 3/64"
135 D-153-1	12 FS	UC	⅛" x 1/16" x 1/16" (2 PLACES)
		UC	¼" x 1/16" x 1/16"
		UC	2½" x ¼" x 1/16"
68 D-153-1	13 NS	UC	1½" x 1/16" x 3/64"
137 D-153-1	15 FS	UC	¼" x 1/16" x 3/64" (3 PLACES)
79 D-153-1	16 NS	UC	1 1/8" x 5/16" x 1/8"

78 D-153-1	18 NS	UC	2½" x 1/8" x 3/64"
125 D-153-1	20 FS	UC	2½" x 1/8" x 3/64"
80 D-153-1	21 NS	UC	3/8" x 3/16" x 3/64"
77 D-153-1	23 NS	IF CRACK	6" LENGTH 3½" LONG
122 D-153-1	23 FS	UC	⅛" x 1/16" x 3/64" (2 PLACES)
123 D-153-1	25 FS	UC	⅛" x 1/16" x 3/64" (4 PLACES)
124 D-153-1	28	UC	3/16" x 1/16" x 3/64"
128 D-153-1	46 NS		2" WP, IF, UC CONCURRENTLY (WP 5/16" FILLET, UC 1/16")
131 D-153-1	46 FS	IF	3/8"
133 D-153-1	47 FS	UC	3/4" x 1/16" x 1/16" (5 PLACES)
69 D-153-1	50 NS	UC	⅛" x 1/16" x 3/64"
73 D-153-1	50 FS	UC AS	⅛" x 1/8" x 1/16" (3 PLACES) 3/4" x ⅛" x 3/32"
72 D-153-1	51 FS	UC UC AS AS	⅛" x 1/16" x 1/16" 3/16" x ⅛" x 1/16" 3/4" x ⅛" x 1/32" 1 " x 3/16" x 3/32"
75 D-153-1	51 NS	UC	⅛" x 1/16" x 3/32"
74 D-153-1	52	 UC	WELD IS 1" LESS THAN REQUIRED LENGTH ON EACH END. ⅛" x ⅛" x 1/8"
138 D-153-1	57 FS	UC UC	3/4" x 3/16" x 1/8" 3/8" x ⅛" x 1/8"

146 D-155-1	7 FS	UC	¼" x 1/16" x 1/16"
143 D-155-1	11 FS	UC	½" x 1/16" x 3/64" (3 PLACES)
		UC	1" x 1/8" x 3/32"
139 D-155-1	13 NS	UC	3/16" x 1/16" x 1/16"
142 D-155-1	13 FS	UC	3" x 1/8" x 3/64"
		UC	2½" x 1/8" x 3/64"
		UC	3/8" x 1/16" x 1/16"
		UC	1¼" x 1/8" x 1/16"
		UC	3/16" DIA. x 1/16" DEPTH
154 D-155-1	18 FS	UC	1 1/8" x 3/16" x 3/64"
155 D-155-1	19 NS	UC	3/16" Dia. x 3/32" deep
		UC	½" x 3/8" x 1/16"
148 D-155-1	20 FS	UC	½" x 1/16" x 3/64"
		UC	3/8" x 3/16" x 3/64"
		UC	¼" x 1/16" x 1/16"
147 D-155-1	22 FS	UC	¼" x 3/32" x 3/64"
156 D-155-1	23 FS	UC	3/16" x 1/8" x 3/64"
		US	2" LENGTH, MORE THAN 1/16" UNDERSIZE (5/16" FILLET)
144 D-155-1	41 FS	UC	¼" x 3/16" x 3/32"
153 D-155-1	45 NS	UC	1 5/8" x 3/16" x 3/64"
152 D-155-1	46 FS		2" UC (1/8"), IF CONCURRENTLY. ¼" LESS THAN THAN REQUIRED LENGTH
		UC	½" x 1/16" x 3/64"
140 D-155-1	48 FS	UC	5/8" x 3/16" x 3/64"

141	D-155-1	48 NS		7" WP, UC, IF CONCURRENTLY (UC 1/16", WP 1/4" FILLET)
			UC	3/8" x 1/16" x 1/16"
145	D-155-1	52 FS	UC	½" x 1/16" x 3/64"
93	D-157-1	1 NS	UC	3/4" x 1/8" x 3/64"
92	D-157-1	8 N.	AS	¼" DIA. x 1/32"
97	D-157-1	8 NS	UC	3/4" x 1/8" x 1/16"
			UC	¼" x 1/16" x 3/64"
94	D-157-1	9 NS	IF	½" LENGTH
91	D-157-1	11 FS	UC	¼" x 1/16" x 3/64" (4 PLACES)
87	D-157-1	13 FS	UC	3/8" x 1/16" x 1/16" (2 PLACES)
100	D-157-1	13 NS	UC	¼" x 1/16" x 1/16" (2 PLACES)
			UC	3" x 1/16" x 1/16"
90	D-157-1	14 FS	UC	3/4" x 1/8" x 3/32"
			IF	1/8" DIA.
86	D-157-1	15	UC	¼" x 1/8" x 3/64"
102	D-157-1	15 NS	UC	¼" x 1/16" x 1/16"
101	D-157-1	16 NS	UC	3/4" x 1/16" x 1/16"
103	D-157-1	18	UC	½" x 1/8" x 3/64" (2 PLACES)
			UC	1¼" x 3/16" x 1/16"
			UC	3/4" x 1/8" x 3/64"
83	D-157-1	19 FS	UC	5/8" x 3/16" x 1/16"
85	D-157-1	19 FS	UC	¼" x 1/16" x 3/64" (2 PLACES)

82 D-157-1	22 FS	UC	⅛" x 1/16" x 3/64"
		UC	3/8" x 1/16" x 3/64" (2 PLACES)
		UC	4" x 1/16" x 3/64"
104 D-157-1	23 NS	UC	23" x 1/8" x 1/16"
81 D-157-1	25 FS	UC	⅛" x 1/16" x 1/16" (2 PLACES)
		UC	3/4" x 1/16" x 3/64"
		UC	3/8" x 1/16" x 3/64"
89 D-157-1	38	IF	5/16" LENGTH
99 D-157-1	46 NS		WELD IS 1 1/8" SHORT OF REQUIED LENGTH
		AS	1½" x 3/16" x 1/16"
		UC	½" x 1/8" x 1/16" (5 PLACES)
		WP	24" LENGTH (3/16" FILLET)
96 D-157-1	47 NS	UC	1½" x 3/16" x 1/16"
		IF	2" LENGTH
		AS	⅛" DIA. (1/16" DEEP)
98 D-157-1	47 FS	UC	½" x 3/32" x 1/16"
95 D-157-1	48 FS	UC	⅛" x ⅛" x 3/32" (2 PLACES)
		UC	½" x 1/8" x 1/16" (3 PLACES)
		UC	1½" x 3/16" x 1/16"
84 D-157-1	49 FS	UC	⅛" x 1/16" x 1/16" (2 PLACES)
88 D-157-1	50	UC	⅛" x 1/16" x 3/64" (2 PLACES)
		UC	½" x 1/16" x 3/64" (3 PLACES)
		IF	5/16" WIDTH
151 D-157-1	54	LF	1½"
105 D-159-1	3 NS	UC	4" x 1/8" x 1/16"
		UC	½" x 1/8" x 1/16"

120 D-159-1	3 FS	UC	½" x 3/16" x 3/64"
106 D-159-1	4 NS	UC	1½" x 3/16" x 1/16"
		UC	3/16" x 1/16" x 3/64"
118 D-159-1	5 W	UC	3/8" x 3/16" x 1/16"
119 D-159-1	5 E	LF	1/8" x 1/32"
121 D-159-1	7 FS	UC	¼" x 1/16" x 1/16"
117 D-159-1	9	UC	3/4" x ¼" x 1/16"
114 D-159-1	10 NS	UC	3 3/4" x 3/16" x 1/16"
109 D-159-1	12 FS	LF	24" LENGTH (¼" FILLET)
115 D-159-1	12	UC	3/8" x 1/8" x 1/16"
		AS	3/8" x ¼" x 3/64"
110 D-159-1	21 Bot.	UC	3/8" x 1/16" x 3/64"
111 D-159-1	21 Top	UC	2" x 1/8" x 3/64"
113 D-159-1	33	LF	3/4" LENGTH
108 D-159-1	45 NS	UC	¼" x 1/16" x 1/16" (4 PLACES)
		UC	½" x 3/16" x 3/32"
107 D-159-1	46 FS	LF	3/4"
		UC	1¼" x 1/8" x 1/16"
112 D-159-1	47 FS	UC	1 1/8" x 3/16" x 1/16"
		UC	3/8" x 1/16" x 1/16"
		LF	3/8" LENGTH
116 D-159-1	48 FS	UC	3/16" x 1/16" x 3/64"

188	D-122-1 #1	5	UC	3 1/8" x 3/16" x 1/16"
			UC	4" x 5/16" x 1/16"
			UC	½" x 3/16" x 1/16"
187	D-122-1 #1	11	UC	1 1/8" x 3/16" x 1/16"
189	D-122-1 #1	23 W	UC	1 1/8" x ½" x 1/16"
226	D-122-1 #2	2	UC	½" x 3/32" x 1/16"
198	D-122-1 #2	5	UC	1 1/8" x 3/8" x 3/32"
197	D-122-1 #2	8		HOLE IN WELD 3/16" x 1/16"
196	D-122-1 #2	12	UC	3/16" x 1/16" x 3/64"
222	D-122-1 #3	4 E	IP	1/8" LENGTH
210	D-122-1 #3	5	UC	1 1/8" x ½" x 1/16"
219	D-122-1 #3	6	UC	1 3/4" x 5/16" x 1/16"
			UC	½" DIA. x 1/16"
			UC	7" x 5/16" x 3/32"
			UC	1 3/4" x ½" x 1/16"
221	D-122-1 #3	9 E	UC	5/16" x ½" x 1/16"
			UC	3/8" x 1/16" x 1/16"
220	D-122-1 #3	13 E	IP	3/16"
205	D-122-1 #4	9	US	½" DIA. X 3/32" DEPTH
229	D-122-1 #4	23 TOP	UC	1 1/8" x ½" x 1/16"
150	D-152-1-2		UC	2" x ½" x 1/16"
232	D-161-1-2			PLATE D-161-1-2: BASE METAL DAMAGE 1½" x 3/16" x 1/8"
				PLATE D-138-1-4. UNACCEPTABLE BASE METAL REPAIR, 6" DIA. (2 PLACES)

(16)

230	D-175-1 #1	10	UC	3/16" x 3/4" x 3/64"
194	D-175-1 #2	1	UC	3/4" x ¼" x 3/32"
195	D-175-1 #2	13	UC	1⅓" x 3/16" x 3/32"
218	D-175-1 #3	2 E	UC	2¼" x ¼" x 1/16"
			UC	1¼" x ¼" x 1/16"
223	D-175-1 #3	2 E	UC	6¼" x ½" x 1/16"
			UC	1¼" x ½" x 1/16"
217	D-175-1 #3	8	UC	3/8" x 3/16" x 1/16"
216	D-175-1 #3	12	UC	1 1/8 x 3/16" x 3/64"
209	D-175-1 #3	21	UC	1" x 3/16" x 1/16"

ST-4221
Gap #633

JOB 2323
CALC. 125C

TRANSMITTED BY TELECOPIER
12/14/82
2:00

PREP. BY		REV.
DATE	12/9/82	A
CHKD. BY	MWS	
DATE	12/19/82	
CHECK METHOD	—	

TOSI SITE

910-8908-660

DECEMBER 16, 1982

GTT — 9312

JOB 2323

ATTENTION: J.B. GEORGE/M. McBAY/R.M. KISSINGER/W.H. CROWE

SUBJECT: 1) ADDITIONAL WELD ANOMALIES ON G.W.B.-UNIT 1

REFERENCE: 1) TWX-14035

2) GTT-9302

AS DISCUSSED IN THE TELECON, PLEASE PROVIDE MORE DETAILS WITH RESPECT TO B.M.D AND UNACCEPTABLE BASE METAL REPAIRS NOTED ON THE LAST PAGE OF THE LIST OF WELD ANOMALIES.

ALSO PROVIDE US THE ACTUAL USABLE WELD SIZE AND LOCATION OF THE FOLLOWING 'IP' AND 'IP' CASES.

1) D-140-1-C WELD #94
2) D-149-1 WELD #43WS
3) D-149-1 WELD #50, 53, 54, 55
4) D-159-1 WELD #12

THIS IS AN INTERIM REQUEST. MORE COULD FOLLOW SHORTLY IF WE CANNOT ACCEPT AS BUILT DISCOUNTING THE TOTAL 'IP'/'IP' LENGTH OF THE WELD.

TELECON REQUEST TO BILL CROWE HAS ALREADY BEEN MADE ON 12/15/82.

R.E. BALLARD/E.L. SEIKOR/A.M. KENKRE/S. SENGUPTA

CONFIRMATION: Helen Leong, 11th floor

ST-4227, SSE-431

TDB # 4523
SSB-125C, SET 1
SH# 261

PREP. BY DKK	REV.
DATE 12.17.82	A
CHKD. BY	
DATE 12-20-82	
CHECK METHOD	

SENT BY TELECOPY

December 17, 1982

P. N.

December 17, 1982
TMX #14,867
ATTN: R. E. Ballard / E. L. Becker / A. M. Kenkre

REVISED INFORMATION OBTAINED FROM FIELD ON 12/17/82. FIELD TO CONFIRM THIS. (SEE SH# 266)

SUB: Additional Weld Anomalies on SMB-Unit 1
REF: GTT-4312

The following information is the additional details on the defective welds requested on GTT-9317.

1. B.M.D. - On piece B-161-1-4, attached to W. connection plate on piece ~~B-161-1~~ D-167-1, 3" up from bottom east corner, and on N. edge of plate. ON BOTTOM FLANGE OF TOP HORIZ. BEAM

2. Unacceptable base metal repair - 7" N. of 3rd column from the north, 16" from E. edge and depth of defect is .065", 10" N. of 4th column from the north 18" from N. edge, and depth of defect is .070".

3. B-149-1-C W.94 - 3/8 Min. fillet can be used.

4. B-149-1 W. 43 NS - Defect removed by light griding, material thickness not reduced, no defect.

5. B-149-1 W 50 - Top end of weld, depth of defect .216".

   W 53 - Top end of weld, depth of defect 1/4".

   W 54 - Top end of weld, depth of defect .224".

   W 55 - Top end of weld, depth of defect 3/16".

6. B-159-1 W 12 - 1/4 Fillet weld may be used for cap on full penetration weld.

7. B-120-1 W 40 - Top end of weld, depth of defect 1/4".

8. B-120-1 W 41 - Bottom end of weld, depth of defect 1/8".

9. B-138-1-B W 33 W - 3" From top of vertical weld, 4" long, and maximum depth of defect .039".

If you need more information, please advise.

M. R. McBay
Engineering Manager
CPSES Jobsite

MRM:DKK:WHC:ery
cc: ARMS / File

TIME DATE
RECEIVED BY TELECOPIER
FLOOR

JOB NO 2323
OAC # SSB-125C, SET
SH 262

PREP. BY	REV.
DATE 12-19-82	A
CHKD. BY MMS	
DATE 12/19/82	
CHECK METHOD	

TUSI SITE

910-8908-660

DECEMBER 17, 1982

GTT -9319

JOB 2323

ATTENTION: J.B. GEORGE/M.R. McBAY/R.M. KISSINGER/
C.R. HOOTON

SUBJECT: ADDITIONAL WELD ANOMALIES ON GWB UNIT-1

REFERENCE: 1) TWX-14035 2) GTT-9302
3) GTT-9312

FURTHER TO REFERENCE 3) PLEASE PROVIDE US THE ACTUAL USABLE WELD SIZE AND LOCATION OF THE FOLLOWING 'IF' AND 'IP' CASES.

1) D-12-1 WELD #40, 41

2) D-138-1-D WELD #33W

THIS HAS BEEN ALREADY REQUESTED BY TELECON WITH W. CROWE ON 12/16/82 AND 12/17/82.

R.E. BALLARD/E.L. BEZKOR/A.M. KENKRE/S. SENGUPTA

CONFIRMATION: Helen Leong, 11th floor

ST-4237 AMK-245

Rcv: C2IM/2.00058 Line: 2A

12/20/82

GH ENG A NYK

TUGCO GRSE

DECEMBER 19, 1982
TWX #14,067 (CORRECTIONS)
ATTN: R. E. BALLARD / E. L. BEZKOR / A. M. KENKRE

SUB: ADDITIONAL WELD ANOMALICS ON GWB-UNIT 1
REF: GTT-4312 / TWX #14,067

THE FOLLOWING ARE CORRECTIONS TO TWX #14,067 SENT DECEMBER 17, 1982.

PLEASE NOTE THESE CORRECTIONS ON YOUR COPY OF THE REFERENCED TWX.
ALL OTHER INFORMATION IS CORRECT AS IS.

1. B.M.D. - ON PIECE D-161-1-4, ATTACHED TO W. CONNECTION PLATE ON PIECE D-157-1*, 3" UP FROM BOTTOM EAST CORNER, AND ON N. EDGE OF PLATE.

2. UNACCEPTABLE BASE METAL REPAIR - BOTH REPAIRS ARE ON BOTTOM OF TOP HORIZONTAL BEAM*, 7" N. OF 3RD COLUMN FROM THE NORTH, 16" FROM E. EDGE AND DEPTH OF DEFECT IS .065", 10" N. OF 4TH COLUMN FROM THE NORTH 18" FROM N. EDGE, AND DEPTH OF DEFECT IS .070".

*DENOTES WHERE CORRECTIONS WERE MADE IN THE PARAGRAPH.

IF YOU NEED MORE INFORMATION, PLEASE ADVISE.

M. R. MCBAY
ENGINEERING MANAGER
CPSES JOBSITE

MRM:RMK:WHC:ERY
CC: ARMS / FILE

CORRECTION: FIRST WORKD IN SECOND LINE IN NUMBER 2. SHOULD READ "TOP".

GH ENG A NYK

Time: 12:49 12/19/82 EST
Connect Time : 154 seconds

(VTSOINS, PRR, ELB, AHK, JSP

TUSI SITE

~~910-8908-660~~ Telecopy

TRANSMITTED BY TELECOPIER

12/20/82

10:30

DECEMBER 20, 1982

GTT - 9322

JOB 2323

ATTENTION: J.B. GEORGE/R.M. KISSINGER/C.R. HOOTON

SUBJECT: WELD DEFICIENCIES UNIT #1 G.W.B.

REFERENCES:
1) NCR M-82-01589
2) GTT-9241
3) GTT-9291
4) TWX-14055
5) TWX-14037
6) TWX-14035
7) GTT-9302
8) 14 SHEETS TELECOPIED ON 12/14/82 FROM SITE
9) GTT-9312
10) GTT-9319
11) TWX-14067

AS REQUESTED WE HAVE REVIEWED THE WELD DEFICIENCIES IDENTIFIED IN REFERENCE 1 ALONG WITH ADDITIONAL WELD ANOMALIES IDENTIFIED DURING SUBSEQUENT INSPECTION PER REFERENCE 6.

ADDITIONAL DETAILED INFORMATIONS AND CLARIFICATIONS WERE REQUESTED BY US VIA REFERENCES 3,7,9 AND 10, AND WERE PROVIDED BY THE SITE VIA REFERENCES 4,5,8 AND 11.

WE HAVE INVESTIGATED THE STRUCTURES AND HAVE CONCLUDED BY ANALYSIS AND STRESS COMPUTATIONS THAT THE WELD DEFICIENCIES WOULD NOT ADVERSELY AFFECT THE DESIGN FUNCTION OF THE STRUCTURES. ALL WELD STRESSES REMAIN WITHIN THE ALLOWABLE VALUES. RELEVANT CALCULATIONS ARE IN OUR BOOK #SSB125C SET 1.

AS NOTED EARLIER IN REF. 2, IN THOSE FEW CASES WHERE CRACKS IN WELDS HAVE BEEN OBSERVED THEY ARE TO BE FIELD REPAIRED AND ARE NOT INCLUDED IN OUR INVESTIGATION.

IT MAY BE OF INTEREST TO NOTE THE FOLLOWING REASONS THAT MADE THE STRESSES REMAIN WITHIN THE ALLOWABLES EVEN WITH THE NOTED DEFICIENCIES:

1) INITIAL DESIGN HAD USED NORMAL PRACTICE TO PROVIDE CONTINUOUS WELD FOR THE FULL LENGTH OF CONTACT EVEN THOUGH TOTAL WELD LENGTH WAS NOT REQUIRED TO SATISFY STRESS ALLOWABLES. THIS PROVIDED INITIAL DESIGN MARGIN.

2) WHERE CALCULATIONS REQUIRED A CERTAIN WELD, SAY 0.26", THE LARGER PRACTICAL SIZE OF 3/8" WAS USED. WHERE CALCULATIONS REQUIRED A PLATE THICKNESS OF SAY 1.1", THE NEXT AVAILABLE 1½" PLATE WAS CALLED FOR IN THE DESIGN DRAWING. THIS PROVIDED ANOTHER MARGIN.

3) IN SOME C.P. WELD CASES THE ACTUAL AS BUILT WELD SIZE WAS LARGER THAN THAT CALLED FOR IN THE DESIGN, AND THE WELD DEFECT WAS WITHIN THE EXTRA THICKNESS OF THE WELD.

ALL THE ABOVE INFORMATION WAS TRANSMITTED TO SITE DURING TELECON BETWEEN A.M. KENKRE AND C.R. HOOTON ON 12/19/82

R.E. BALLARD/E.L. BEZKOR/A.M. KENKRE/S. SENGUPTA

CONFIRMATION: Helen Leong, 11th floor

CPPA-25,877

TEXAS UTILITIES SERVICES INC.

OFFICE MEMORANDUM

To R. G. Tolson Glen Rose, Texas December 20, 1982

Subject COMANCHE PEAK STEAM ELECTRIC STATION
SDAR CP-82-12
PIPE WHIP RESTRAINT UNACCEPTABLE WELDS
REF: 1) TUQ-1419
2) CPPA-24,150
3) CPPA-25,868-attached

We have completed our evaluation of the subject deficiency submitted per Reference 1. Our evaluation has concluded the weld indications will have no adverse effects on the design function of the structure and, therefore, is not reportable per the provisions of 10CF50.55(e).

Our evaluation included a composite review by analysis and stress computations of all weld anomalies by the G&H Structural Engineering Groups. Reference 3 documents this review and cites specific conditions which provide acceptance for welds which appear in nonconformance.

Please contact this office if additional information can be provided regarding this issue.

M. R. McBay
Engineering Manager

MRM/RPB/cp

cc: ARMS
J. B. George
R. M. Kissinger
R. A. Jones
J. T. Merritt
[redacted]

RECEIVED
DEC 27
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CPPA-25,868

TEXAS UTILITIES SERVICES INC.

OFFICE MEMORANDUM

To M.R. McBay - Engineering Manager Glen Rose, Texas December 20, 1982

Subject COMANCHE PEAK STEAM ELECTRIC STATION
PIPE WHIP RESTRAINT UNACCEPTABLE WELDS
SDAR-CP-82-12
NCR-M-82-1589
CPPA-25,096

Initial weld anomalies were evaluated and accepted per CPPA-25096; however, subsequent inspection identified additional weld anomalies not previously covered by the first engineering review. A composite review of all weld defects has been completed by the Gibbs & Hill Structural Group and found to have no adverse affects on the design function of the structure (Ref. GTT-9322).

Cracks in welds are attributed to field erection and would be repaired in accordance with normal project procedures. The NCR will be dispositioned accordingly.

for C.R. Hooton
R.M. Kissinger
Project Civil Engineer

RMK/sgf
cc: ARMS
C.R. Hooton

TEXAS UTILITIES GENERATING COMPANY
2001 BRYAN TOWER-DALLAS, TEXAS 75201-3050

R. J. GARY
EXECUTIVE VICE PRESIDENT
AND GENERAL MANAGER

December 27, 1982
TXX-3604

Mr. G. L. Madsen, Chief
Reactor Project Branch 1
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012

Docket Nos.: 50-445
50-446

COMANCHE PEAK STEAM ELECTRIC STATION
PIPE WHIP RESTRAINT WELD INDICATIONS
SDAR-95; CP-82-12
FILE NO.: 10110

Dear Mr. Madsen:

On September 30, 1982, we verbally informed your Mr. R. G. Taylor of a deficiency regarding weld indications in certain pipe whip restraints. We submitted an interim report logged TXX-3584 on October 25, 1982.

We have completed our investigation and concluded that the matter is not reportable under 10 CFR50.55(e). Records supporting this determination are available for your Inspector's review at the CPSES site.

Very truly yours,

R. J. Gary

R. J. Gary

RJG:eaq

cc: NRC REGION IV - (0 + 1 copy)

Director, Inspection & Enforcement (15 copies)
U. S. Nuclear Regulatory Commission
Washington, DC 20555

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE SUITE 10
ARLINGTON, TEXAS 76011

In Reply Refer To:
Docket: 50-445/83-24
50-446/83-15

AUG 24 1983

Texas Utilities Generating Company
ATTN: R. J. Gary, Executive Vice
President & General Manager
2001 Bryan Tower
Dallas, Texas 75201

Gentlemen:

This refers to the inspection conducted by our Senior Resident Inspector, Construction, Mr. R. G. Taylor, during the period March through July 1983, of activities authorized by NRC Construction Permits CPPR-126 and CPPR-127 for Comanche Peak, Units 1 and 2, and to the discussion of our findings with Mr. R. G. Tolson, and other members of your staff during the inspection.

Areas examined during the inspection included review, inspection, and evaluation of several allegations made to various NRC persons, including the Atomic Safety and Licensing Board in their proceedings regarding the operating license for Comanche Peak Steam Electric Station (CPSES). Within these areas, the inspection consisted of selective examination of procedures and representative records, interviews with personnel, and observations by the inspector. These findings are documented in the enclosed inspection report.

During this inspection, it was found that certain of your activities were in violation with NRC requirements. You were notified of one such violation by our letter of May 31, 1983, to which you have responded. Details of the item enclosed with our May 31, 1983 letter are included in the enclosed inspection report.

One unresolved item is identified in paragraph 15 of the enclosed inspection report.

We have also examined actions you have taken with regard to previously identified inspection findings. The status of these items is identified in paragraph 2 of the enclosed report.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC Public Document Room unless you notify this office, by telephone, within 10 days of the date of this letter, and submit written application to withhold information contained therein within 30 days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

G. L. Madsen, Chief
Reactor Project Branch 1

Enclosure:
Appendix - NRC Inspection Report 50-445/83-24
50-446/83-15

cc w/encls:
Texas Utilities Generating Company
ATTN: H. C. Schmidt, Project Manager
2001 Bryan Tower
Dallas, Texas 75201

Texas Utilities Generating Company
ATTN: E. F. Clements, Vice President, Nuclear
2001 Bryan Tower, Suite 1735
Dallas, Texas 75201

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-445/83-24
50-446/83-15

Docket: 50-445
50-446

Category: A2

Licensee: Texas Utilities Generating Company (TUGCO)
2001 Bryan Tower
Dallas, Texas, 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES), Units 1 and 2

Inspection At: Comanche Peak, Units 1 and 2, Glen Rose, Texas

Inspection Conducted: March through July 1983

Inspectors: for D. M. Hunnicutt 8/19/83
R. G. Taylor, Senior Resident Inspector Construction (SRIC) Date

Approved: D. M. Hunnicutt 8/19/83
D. M. Hunnicutt, Chief Reactor Project Section A Date

Inspection Summary

Inspection Conducted March through July 1983 (Report 50-445/83-24 and 83-446/83-15)

Areas Inspected: Special inspections, announced and unannounced, related to allegations made to various NRC persons including the Atomic Safety and Licensing Board in their procedings regarding the operating license for Comanche Peak Station. The inspections involved 449 inspector-hours by one NRC inspector.

Results: The inspection confirmed the need to issue four violations initially identified by the Construction Appraisal Team (CAT) (NRC Inspection Report 50-445/83-18; 50-446/83-12). These involved the areas of HVAC, Equipment Installation, Document Control, and Storage of Equipment.

Details

1. Persons Contacted

Principal Licensee Employees

*R. G. Tolson, Site QA Supervisor
*C. T. Brandt, Non-ASME QC Supervisor
*J. R. Merritt, Engineering, Construction and Startup Manager
*J. B. George, Project General Manger
*D. N. Chapman, QA Manager
*B. R. Clements, Vice-President, Nuclear

Brown & Root (B&R)

*G. R. Purdy, Project QA Manager
*D. Frankum, Construction Project Manager

The SRIC also interviewed many other licensee, B&R, and subcontractor personnel during the course of the inspection.

*Denotes those persons who attended one or more management interviews with the SRIC.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (50-445/82-22-02), "Analysis of Weld Discrepancies." This unresolved item concerned a substantial number of identified defects in a large whip restraint essentially surrounding the mainsteam and feed water lines located several feet outside of the ASME code boundry point. The device was engineered by the licensee's A/E and manufactured by NPS Industries. Due to the overall size of the structure, it has been nicknamed "George Washington Bridge" by the site labor and quality forces. The licensee had reported the finding of the defects as a potential 50.55(e) item to the SRIC on September 30, 1982, which was subsequently stated not reportable in a letter dated December 27, 1982. An NRC inspector followed up on the matter during a visit to the offices of the A/E, as documented in NRC Inspection Report 50-445/83-12. This review pertained to all of the defects involved with the exception of two cracked welds that had not been analyzed at the time of the inspection. The engineer has recently analyzed these two defects and has determined that had they not been detected, the structure could have fulfilled it's function. The SRIC has reviewed the location of the cracks and their length in relation to the size of the welds and the functional application of the structure. Since the structure has no continuous service application and is essentially subject to a one-time loading, the cracks would not have the potential for further propagation. Further, the cracks are at points in the structure that would receive relatively low stresses in the one-time impact based on their small size in relation to the members being welded. It appears that the cracks formed due to the stresses developed during the tightening of high strength bolting in

the immediate vicinity of the welds during the site assembly of the structure. Taken in conjunction with the earlier documented review of the engineers calculations and the SRIC's review of these cracks, the SRIC has concluded that the engineer's overall analysis was adequate and that deficiency(s) were not reportable under 50.55(e). Both the licensee's initial report (CP-82-12) and the above identified unresolved item are considered closed.

It should be noted for the record that this closure only applies to the reportability aspects under 50.55(e) and not to the correction of the defects. The defects, including the cracks, have been documented on a nonconformance report. The final disposition and closure of the NCR will be evaluated during future routine inspections.

3. Review of Licensee Self-Evaluation (Using INPO Criteria)

The SRIC has reviewed a report of the licensee's self- evaluation performed during October 1982 which was based on criteria that has been developed for the purpose by INPO. The evaluation was performed in behalf of the licensee by personnel in the employment of Sargent & Lundy, an architect-engineer firm with substantial nuclear power involvement. A copy of the report was furnished to the NRC, and subsequently, to the Atomic Safety and Licensing Board in the matter of Comanche Peak Station operating license by letter dated May 2, 1983. The purpose of the review by the SRIC was to determine if any of the 47 findings in the report were of a type and of sufficient significance to have been reported to the NRC as required by 10 CFR 50.55(e). The SRIC reviewed each of the 47 findings and the supporting documentation in the report pertaining to each finding. This review revealed that none of the 47 items were based upon identified deficiencies in structures, systems, or components nor were there any significant deficiencies in design, engineering, or testing that would constitute conditions reportable under 10 CFR 50.55(e).

4. Car Wash In Containment

During the limited appearance statement portion of the Atomic Safety and Licensing Board hearing on May 16, 1983, a person stated at transcript page 6152 that he understood that the containment looked something like a car wash. The person stated that it was his understanding that the situation developed at about the same time that there was a meeting at the D/FW Airport between the NRC and any interested parties to discuss NRC decentralization. That meeting took place on April 5, 1983. For the purposes of evaluating this allegation, the SRIC expanded the period of interest to include the 3 weeks prior to the meeting. During this entire period, the Unit 1 reactor system was undergoing what is referred to as "Hot Functional Testing". This particular test is an accurate simulation of the operation of the reactor system and its appurtenances but without a reactor core being in place. The heat and pressure in the system is generated by the reactor coolant pumps in conjunction with the chemical and volume control system charging pumps. The test could readily be construed to be a pressure test but in fact is an operational test at pressure. This particular test extended overall for about 90 days beginning late in February

and continuing until late May. The SRIC monitored the test but was by no means continously in the containment. The SRIC interviewed personnel in the licensee's startup test group, QC inspectors who had reason to be in the building and others to obtain a picture of the events that occurred in the Unit 1 Containment Building during the period of interest. The SRIO also reviewed the licensee's control room logs for any indication of operational problems indicative of a major leak in any of the fluid filled systems under test. The picture obtained was that there were several small leaks, generally at the gaskets between valve bodies and their bonnets. In addition, there was a considerable amount of condensation dripping from the reactor coolant pump motor cooling coils. This was caused by the cold water in the coils condensing the humidity from the atmosphere within the building and was not indicative of a leak in the reactor coolant system. The SRIO found from the control room logs that on March 29, a steam leak occurred during one phase of the test when a drain valve was partially open. Perhaps this valve should have remained closed. The room in which the valve was located was apparently filled with steam vapor which would have condensed out on the cooler walls as water. On March 30, the reactor vessel head vent valves were partially opened, which in turn would give some amount of steam blowoff into the reactor refueling cavity area and would rise up into the building until cooled and condensed out as water. None of these events are typical of any major leak indicative of piping or piping component (such as a valve) failure. The type of small events described above are, within the experience of the SRIC, typical of what would be expected during such a test and is one of the reasons for performing the test.

5. Design of the HVAC System Supports

By letters, both dated March 11, 1983, Citizens Association for Sound Energy (CASE) notified the NRC's Offices of Inspection and Enforcement and the Executive Legal Director of a concern that the HVAC system for Comanche Peak had not been properly supported, nor had it been properly considered in regard to seismic load conditions or its treatment as potential missiles. CASE specifically states that from their review of the FSAR, it appears that the licensee has not analyzed the HVAC supports for a seismic load condition. Specific reference is made to Sheet 21 of Table 17A. In addition, the personal observations of Messrs. Walsh and Doyle are relied upon to point out that there are no lateral supports on the HVAC systems within the containment. CASE also states that all HVAC components and supports inside containment should be treated as missiles under Criterion 4 of the General Design Criteria for Nuclear Power Plants, 10 CFR 50, Appendix A.

Sheet 21 of Table 17A of the FSAR lists the containment ventilation systems as being Seismic Category II. Apparently, it has been assumed by CASE that this category excludes seismic loading in the design. This assumption is incorrect since the FSAR, Section 3.2.1.2 defines Seismic Category II as being those portions of systems or components whose

continued function is not required but whose failure could reduce the functioning of any Seismic Category I system or component required to satisfy the requirements of C.1.A through C.1.Q of Regulatory Guide 1.29 to an unacceptable safety level or could result in incapacitating injury to occupants of the control room. These systems are designated Non-Nuclear Safety (NNS) Seismic Category II and are designed and constructed so that a safe shutdown earthquake (SSE) will not cause such a failure.

CASE also states that if the HVAC systems within the containment failed during a SSE, this would allow the temperature within the containment to rise quickly to unacceptable levels which could over time cause components and monitoring equipment to fail and which could also mean that it might be impossible for workers to enter the containment due to the heat. Containment heat removal is required by Criterion 38 of the General Design Criteria for Nuclear Power Plants. The system to remove heat from the reactor containment at Comanche Peak does not rely on the HVAC system but rather is composed of two separate containment spray recirculation trains each with 100 percent capacity. Each train contains two separate pumps, one heat exhanger, and seven spray headers, and each system is fed from its individual electrical Class IE bus. The containment heat removal system is designed to ensure that the failure of any single active component, assuming the availability of either onsite or offsite power exclusively, does not prevent the system from accomplishing its planned safety function. CASE's concern with being able to enter the containment following certain design basis accidents is unfounded in that it is not a requirement.

In order to assess the adequacy of the design of HVAC supports, an inspection was conducted at the home office of "Corporate Consulting & Development Company, LTD.," the support design consultant. It was determined that all permanent HVAC supports are analyzed for seismic loading. Two methods are utilized: Zero Peak Accleration (ZPA), or 1.5 Times the Peak Acceleration When the Fundamental Frequency Falls Below 20 Hertz. Of the latter method of design, only about 6 out of 4000 supports have been designed that way. A typical HVAC duct run is supported axially at every third support This may explain why Messrs. Walsh and Doyle may have felt that there were no lateral supports on the HVAC systems. The NRC inspector reviewed the design of a typical HVAC duct run at elevation 852'-6" in the Auxiliary Building. Supports were designed utilizing two computer programs entitled FEASA-2D and FEASA-3D. The acronym stands for frame eigenvalue and stress analysis. The -2D version is used on the transverse supports and the -3D version is used on the axial supports. The inclusion of equivalent weights from both up and downstream transverse supports and accesories such as volume dampers and vane turns in the design of the axial supports was verified. This inspection verified the adequacy of the siesmic design techniques being utilized for the design of HVAC supports at Comanche Peak.

The concerns expressed by CASE have been found to be without merit.

Persons contacted during the course of the inspection at Corporate Consulting

& Development Company, LTD. were:

J. Roland Yow, President & Chief Executive Officer
Gary Hughes, Vice-President for Operations
David Lindley, Principal Engineer
Stephen Lehrman, Seismic Department Manager
Daryl Hughes, Project Engineer

6. Heating, Ventilation, and Air Conditioning System (HVAC)

During the CAT inspection (NRC Inspection Report 50-45/83-18; 50-446/83-12), the CAT inspectors noted that a significant portion of the welds on the ducting support structures were deficient in relation to the applicable welding code requirements. The dominate deficient condition noted was that the welds were significantly undersized. Based upon this information the SRIC toured various areas of the facility with special emphasis on the ducting in the Unit 2 Containment Building since that was one of the more recent areas of installation by the HVAC contractor. In accordance with the design drawings, the bulk of the welds should have been fillet welds with ½inch leg size. The SRIC noted by visual comparison to the ½inch thick base metal that very few of the welds were of proper size. The CAT inspectors also found cases where the bolting and gaskets between ducting sections were loose and/or missing. The CAT inspectors also found that some support members were not within the dimensional tolerances on the design drawings. It was noted that the contractor's inspection records did not reveal these various facts, indicating ineffectual QC by the contractor. Further, a review of the licensee's audit program indicated that the licensee was unaware of these several problems in the fabrication, installation, and inspection of the HVAC systems. Based upon the CAT inspectors' findings and his own observations, the SRIC recommended that a notice of violation be issued to the licensee pertaining collectively to these matters (Notice of Violation issued on May 31, 1983. Reference 50-445/83-18 and 50-446/83-12, item 4).

7. Installation of Major Items of Equipment

The CAT inspectors noted during their inspections of certain major items of equipment that there were several variables in how the equipment was fastened to the building equipment pads. In some instances, tanks for example, CAT inspectors found that there were two nuts (double nuts) on the embedded bolts securing the equipment, other bolts had one nut, (single nut) and some had a combination of both single nuts and double nuts on one piece of equipment. The CAT personnel also noted that certain heat exchangers had slotted holes in one of the mounting bases to allow for thermal expansion during operation. The holddown nuts appeared to be installed too tightly and may have prevented freedom of movement. The SRIC obtained the design and installation drawings for two of the referenced heat exchangers identified in the CAT report. Both were found to be horizontal Utube heat exchangers whose function is nonsafety, but whose pressure boundary in the tubes is safety-related since the process fluid could be radioactive. The SRIC found that the construction drawings for the mounting pedestals had a flat steel plate on one

pedestal that would be suitable for the type of mounting detail on these heat exchangers. The SRIC then reviewed the installation travelers for each heat exchanger and found that these documents did not note or address the slotted details, the plate, or the fact the bolts should be left loose. The SRIC would note that the vendor manual which provides the details does not provide information on how loose or tight the nuts should be nor how these nuts are to be locked at that looseness or some torque value. The SRIC with the assistance of site QC and craft labor had one of six nuts loosened on heat exchanger TCX-CSAHLD-01. On all six of the studs involved, each had only one nut (single nut). The one nut that was loosened had been very tight, as evidenced by the amount of force required to break the nut loose. On another heat exchanger of comparable design, it was found that each stud was double nuted and when the top nut was loosened, the second nut was approximately one flat (about 1/6 of a turn) from being fully tight. This degree of looseness should allow sufficient freedom of movement. During the document review, the SRIC found that the engineer had specified that all rotating and vibrating equipment should be double nutted and that other equipment could be secured with only one nut. No document could be located that established the identity of vibrating equipment nor were there any apparent provisions made to lock nuts where they must be deliberately left loose. This was considered overall to be a violation of Criterion V of Appendix B to 10 CFR 50 (Notice of Violation was issued on May 31, 1983. Reference: Notice of Violation 50-445/83-18 and 50-446/83-12, item 1).

8. Maintenance of Equipment In Outdoor Storage Areas

The CAT found that a considerable amount of equipment such as pipe support struts, clamps, and like items, normally stored outdoors, was not being properly maintained in accordance with procedure MCP-10, "Storage and Storage Maintenance of Mechanical and Electrical Equipment", as evidenced by rusting bolts and adjustment screws on struts. In addition, the strut bearings were dirty from dust and the bearing load pins, in some instances, were rusted. By a tour of the storage areas, the SRIC confirmed the CAT inspectors findings. The SRIC would also note that the INPO Self-Evaluation Report at page 111 describes essentially the same finding. This situation was determined to be a violation of Criterion XIII of Appendix B to 10 CFR 50 (Notice of Violation issued on May 31, 1983. Reference: Notice of Violation 50-445/83-18 and 50-446/83-12, item 2). The SRIC would note for the record that there is little evidence that any items which indicated substantial deterioration from such storage conditions have in fact been installed in the nuclear power block. It would appear that the various items involved have been cleaned and restored prior to installation such that they can perform the required function.

9. Obsolete and/or Illegible Drawings In The Field

The CAT inspectors found a group of drawings in one particular area adjacent to the control room that were found to be out of date by up to several issues and further, that some drawings in other areas were incomplete in the title and revision blocks. The SRIC discussed

the finding with supervisory personnel of the licensee's central document control center who indicated that they had located the drawings identified by the CAT inspectors along with many more that were obsolete in other areas. It was stated that distribution system for engineering drawings had become faulted by the simple volume and by the need for so many points of distribution and audit verification thereof. Since problems are obviously still present, it was determined that the licensee had violated Criterion VI of Appendix B to 10 CFR 50 (Notice of Violation was issued on May 31, 1983. Reference: Notice of Violation 50-445/83-18 and 50-446/83-12, item 3) and that substantial steps would be required to correct the problems.

10. Allegations Relative To Improperly Supported Items In The Control Room

The president of CASE in a letter dated March 11, 1983, addressed to Mr. Richard C. DeYoung, Director of the NRC Office of Inspection and Enforcement, indicated that CASE had received information from an unidentified source to the effect that:

a. There is field run conduit above the control room supported only by wire.

b. There is drywall (or sheet rock) that is supported by wire.

c. There may be lights that are supported by wire.

The SRIC has examined the suspended ceiling and the area above the suspended ceiling in the control room area and has examined the pertinent engineering drawings depicting both in relation to these allegations with the following findings:

a. There is a considerable amount of both safety-related and nonsafety related conduit in the area above the suspended ceiling. The safety-related conduit is supported by Seismic Category I supports typical of those used in other areas of the facility. The nonsafety-related conduits are generally supported by simpler and less substantial supports that are typical of those that the SRIC has observed in large open factories and are not designed to seismic standards. In each case examined, the non-seismic support was structurally paralleled with a small stainless steel cable that would assume the full weight of the conduit were the normal support to fail in a seismic event.

b. The drywall materials were found to be part of the suspended ceiling above the central part of the control room and to form a part of the sloping wall area below the control room observation room. These drywall materials have been securely fastened to a metal frame work (metal batten) which in turn is supported by conventional and non-seismic straps and wires to the concrete primary building. The frame work is also attached to a system of stainless steel cables which in turn also attach to the primary structure such that if normal supports fail during a seismic event, the weight of the framing and drywall will be assumed by the cabling thus preventing the materials from falling.

c. The lighting fixtures in the control room are supported from an intermediate substructure of "unistrut" by light-weight conduit. The substructure is likewise supported by the same type of conduit from the primary structure ceiling. The conduit used appears to be the typical of that supporting the light fixtures in most offices with suspended ceilings. Paralled with each conduit are two small stainless steel cables which would assume the load if the conduit or its attachment were to fail. In the case of the actual light fixtures, the cable is attached to the light fixture at the edge of the reflector assembly.

The SRIC would note for the record that above described design features appear to fully satisfy the intent of the licensee's commitment to comply with NRC Regulatory Guide 1.29, "Seismic Design Classification." The licensee has used terminology in the classification system that is at variance with that of the regulatory guide but is explained and defined in Section 3.2 of the FSAR. In essence, the licensee has defined all safety-related items that must remain fully functional during and after a seismic event as Seismic Category I. Items not having a safety function but whose failure could damage components which have a safety function or cause injury to the occupants of the control room during an event are referred to as Seismic Category II. In the case of the items involved in this allegation, all are Seismic Category II since their falling could cause injury to the control operators. The cabling system described can be expected to prevent such a fall even though the normal supports could possibly fail. The stainless steel cable used in this design feature, which at a short distance away looks much like bright galvanized common steel wire, is of relatively high strength. As an example, the test strength of an 1/8-inch cable is in excess of 1760 pounds. With four cables attached to a light fixture, two at each end, the total support capability of the cables is over 7000 pounds. It is apparent that the designers have elected to use conventional suspended ceiling and light fixture support techniques in order to use conventional and available materials and then provide a high strength backup support system in a seismic event.

No violations or deviations were identified during this special inspection effort.

11. Placement and Curing of Concrete During Freezing Weather

During the limited public appearance portion of the Atomic Safety and Licensing Board (Board) hearing conducted on May 15, 1983, there were two references to the placing of concrete in freezing weather at the Comanche Peak Station which in turn lead to a question from the Board to the NRC staff as to whether there were any NRC personnel present with knowledge of the matter. The two references are at 6106 and 6134 of the hearing transcript while the Board question is at 6109. Also at 6109, an unidentified voice responded to the Board that the matter had been reported in IE inspection reports. Research of the NRC inspection reports revealed that there had been such a discussion in NRC Inspection Report 50-445/77-01 which was categorized as an unresolved item pending the licensee's review and action on their finding of the problem. The unresolved item was further discussed in NRC Inspection Report 50-445/77-04 with the closure of the item by an improvement in the QA procedures.

The SRIC has reviewed the matter, particularily with a view toward determining whether the practices involved actually caused damage to the concrete involved. The primary focus of NRC Inspection Report 50-445/77-01 (Details II, paragragh 5) was directed toward two licensee "Site Surveillance Reports" which had been prepared approximately 2 weeks earlier than the inspection period covered by the inspection report. The first of the licensee's reports (C-134-77) was directed specifically to findings by a licensee inspector that the surface temperature of Concrete Placement 101-2808-001 some 6 hours after the placement was completed were well below freezing in some locations. The other licensee report (C-135-77) was directed toward records and was not considered in this review. The SRIC obtained the necessary records to review the matter and found that placement 101-2808-001 had taken place on December 30, 1976, being completed at approximately 6:00 p.m. Later, the same evening at approximately midnight, the licensee inspector found that some surface areas were chilled to as low as 20°F. The records reflect, however, that there was disagreement between the B&R inspection personnel assigned to monitoring the curing of the placement and the licensee's inspector as to what the surface temperatures actually were. The B&R personnel contended that the licensee inspector was actally measuring the air temperature rather than the temperature of the concrete. No resolution of that disagreement was reflected in the records. The SRIC interviewed the licensee inspector of record during the course of this review to gain a clearer understanding of the events which took place. The licensee inspector stated during the interview that he was confident that his measurements were accurate and also stated that there was no physical evidence that the concrete was frozen even though the surface temperatures were well below freezing. The records also reflect that in order to resolve the issue, swiss hammer tests were run on the suspect areas after the concrete had fully cured. These tests indicated that the suspect areas had attained strengths comparable to known properly cured areas, indicating that the concrete had not been damaged even though the possibility exists that it had been frozen for a period of time. The records reflect that good concrete curing temperatures, i.e., above 40°F were established and maintained shortly after the licensee's inspector's observation.

For the record, the SRIC would note that Placement 101-2801-001 took place in the Unit 1 Reactor Building. The placement became the open area floor at the lowest full floor in the building. This floor area, while supporting some equipment, serves primarily as a walk area. As such, it is fully topped with an architural concrete making the structural concrete no longer accessable.

NRC Inspection Report 50-445/77-01 also discussed comparable events to that documented on Surveillance Report C-135-77. One of these events was documented by Surveillance Report C-068-76 on January 7, 1976, and on B&R deficiency/disposition reports (now titled nonconformance reports). These documents indicate that on January 7, 1976, the surface temperature of Placement 105-2773-001, the foundation basemat for the Unit 1 Safeguards Building, were found frozen as evidenced by frozen wet burlap over certain areas that were not covered by insulating blankets. The records also

reveal that the reported finding took place almost 7 days after the placement of the concrete. Although the placement should not have been allowed to freeze in the time frame involved in accordance with the project specification, the placement was accepted "use-as-is" on the premise that the curing temperatures during the 7 days were conducive to a good cure and that after 7 days there would be little free water in the concrete to freeze even though the burlap was froze. This conclusion is considered valid by the SRIC based on his review of publications of the American Concrete Institute and the Bureau of Reclamation. Further, in responding to a separate finding that the field cure test cylinders made for the placement tested lower than allowed by the project specifications, swiss hammer tests were performed. The swiss hammer tests indicated the concrete placement had full specified strength. Relative to the low reported strengths of the field cure cylinders, the SRIC would note that in his experience field cure cylinders will frequently test low under cold weather conditions. The reason is that the cylinders' small mass generates little heat of hydration, thus making them either more vulnerable to freezing and/or curing much slower than normal due to their depressed temperature.

The final events covered by NRC Inspection Report 50-445/77-01 included DDR-C-460 which in turn discussed low temperatures during the curing period of three separate placements that were made during the late December time period of 1976. In each case, the records reflect that the placements were accepted "use-as-is" since the least amount of cure time was 9 days, again with good conditions until the cold weather occurred.

The NRC inspector involved in NRC Inspection Report 50-445/77-04 which closed the unresolved issue has stated that he had visually inspected each of the placements discussed in NRC Inspection Report 50-445/77-01 for evidence of damaged concrete and found none. NRC Inspection Report 50-445/77-04 did not reflect those inspections since the NRC inspector was aware that the concern was for prevention of repetition rather than any specific concern about the quality of the placements involved.

The SRIC would note for the record that there are no regulatory or industry prohibitions on placing concrete in cold weather conditions. The American Concrete Institute and the Bureau of Reclamation both indicate that if the fresh concrete is above 40°F at the time of placement, the chemical process of hydration will generate sufficient heat to prevent the concrete from freezing provided that precautions are taken to prevent heat loss. In mass concrete applications, the greatest danger to the concrete is on the exposed surface areas, particularily at corners and other edges of the placement. It would be exceedingly rare for the mass of the concrete to freeze and sustain damage. These publications also indicate that even if frozen, the concrete will normally cure to full design strengths if temperatures conducive to the hydration process are restored.

12. Allegations Relative To The As-Built Verification and Design Verification Activities.

During April 1983, NRC personnel received allegations to the effect that

the QA group performing as-built verifications were not measuring support member dimensions and therefore, the "Vendor Certified Drawings" of the supports would not be accurate. A second allegation from the same person indicated that the QA group charged with responsibility for verifying that design changes have been incorporated into the plant and that the inspection records for the installations accurately reflected that incorporation was being required with the use of a computer generated status document to make the verification of records. The allegation was that the computer listing was faulty and therefore, the verification effort was equally faulted.

The SRIC has examined each of these allegations as to the factualness of the allegation and as to whether the allegation has or will have an effect on the safety of the facility when operating. In regard to the first allegation, the SRIC found that the allegation was and is factual. The allegation, however, does not appear to have any significant impact on safety in that the as-built inspection was not developed to assure that the "Vendor Certified Drawing" was an accurate representation of the support in all aspects. The as-built program was established to assure only that the support location on the supported pipe and the direction of support is accurate for the purposes of performing the final pipe stress analysis. The responsibility for assuring that the support members and other characteristics of the individual support reflect the design drawing requirements reside in other QA groups associated with the fabrication and installation efforts. To also perform these functions in the as-built verification inspection would be a redundant inspection that would not contribute significantly to the safety function of any given support.

Regarding the second allegation, the SRIC found that it too was factual but only at the specific time the allegation was made. When making the allegation, the alleger provided the NRC personnel with a reference to a QC inspection report which he said would fully display his concern. This report, identified as IR DCV-00421, was found to contain notation that the verification was based on a computer tabulation and that the report was being completed at the direction of the inspector's supervisor. The original report was dated April 4, 1983. The permanent file copy was found to have been marked "voided" by the originating inspector as of May 20, 1983, with a notation that the report had been superceded by IR DCV-00423. This latter inspection report was examined by the SRIC and found to document essentially the same inspection effort by the same inspector but without any notation of having been based upon a computer tabulation and without notation of apparent protest of directions given by supervision. The SRIC interviewed the QC inspector who prepared and signed all of the reports noted above in order to ascertain what had and is transpiring in the QC design verification program effort. The inspector stated that the attempt to use the computer based data in the performance of the assigned task was in error from the beginning because of errors by persons generating the computer data. The interviewee stated that only the one verification effort had been done using the computer based data and that all prior and subsequent verifications have been done by the assigned inspectors directly and personally examining the existent quality records in compliance with applicable QC procedures for the task. He stated that the only

procedural deviation was the one instance stated in the allegation. Discussions between the group supervisor at the time the allegation was received and the SRIC indicated that he had attempted to use the computer tabulation to expedite the task on a trial basis by management direction and that he had caused the original inspection report to be filed as it was to give management a picture of the faults in the computerized data. It thus appears that the design verification effort has been performed in accordance with procedures except for the one-time pertubation that was subsequent correctly reaccomplished in accordance with approved procedures.

No violation to NRC requirements were revealed during this special inspection effort.

13. Improperly Certified Liquid Penetrant Examination Materials

The CASE informed the Atomic Safety and Licensing Board by a letter dated May 18, 1983, of a potential problem with the liquid penetrant materials in use at the Comanche Peak Station. The letter stated that CASE had been made aware of the potential problem during a phone conversation with Charles A. Atchison, who in turn learned of the "problem" from a Dallas area representative of the Magna-Flux Corporation, the orginal manufacturer of the material. The letter states that the problem surfaced only 7 to 10 days earlier. Based on the date of the letter, it would seem that the problem arose between approximately May 8 to May 11, 1983.

The situation bears close resemblance to the situation outlined beginning with NRC Inspection Report 50-445/82-18;50-446/82-09 based upon an inspection conducted during the period of September 7-10, 1982. The NRC inspector noted that some certified test result documents had been altered by "pen and ink" changes not immediately explainable. The matter was considered unresolved at that time. During a second inspection of the matter, conducted during November 1982 and documented in NRC Inspection Report 50-446/82-11, the inspector found that previous corrective actions were not adequate and further that the "pen and ink" changes sometimes didn't match the type of material being certified. A Notice of Violation was issued as part of the inspection report on the matter. The licensee responded to the Notice of Violation by a letter dated December 21, 1982, wherein he stated that a supplier had altered the certificates but that the original manufacturer had been able to furnish valid certificates and further, that all future purchases would be direct from the manufacturer rather from a "middle-man" supplier. The licensee also stated that specific receiving inspection procedures had been implemented to prevent repetition. NRC Inspection Report 50-445/83-10;50-446/83-05 documented verification that the licensee's actions were acceptable and the matter was closed.

It appears that the situation outlined in the CASE letter parallels the NRC findings in all details except for the dates which probably arose as a result of misunderstood or incomplete communications between the

Magna-Flux representative and Mr. Atchison and/or with CASE.

CASE also posed two questions on the matter as follows:

a. Has an NCR been written on this problem?

Answer: The above discussed inspection reports document a total of five NCR's that were issued.

b. Has either TUGCO or Texas Utilities or B&R notified the NRC of this problem?

Answer: The roles of reportability were effectively reversed in that the NRC identified the problem and notified the licensee.

A need for further NRC action on this matter has not been identified and the matter is considered closed.

14. Penetration Seals

This special inspection was undertaken to ascertain the validity and significance of allegations received initially by an NRC Headquarters Duty Officer on or about March 22, 1983, which were confirmed and added to during a telephone interview with the alleger on March 23, 1983, by the SRIC and a NRC inspector assigned to NRC Region I. The allegations, as understood by the SRIC, were:

a. The overlap seal for flexible boots should be 3 inches whereas 2 inches is being used by BISCO.

b. There maybe a problem with the strength of the fabric used in the flexible boots since the material supplier and BISCO are involved in a lawsuit.

c. The aggregate used in a radiation seal may separate giving rise to improper personnel protection.

Since BISCO was and is on the Comanche Peak site installing seals, Region IV was selected for the purpose of this special inspection although the company has involvement at several other nuclear power sites throughout the United States. The SRIC obtained from the BISCO site manager all of the production and quality procedures applicable to the work at CPSES as well as some that are not. The alleger specifically mentioned that the NRC should review Procedures QC-507, SP-504, SP-505, SP-505-1, and SP-505-2 in regard to the flexible boot overlap problem. Each of the above procedures was in the books offered to the SRIC for review. A brief discussion follows as to the contents of these procedures:

a. QCP-507: This procedure covers the final inspection of installed

flexible boots. The amount of overlap is not mentioned in the procedure, although the procedure does require that the seam be examined for evidence of poor sealing such as "fish-mouthing" which is taken to mean that the exposed edge of the overlap is puckered and not adhering to the base fabric.

b. SP-504: This procedure provides instructions and a calculation sheet to initially cut the fabric into a shape that would subsequently allow the formation of a truncated cone. The formula on the calculation sheet requires that 1-inch be added at each edge of the fan shaped fabric which is evidently to provide the overlap. The base formula prior to adding the 1-inch provides a dimension just equal to the circumference of the pipe and/or sleeve to which the boot will be attached. Thus, the 1-inch at each edge will provide for 2-inches of overlap, assuming that the pipe and sleeve are concentric. If pipe and sleeve are not concentric, the resulting cone will be skewed and the seam overlap will be something other than 2-inches.

c. SP-505: This is a generic procedure for the installation of flexible boots. It was noted that the procedure requires that the adhesive for the overlap seam be spread over a 3-inch depth from the fabric edge prior to fitting up the fabric where it is to be installed. Although not so stated, it appears that the 3-inch width of adhesive is to provide sufficient area of adhesive in the event the above mentioned cone skewing occurs.

d. SP-505-1 and SP-505-2: These are additions to SP-505 having application when the boots are used as a simple pressure seal only and for when the boot is used as part of a fire protection seal, respectively.

The SRIC interviewed the BISCO site manager as to whether the procedures had ever required a 3-inch overlap. The site manager indicated that 3-inch seam had been used up to sometime in 1979 and that his homeoffice engineering had then changed the seal seam detail. The SRIC reviewed the results of a pressure differential test performed by BISCO in September 1979 which indicated that the fabric boot would withstand a differential pressure of 44 psig without sustaining damage. The project specification (2323-MS-38F) requires that the pressure seal maintain its integrity only up to 2 psig. While the BISCO test data does not specifically state what the overlap seam width was on the test boot, it would strongly appear that the strength margin is so high that even a reduction of 1/3 in the area of the overlap would have the effect of changing the safety factor from 22:1 to approximately 14:1. It is the SRIC's conclusion that while the allegation relative to the reduction in seam from 3 to 2 inches is correct, the reduction would have no significant effect on the performance of the boot in service at CPSES and that, therefore, the allegation has no technical merit.

Regarding the matter of the possibility of some undefined problem with the boot fabric, the BISCO site manager stated that his company has been engaged in a law suit with the supplier of the fabric but only in regard to the performance of the fabric in one application which is understood to involve the tearing of the fabric after being punctured. It is understood that the puncturing has occurred when a gel type radiation seal hardens under radiation. Since the specific design involved is not scheduled for use at CPSES, the allegation has no technical merit.

Regarding the matter of possible separation of the radiation seal aggregate material from the carrier material, the SRIC can only conclude that the allegation is potentially correct but without apparent merit. The BISCO test reports indicate that the seals involved met the engineers specification. The separation of the aggregate (powdered lead) from the carrier (a silicone material) would appear to be process sensitive in that if they are not well mixed, pockets of lead might form with resulting pockets of silicone without sufficient lead. Since the specification and the BISCO procedures require careful control and monitoring of the mixing process, the SRIC can only conclude that these measures are effective in production operations as they were in preparation of the test samples.

15. Electrical Cable Splicing

The SRIC became aware that the Comanche Peak project electrical engineer had authorized the splicing of safety-related and auxiliary electrical cables within several control panels during the inspection period. Since the licensee has committed in FSAR Section 8.1 to comply with IEEE 420, "Trial-Use Guide for Class 1E Control Switchboards for Nuclear Power Generating Stations," which forbids splicing of wiring in such panels, the SRIC judged that the licensee was deviating from these commitments. The licensee engineer indicated that he interpreted the IEEE standard to prohibit such splicing only between the cabinet terminal boards and the cabinet devices and did not prohibit such splicing in the field run cables attaching to the terminal boards. The engineer stated that action had been initiated with the NRC Office of Nuclear Reactor Regulation to clarify the issue in the FSAR. The SRIC confirmed that such action had been initiated by a telephone conversation with the NRR Licensing Program Manager for Comanche Peak. Pending action by NRR, this matter will be considered as an unresolved matter.

16. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of non-compliance, or deviations.

One such item, disclosed during the inspection, is discussed in paragraph 15 above. This item is identified as "Splicing of Electrical Cables in Cabinets." (8324-01)

17. Management Interviews

The SRIC met with one or more of the persons identified in paragraph 1 of this report at frequent intervals during the inspection period to discuss the licensee's position and proposed actions on a significant number of issues which occurred during the period.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE SUITE 1000
ARLINGTON, TEXAS 76011

May 13, 1983

In Reply Refer To:
Dockets: 50-445/83-12
50-446/83-07

Texas Utilities Generating Company
ATTN: R. J. Gary, Executive Vice
President & General Manager
2001 Bryan Tower
Dallas, Texas 75201

Gentlemen:

This refers to the special inspection conducted by Mr. J. I. Tapia of our staff and Dr. W. P. Chen of the Department of Energy's Energy Technology Engineering Center (ETEC) during the periods of February 22-March 8 and March 22-23, 1983, of activities authorized by NRC Construction Permits CPPR-126 and CPPR-127 for the Comanche Peak Steam Electric Station, Units 1 and 2.

Areas examined during the inspection and our findings are discussed in the enclosed inspection report. Within these areas, the inspection consisted of selective examination of procedures and representative records, interviews with personnel, and observations by the inspectors.

Within the scope of the inspection, no violations or deviations were identified.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC Public Document Room unless you notify this office, by telephone, within 10 days of the date of this letter and submit written application to withhold information contained therein within 30 days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1).

Should you have any questions concerning this letter, we will be pleased to discuss them with you.

Sincerely,

W. D. Hassman
for G. L. Madsen, Chief
Reactor Project Branch 1

Enclosure:
Appendix - NRC Inspection Report: 50-445/83-12
50-446/83-07

cc w/encl:
Texas Utilities Generating Company
ATTN: H. C. Schmidt, Project Manager
2001 Bryan Tower
Dallas, Texas 75201

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Report: 50-445/83-12
50-446/83-07

Dockets: 50-445; 50-446 Category: A2

Licensee: Texas Utilities Generating Company (TUGCO)
2001 Bryan Tower
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station, Units 1 & 2

Inspection At: Comanche Peak Steam Electric Station; Gibbs & Hill (G&H) in New York City; and ITT-Grinnell Corporation in Providence, Rhode Island

Inspection Conducted: February 22-March 8 and March 22-23, 1983

Inspectors: for D M Hunnicutt 4/27/83
J. I. Tapia, Reactor Inspector, Engineering Section, Reactor Project Branch 2 Date

for D M Hunnicutt 4/27/83
W. P. Chen, Manager, Stress Analysis Unit, Energy Technology Engineering Center (ETEC) Date

Approved: D M Hunnicutt 4/27/83
D. M. Hunnicutt, Chief, Engineering Section Date

for W D Iverson 5/3/83
T. F. Westerman, Chief, Reactor Project Section A Date

Inspection Summary

Inspection Conducted during periods of February 22-March 8 and March 22-23, 1983 (Report 50-445/83-12; 50-446/83-07)

Areas Inspected: Special, announced inspection in response to concerns expressed at the ASLB hearing by witness Mr. J. Yost and to follow up on open and unresolved items identified in Reports 50-445/82-26; 50-446/82-14; and 50-445/82-22. The inspection involved 80 inspector-hours by one NRC inspector and one NRC consultant.

Results: No violations or deviations were identified. Of the five specific concerns expressed by Mr. James Yost in his limited appearance statement, four were found to be without technical merit. One concern was, in part, verified, but does not have technical significance. Two previously identified unresolved and one previously identified open item were closed.

Details

1. Persons Contacted

J. C. Finneran, Pipe Support Engineering Supervisor
J. S. Marshall, Licensing Manager
R. M. Kissinger, Project Civil Engineer
D. Rencher, Technical Support Design Review Supervisor
G. Krishnan, Site Stress Analysis Supervisor
S. Lakdawala, Small Bore Stress Analysis Supervisor

Other Personnel

C. Ingalls, Analysis Engineer, ITT-Grinnell Corp.
D. E. Powers, Engineering Manager, ITT-Grinnell Corp.
P. M. Salcone, Quality Assurance Engineer, ITT-Grinnell Corp.
V. Kumar, Supervisor of Structural Analysis, ITT-Grinnell Corp.
E. R. Eramian, Site Engineering Manager, ITT-Grinnell Corp.
C. I. Corban, Chief Engineer, Applied Mechanics, G&H
P. R. Rajan, Senior Project Engineer, G&H
N. N. Keddis, Quality Assurance Manager, G&H
M. S. Miller, Project QA Supervisor, G&H
H. W. Mentel, Applied Mechanics Engineer, G&H
B. Czarnogorski, Senior Quality Assurance Engineer, G&H
J. A. Tesoro, Technical Information Manager, G&H
J. Hanowitz, Technical Information Senior Engineer, G&H
M. Tipismana, Librarian Administrator, G&H
J. F. K. Lee, Applied Mechanics Engineer, G&H

2. Concerns Raised by James Yost

During the September 1982 ASLB Comanche Peak evidentiary hearing, Mr. James Yost presented a limited appearance statement wherein he presented the following five specific concerns related to the design of pipe supports:

a. FUB-II Base-Plate Program

Mr. Yost alleged that this program was never validated and that the program only checked one bolt out of four for tension load. An inspection was conducted at the ITT-Grinnell engineering office in Providence, Rhode Island, in order to address the concern. The NRC inspector reviewed the ITT-Grinnell Benchmark Verification Study which documents the validation of the FUB-II program against finite element analyses utilizing the Stardyne computer code.

The Benchmark Study was originally performed in August 1980 for Revision 2 of the program and again performed in September 1982 for Revision 3 utilizing the Base-Plate II finite analysis computer code.

This program, which stands for Field Unsymmetrical Bolts, was developed for a rapid determination of the adequacy of bolt and base-plate designs where the pattern is unsymmetrical.

In January of 1981, in response to a site generated question as to whether the program only analyzed the tensile load on bolt No. 4, an analysis was performed which considered the direct tensile load and the results showed that this was not the case. However, it was discovered that in the equations developed to convert bending moments to equivalent pull-out force couples, the program bypassed a comparison step intended to identify the desired smaller moment arm. An analysis was then performed to quantify the effect of the programming error. This analysis involved the comparison of 25 supports utilizing FUB-II Revision 2, FUB-II Revision 3, and a finite element analysis utilizing the Base-Plate II computer code. Revision 3 of FUB-II was developed to always select the largest moment arm.

The analysis showed that Revision 3 of FUB-II was approximately 25 percent more conservative when compared to the finite element analysis. The programming error was therefore considered to be of no significance with respect to past calculations utilizing Revision 2. Revision 3 of FUB-II was adopted for use since it removed some of the excessive conservatism in Revision 2 identified in the comparative analysis. Revision 3 of FUB-II still contains the following conservatisms: it does not account for plate rigidity; it sums shear stresses in all directions algebraically and not vectorally; it always lists the maximum shear and pull-out as occurring in the same bolt; and finally, as the deviation from symmetry increases, the eccentricity component of shear goes up.

The concern expressed by Mr. Yost was correct, in part, although the technical reason he gave as the basis for concern was not substantiated. It was concluded that, although the program bypassed a comparison step intended to identify the desired smaller moment arm, it does not represent a problem which impacts on the adequacy of the design of base-plates utilizing the FUB-II Revision 2 program at Comanche Peak.

b. Corner & Lada Base-Plate Program

Mr. Yost alleged that the Corner & Lada base-plate program erroneously assumes rotation about the center of attachment and that this program has not been validated.

The NRC inspector reviewed documentation of the Benchmark Studies of the Corner & Lada program which were based on the Teledyne Engineering Services finite element analysis and on a Corner & Lada finite element analysis. Two analyses were performed, one on a 0.375-inch thick plate and one on a 0.750-inch thick plate. Respective variations of maximum bolt tension from the finite element analyses were 9.5 and 3.3 percent. These results confirm the validation of the

Corner & Lada program for base-plates. Mr. Yost's statement that the program assumes rotation about the center of attachment is correct, but it is also a more conservative method of analysis because it represents a larger flexibility in the plate than actually exists. His implication that a higher rigidity exists is also correct, but if analyzed as such, it would result in less conservative results. This method of rigid analysis would represent the center-line moment as a tension/compression couple which would reduce the plate prying action. This would, in turn, result in a smaller bolt pull-out load and thus result in a less conservative analysis. Mr. Yost's concern is, therefore, considered without merit.

c. ADLPIPE Computer Program

Mr. Yost raises a concern that, "The so-called rigorous pipe analysis is a theoretical computer program, which to my knowledge, has never been validated," (see hearing transcript at page 4863). During an inspection at the G&H New York engineering office, the NRC inspector reviewed the documentation supporting the benchmark verification of the ADLPIPE computer code. The verification of the code was performed in accordance with G&H Engineering and Design Procedure No. EDP-10, Revision 2, "Control and Development of Computer Programs."

During the inspection, the NRC inspector was shown a letter (Reference: Benchmark verification of the Piping Computer Code ADLPIPE-3C, dated June 12, 1980) sent to Arthur D. Little, Inc. (developer of ADLPIPE) from the Division of Engineering of NRC's Office of Nuclear Reactor Regulation, wherein the NRC staff found acceptable agreement with the piping benchmark problems generated to assure that the computer code will calculate displacement and force responses of piping systems subjected to multi-directional seismic excitation using the modal superposition/response spectrum techniques specified in Regulatory Guide 1.92, "Combining Modal Responses and Spatial Components in Seismic Response Analysis." This review by the NRC staff was of the G&H response to IE Bulletin No. 79-07, "Seismic Stress Analysis of Safety-Related Piping." As a result of their inspection, Mr. Yost's concern with the ADLPIPE computer code for the dynamic stress analysis of piping systems is unfounded.

d. Seismic Spectra

Mr. Yost stated that the seismic response spectra generated for the Comanche Peak plant was nonrepresentative and had poor agreement with the Uniform Building Code. The seismic analysis techniques used by the licensee are presented in the Safety Analysis Report and were previously reviewed by the NRC staff. During this inspection, the NRC inspector reviewed the acceleration values given in the G&H piping design specification No. MS-200. No discrepancies from standard engineering practice for the generation of seismic acceleration values at different elevations were identified. With respect to the Uniform Building Code, it is the finding of the NRC inspector

that, although not applicable to the design of nuclear plants, if compared to the design techniques utilized at Comanche Peak it is much less conservative. Mr. Yost's concern is unfounded.

e. Interface Between Class 3 and 5 Lines

Mr. Yost expressed concern that supports for Class 5 lines adjacent to Class 3 lines could fail and cause a chain reaction resulting in the failure of the safety-related Class 3 lines. The Class 5 designation is used to identify those non-nuclear safety-related piping lines which are located in seismic category I structures. During this inspection, it was verified that based on specific routing a G&H damage study has determined the impact of all Class 5 lines larger than 2 inches for their capability to reduce the functioning of seismic category I systems and components as required by Regulatory Guide 1.29, "Seismic Design Classification." The design techniques utilized for the design of supports at the interface between class designations on the same line were also reviewed. Since there is an unknown contribution from the Class 5 segment on the Class 3 supports, two supports in the Class 5 segment are included in the Class 3 design. In addition, the rest of the Class 5 line is represented by utilizing the maximum dead weight span recommended in the ASME Code along with the peak acceleration of the response spectra.

The resultant loads are then superimposed on the last supports. This analysis is performed for each axis and was verified by the NRC inspector for analysis No. SI-1-RB-41 of the Safety Injection System and analysis No. WP-X-AB-084 of the Waste Processing System. The analysis techniques were found to be consistent with good engineering practice. Mr. Yost's concern is without merit.

3. Licensee Action on Previous Inspection Findings

a. The following unresolved and open items identified in Report 50-445/82-26; 50-446/82-14 were reviewed during this inspection:

(Closed) Unresolved Item (50-445/8226-01; 50-446/8214-01): Bending Stresses in Richmond Bolts - On March 22, 1983, the NRC inspectors witnessed the licensee's testing of Richmond inserts to determine the effect of a loading mechanism that models the actual configuration used at Comanche Peak. The actual configuration incorporates a 1-inch thick washer which was thought to introduce a bending moment in the bolt which might adversely influence the load displacement characteristics originally assumed. The result of the tests indicate that even at a load equivalent to a factor of safety of 3.3, sufficient ductility in the bolt does not lead to failure. The design factor of safety utilized for this analysis is based on the American Institute of Steel Construction (AISC) Code allowable of 17.67 Kips in shear as opposed to the American Society of Mechanical Engineers

(ASME) Code allowable of 19.08 Kips. The ductile load displacement characteristics observed assure that under LOCA thermal expansion conditions, the resultant loads will be self-limiting and the pipe supports will be capable of performing their intended design function which is to carry the imposed loads without failure. Since, the performance of the Richmond insert in shear with a 1-inch washer offset will not be adversely affected, this matter is considered closed.

(Closed) Unresolved Item (50-445/8226-02; 50-446/8214-02): Sufficiency of Richmond Insert Test Data - As discussed above, the NRC inspectors witnessed the testing of the Richmond inserts which was also performed in response to the Special Inspection Team observations of limited availability of test data. The testing involved the following specimens: three tests with the shear plate attached directly to the insert by an ASTM A-490 bolt, three tests with the shear plate separated from the insert by a 1-inch washer and employing an ASTM A-490 bolt, and three tests with the shear plate separated from the insert by a 1-inch washer and employing an ASTM A-307 bolt. The first six tests utilizing the high strength bolts were primarily a test of the insert while the last three tests were intended to ascertain the behavior of the typical bolting material. All nine tests resulted in a factor of safety above three when compared to the design allowables utilized at Comanche Peak. The conduct of these tests and their satisfactory results closes this unresolved item.

(Closed) Open Item (50-445/8226-03): Support Modifications - The verification of modifications to four Service Water System supports spanning from floor to ceiling was performed during this inspection. During the course of the special inspection, the licensee stated that the modifications were required because the supports would be unable to withstand differential seismic displacements. It was subsequently determined that the seismic response of an adjacent slab was utilized in that determination. In addition, due to the small span of the actual slab, the suspected large differential seismic displacements will not occur. Nevertheless, the proposed modifications were implemented and thus close this open item.

b. The following unresolved item identified in Report 50-445/82-22 was also reviewed during this inspection:

(Open) Unresolved Item (50-445/8222-02): Engineering Analysis of Weld Discrepancies - The NRC inspector evaluated the licensee's engineering analysis of the deficient welds on the main steam pipe-whip restraint located outside the Unit 1 Reactor Containment Building. The analysis consisted of determining whether unacceptable stresses would result in either the weld or in the base metal of the as-found condition when compared to the stress intensities of the original design. This analytical comparison is documented in G&H calculation No. SSB-125C, Set 1. As a result of the review conducted during this

inspection, the NRC inspector concurs with the licensee's determination that, with the exception of the cracks in welds that are to be repaired, the present weld deficiencies will not adversely affect the design function of the structure. This item remains unresolved.

UTILITIES
TING CO.

COMANCHE PEAK STEAM ELECTRIC STATION
NONCONFORMANCE REPORT (NCR)

NCR No. M-82-01589 R.1

UNIT	STRUCTURE/SYSTEM	ITEM/COMPONENT	TAG/ID NUMBER	LOCATION OR ELEVATION	RIR NO.
1	Safeguard Buildings	Pipe Whip Restraint	See Attached	852'(Floor)	N/A

REPORTING PERSONNEL

NONCONFORMING CONDITION

Pipe whip restraints supplied by NPS industries (See Attached) have weld indications that are not acceptable per AWS D1.1-80.

4 Hold tags applied.

ARMS INDEXED
DATE:

QA RECORD
RTN: 2 | QA REVIEW: BC 1/10/84
FILE NO: 10.1
SUBFILE NO: NCR #7

REFERENCE DOCUMENT: NPSI Ref. Dwg E-117 & 118/AWS D1.1-80 REV _____ PARA _____

REPORTED BY: B. Baker — DATE: 9/29/82

QE REVIEW/APPROVAL: William Lawrence — DATE: 2.2.83

ACTION ADDRESSEE: J.B. George/Kissinger — DEPARTMENT: Engineering

ACTION ADDRESSEE

DISPOSITION:
REWORK _____ REPAIR XXX USE AS IS XXX SCRAP _____

Temporary waiver: to allow exploratory grinding on weld defects, and to allow installation of pipe snubbers.

FINAL DISPOSITION

The weld deflects excluding the cracks are acceptable to use as is per attached CPPA letters. Weld Engineering is to generate a RPS to repair cracks.

FOR INFORMATION ONLY

ENG. REVIEW/APPROVAL: C R Hooton — DATE: 2,3,83

QE REVIEW APPROVAL: C. J. Hoeldt — DATE: 2,7,83

QE

DISPOSITION VERIFICATION & CLOSURE: M L Rhodes — DATE: 1,17,84

COMMENTS: R. 1 issued to add to the disposition.

FINAL IRMS-1-0014363

TEXAS UTILITIES GENERATING CO.

COMANCHE PEAK STEAM ELECTRIC STATION
NONCONFORMANCE REPORT (NCR)

NCR No. M-82-01589

UNIT	STRUCTURE/SYSTEM	ITEM/COMPONENT	TAG/ID NUMBER	LOCATION OR ELEVATION	RIR NO.
1	Safeguards Bldg.	Pipe Whip Restraint	See Attached	852' (Floor)	N/A

REPORTING PERSONNEL

NONCONFORMING CONDITION

Pipe whip restraints supplied by NPS industries (See Attached) have weld indications that are not acceptable per AWS D1.1-80.

4 Hold tags applied.

REFERENCE DOCUMENT: NPSI Ref. Dwg. E-117 & 118 / AWS D1.1-80 REV ______ PARA ______

REPORTED BY: B. Baker — DATE: 9 / 29 / 82

QE REVIEW/APPROVAL: M E Foote (signature) — DATE: 9 / 29 / 82

ACTION ADDRESSEE: J. B. George/Kissinger — DEPARTMENT: Engineering

ACTION ADDRESSEE

DISPOSITION:

REWORK ______ REPAIR XXX USE AS IS ______ SCRAP ______

~~Weld Engineering is to generate a Repair Process Sheet (RPS) for the unacceptable welds. A 1/32" weld undercut is acceptable per DCA 13,397.~~ D. Lawlen - 12-15-82

Temporary waiver: to allow exploratory grinding on weld defects, and to allow installation pipe snubbers.

FOR INFORMATION ONLY

ENG. REVIEW/APPROVAL: R M Kissinger (signature) — DATE: 12 / 15 / 82

QE

QE REVIEW APPROVAL: C. J. Bjaalo (signature) — DATE: 12 / 15 / 82

DISPOSITION VERIFICATION & CLOSURE: — DATE: / /

COMMENTS: