

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-445/85-13
50-446/85-09

Docket No. 50-445
50-446

License No. CPPR-126 Priority - Category C
CPPR-127

Licensee: Texas Utilities Electric Company
2001 Bryan Tower
Dallas, Texas 75201

Facility Name: Comanche Peak, 1 and 2

Inspection At: Glen Rose, Texas

Inspection Conducted: September 9-19, 1985

Inspectors: *Richard W. Kerch* 10/9/85
Harry W. Kerch, Lead Reactor Engineer date

Richard Harris 10/9/85
Richard Harris, Engineering Technician date

Approved by: *James Wiggins* 10/9/85
James Wiggins, Materials and Processes date
Section, DRS

Inspection Summary: Areas Inspected: A special announced NRC independent measurement inspection was conducted at the utility's construction site using NRC nondestructive examination (NDE) personnel. The inspection included visual inspection of welds on electrical raceway supports, and ultrasonic inspection of the bolting on the steam generator upper lateral supports. Also, an inspection of concrete expansion anchor bolt installation, visual inspections of skewed welding and configuration of large bore pipe supports were conducted. Two Region I based inspectors were assisted by two NRC contract personnel. The inspection involved 384 onsite hours and 72 offsite hours (236 hours for Unit 1; 220 hours for Unit 2).

Results: One violation was identified related to failure to follow a quality control instruction (Paragraph 5).

8601030219 851224
PDR ADOCK 05000445
Q PDR

1.0 Persons Contacted

Licensee

R. Hooton, Texas Utilities Generating Company
F. Powers, Texas Utilities Generating Company
T. Wright, Texas Utilities Generating Company
R. Muldoon, EBASCO

NRC

T. F. Westerman, NRC Region IV
I. Barnes, NRC Region IV

2.0 Purpose

The purpose of this special inspection was to provide technical assistance to Region IV using the NRC Mobile Nondestructive Examination Van resources.

Background

Since 1981, the NRC has issued several Safety Evaluation Reports (SER) related to Comanche Peak Units 1 and 2. Technical concerns and allegations were a part of the regulatory issues that remained outstanding toward the completion of construction of the Comanche Peak facility. To address these outstanding concerns, the licensee has developed and implemented the Comanche Peak Response Team Program Plan to identify any design or construction deficiencies.

This inspection, using the NDE Van personnel and equipment, was designed to verify, on a sampling basis, the adequacy of previous licensee efforts under its Plan.

3.0 Electrical Cable Tray Supports, Unit 2

The selected sample of cable tray supports consisted of sixty-three supports. The attributes inspected included selected as-built dimensions and weld characteristics. All welded joints in this selected sample were examined after primer and epoxy coating had been applied. Therefore, the attributes of the fillet welds that could be evaluated were:

1. Fillet size
2. Location
3. Leg and throat size
4. Concavity and convexity
5. Length of weld
6. Gross undercut and large porosity
7. Overall workmanship.

The inspection was performed and an evaluation made in accordance with the as-built drawings and considered the visual weld acceptance criteria contained in the Nuclear Construction Issues Group acceptance standard (NCIG-01). Cable tray supports sampled during this inspection were in the Safeguard and Reactor buildings. Table I lists the supports inspected.

Results of Inspection

On support 11730, torquing of support bolting appeared inadequate. However, a review of the quality records indicated that this support had not yet been reinspected by the licensee (licensee is committed to 100% reinspection). Welding and as-built dimensional configuration of Unit 2 electrical cable tray supports met construction requirements. No violations were identified.

4.0 Electrical Cable Tray Supports, Unit 1

The licensee reinspected a sample of 451 cable tray supports in Unit 1. The NRC independently selected a sample of 61 supports, 24 were part of the licensee's 451 and 37 were selected out of the total remaining population. Attributes and acceptance standards were the same as for the sample inspection performed in Unit 2. Cable tray supports sampled during this inspection were selected in the Fuel and Reactor buildings. Table II lists the supports inspected.

Results of inspection disclosed that the welding and selected dimensional configuration of the cable tray supports met construction requirements. However, the inspector identified a generic concern with Richmond insert bolting. Deficiencies existed such as gaps between the head of the bolt and the base angle of the hanger; procedure QI-QP-11-10-2 requires contact between faying surfaces. Other gaps existed between the base angle and concrete. Drawing CTH-1, note 18, has specific engineering angle to concrete bearing requirements that have not been met. These conditions, although in some instances were understated, were reported on the as-built drawings for the cable tray supports. Supports 6057, 6058, 5995 and 1973 revealed gap deficiencies between the head of the bolt and angle. Also the supports had gaps between the angle and the concrete.

The generic bolting concern is considered unresolved pending the completion of the licensee's engineering evaluation and NRC review. (445/8513-U-01)

5.0 Pipe Supports

A selected sample of pipe supports and hangers were inspected per site Quality Instruction Procedure QI-QAP-11-1-26 and the as-built drawings. A total of eleven were inspected in Unit 1 and eight in Unit 2. Supports were inspected for overall dimensions, location and material size. In addition to the dimensional inspection, weldments were visually inspected for size, surface condition and overall workmanship. Table III lists the specific items inspected.

Results: Drawing AF-2-SB-10, mark No. AF-2-006-412-S33A, indicated the as-built dimensions from centerline of the pipe to the wall at line 14S to be 11¼". This dimension when measured by NRC was shown to be 13½". In order to verify if this difference was recorded by the licensee, the inspector compared NRC inspection data with the site quality dimensional records for support AF-2-006-412-S33A, dated 4/27/85. This review revealed that the quality control inspector did not assign a number to the 11¼" dimension and did not record the measurement. Procedure QI-QAP-11.1-28 requires that each dimensional attribute be assigned a number and measurements made. Because, in this particular case, the as-built dimension had not been recorded, as required, the inspector considered this item to be a violation (446/8509-V-01)

Skewed Welds

A selected sample of type 2 skewed weldments, previously inspected and accepted by the utility, was reinspected by the NRC to verify the method and validity of the licensee's inspection.

Skewed welds inspected included stanchion-to-stanchion, stanchion-to-pipe saddle and tube steel-to-pipe or pipe saddle weldments. Nineteen pipe supports in Unit 1 were inspected; approximately thirteen hundred linear inches of weldment were inspected by NRC using fillet weld gages, Cambridge gages and a contour gage. Areas that could not be inspected with a fillet or Cambridge gage were inspected using the contour gage per site Procedure QI-006, Revision 1.

Results: No violations were identified.

No instances of undersized welds were observed when the as-built conditions were compared to the applicable drawing requirements. Additionally, those measurements taken by the NRC were compared to those measurements taken and documented by site personnel. There were no significant differences noted.

Hilti Bolt Inspection

One hundred and twenty-four Hilti Kwik anchor bolts were inspected per site Quality Instruction Procedures QI-QP-11-2-1, Revision 18, and QI-QP-11.18-4, Revision 0, in conjunction with NRC Procedure NDE-18, Revision 0. The inspection consisted of ascertaining embedment depth, bolt spacing and length and diameter of individual bolts as identified by code stamp.

Table IV lists the specific items inspected.

Results: No violations were identified. As of 9/19/85, the inspectors had identified one bolt on a concrete base plate which appeared to be underlength. On 9/25/85, telephone communications from Region IV

personnel indicated that the bolt had been verified to be the correct length by both the licensee and NRC personnel. The inspectors had no further questions.

6.0 Steam Generator Upper Lateral Support Bolting

Steam Generator upper lateral support bolts had been reported as improperly shortened by the licensee. The licensee had replaced several of the reported shortened bolts and was awaiting engineering disposition as to the course of follow-on action. The NRC selected one hundred and four bolts for independent ultrasonic inspection to determine their length. Ninety-eight were measured from the top of the bolt head to the concrete wall (see sketch on Attachment A for dimension "A"). A calculation was performed to determine embedment engagement. The NRC compared its data to the site's and there were some differences. In order to resolve the differences, the NRC requested bolt 1E15 be removed and a dimensional measurement be made. This revealed that the embedment plate was not flush with the wall, but stuck out 5/8" (see Attachment A, dimension "C"). This accounted for the difference between NRC data and the licensee's.

Results: No violations were identified.

7. Unresolved Items

An unresolved item is a matter for which more information is necessary to determine whether the item is acceptable, a violation or deviation. Unresolved items are contained in paragraph 4.

8. Tables and Attachments

Table I is a tabulation of specific Electrical Cable Tray Supports inspected in Unit 2.

Table II is a tabulation of specific Electrical Cable Tray Supports inspected in Unit 1.

Table III is a tabulation of specific Hanger/Supports and skewed welds inspected.

Table IV is a tabulation of specific Hilti Bolts that were ultrasonically tested for length.

Attachment A is a tabulation of specific Steam Generator lateral support bolts that were dimensionally checked for length.

9. Exit

A formal exit interview was not held. However, members of the licensee's staff and NRC Region IV personnel were informed of progress and findings during the course of the inspection.

ELECTRICAL CABLE TRAY SUPPORTS

UNIT 2

TABLE I

| | | |
|-------|-------|-------|
| 11600 | 9768 | 9801 |
| 11603 | 11733 | 9802 |
| 11604 | 11825 | 9803 |
| 11607 | 11826 | 9804 |
| 11608 | 9850 | 9805 |
| 11519 | 9851 | 9806 |
| 11520 | 9852 | 9807 |
| 11522 | 9853 | 9808 |
| 11523 | 9854 | 9809 |
| 11524 | 9855 | 9810 |
| 11526 | 9836 | 9811 |
| 11527 | 9837 | 9812 |
| 11528 | 9839 | 9813 |
| 10094 | 9840 | 9814 |
| 10095 | 9841 | 9815 |
| 11924 | 9918 | 9816 |
| 11933 | 9919 | 9817 |
| 10136 | 9920 | 9818 |
| 9765 | 9921 | 9819 |
| 9766 | 9922 | 9820 |
| 9767 | 9800 | 11730 |

Results: The above cable tray supports reinspected by the NRC for welding and selected as-built dimensional configuration met construction requirements.

TABLE II

The NRC selected a total of 61 supports to be inspected. Asterisked supports were selected from the 451 previously reinspected by the licensee. The remainder were selected from the remaining population. The Unit 1 supports that were inspected are the following:

| CTH-1- 236 | | CTH-1-1970 | | *CTH-1-5918 |
|------------|------|------------|------|-------------|
| | 1181 | | 1973 | 5919 |
| * | 1184 | | 1974 | 5920 |
| | 1186 | | 1975 | 5921 |
| * | 1719 | * | 1978 | 5922 |
| * | 1720 | | 5226 | * 5986 |
| * | 1722 | | 5765 | * 5994 |
| | 1723 | | 5766 | * 5995 |
| | 1724 | | 5767 | 6017 |
| | 1725 | | 5769 | * 6057 |
| | 1726 | | 5771 | * 6058 |
| | 1727 | | 5772 | 6938 |
| | 1728 | | 5773 | 6939 |
| | 1741 | * | 5876 | * 6940 |
| | 1742 | * | 5886 | * 6941 |
| | 1743 | * | 5912 | * 6942 |
| | 1746 | | 5914 | * 6943 |
| * | 1842 | | 5915 | * 6944 |
| | 1852 | | 5916 | 6945 |
| * | 1862 | * | 5917 | * 6946 |
| | | | | * 6947 |

Results: The above cable tray supports reinspected by the NRC for welding and selected as-built dimensional configuration met construction requirements. However, a bolt torquing concern was identified on some of these supports.

TABLE III

LISTING OF HANGER/SUPPORTS INSPECTED AS-BUILT AND SKEWED WELDS

Unit 1

| | <u>Drawing</u> | <u>Building</u> | <u>Comments</u> |
|-----|-------------------|-----------------|---------------------|
| 1. | CC-1-202-001-S53A | Safeguards | Welds and Dim. Acc. |
| 2. | BR-X-106-059-S43A | " | " " " " |
| 3. | CC-1-065-003-S33A | " | " " " " |
| 4. | CC-1-019-012-A43K | Auxiliary | " " " " |
| 5. | CC-X-079-006-A43A | " | " " " " |
| 6. | CC-1-035-018-A33A | " | " " " " |
| 7. | RH-i-001-001-C41S | Containment | " " " " |
| 8. | CC-1-110-007-A43S | Auxiliary | " " " " |
| 9. | CC-1-235-006-C53R | Containment | " " " " |
| 10. | RC-1-135-008-C41K | " | " " " " |
| 11. | RC-1-135-004-C51K | " | " " " " |

Unit 2

| | <u>Drawing</u> | <u>Building</u> | <u>Comments</u> |
|----|-------------------|-----------------|--------------------------------------|
| 1. | SI-2-071-405-S33K | Safeguards | Welds and Dim. Acc. |
| 2. | AF-2-004-405-S33A | " | " " " " |
| 3. | CT-2-005-403-S22K | " | " " " " |
| 4. | CC-2-116-006-F43A | Fuel | " " " " |
| 5. | AF-2-101-431-S33A | Safeguards | Welds and Dim. Acc. (CMC 87004)R3 |
| 6. | CS-2-597-403-C42A | Containment | Welds and Dim. Acc. |
| 7. | RH-2-064-406-S22R | Safeguards | " " " " |
| 8. | AF-2-006-412-S33A | " | See Report |

TABLE IV
HILTI BOLT UT

Unit 1

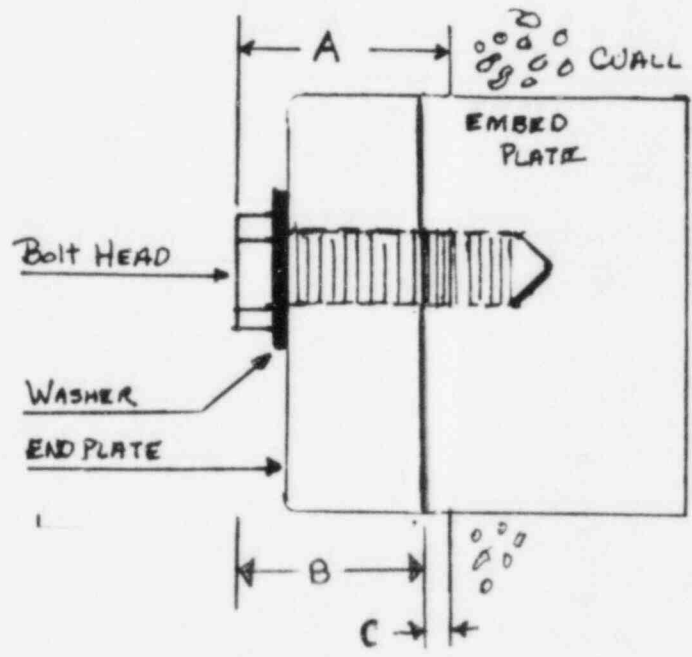
| <u>Drawing</u> | <u>Building</u> | <u>Code</u> | <u>Total</u> | <u>Comments</u> |
|-------------------|-----------------|-------------|--------------|-----------------|
| CC-1-AB-044 | Auxiliary | T | 8 | Acceptable |
| " | " | O | 4 | " |
| CC-X-AB-003A | " | R | 8 | " |
| " | " | O | 4 | " |
| CC-X-AB-002 | " | O | 8 | " |
| CC-1-AB-19-11 | " | R | 4 | " |
| CC-1-AB-19-12 | " | R | 3 | " |
| CC-1-AB-19-13 | " | R | 8 | " |
| CC-1-AB-19-12 | " | T | 1 | " |
| CC-X-041-004-F43 | Fuel | R | 4 | " |
| SF-X-067-002-F35R | " | L | 8 | " |
| SF-X-067-700-F35R | " | T | 4 | " |
| SF-X-066-007-F33R | " | L | 4 | " |
| SF-X-01-F51-R-3 | " | R | 4 | " |
| CT-1-105-003-C62R | Containment | R | 8 | " |
| CT-1-RB-057-001 | " | T | 4 | " |
| SI-1-RB-058-002 | " | L | 4 | " |
| " | " | P | 4 | " |
| SI-1-RB-058-001 | " | R | 4 | " |
| CC-1-242-004-C53R | " | O | 4 | " |
| SF-X-068-006-F33R | Fuel | O | 4 | " |
| CC-X-024-001-A43 | Auxiliary | T | 4 | " |
| CC-X-211-010-F43 | Fuel | P | 4 | " |
| CC-2-116-008-F43 | " | T | 10 | " |
| " | " | P | 2 | " |

VISUAL / DIMENSIONAL EXAMINATION
 STEAM GENERATOR LATERAL SUPPORT BOLTS

BOLT MARKING UNIT 1

SG-1 EAST (E) SG-1 WEST (W)

| | | | |
|----|---------|----|--------|
| 1 | N/A | 1 | 7 1/16 |
| 2 | N/A | 2 | N/A |
| 3 | N/A | 3 | N/A |
| 4 | N/A | 4 | N/A |
| 5 | N/A | 5 | N/A |
| 6 | N/A | 6 | N/A |
| 7 | 6 3/4 | 7 | 6 3/4 |
| 8 | 6 15/16 | 8 | 6 5/8 |
| 9 | N/A | 9 | 6 7/16 |
| 10 | N/A | 10 | 6 5/8 |
| 11 | N/A | 11 | N/A |
| 12 | N/A | 12 | N/A |
| 13 | N/A | 13 | N/A |
| 14 | 6 1/16 | 14 | N/A |
| 15 | 7 1/4 | 15 | N/A |
| 16 | 7 1/8 | 16 | 7 1/4 |
| 17 | 7 1/16 | 17 | 7 1/4 |
| 18 | 7 | 18 | 7 1/8 |



Comments Dimension "A" in columns at left indicated in inches. N/A Bolts are missing, OR NOT FULLY ENGAGED.
 Dimension "C" indicates exposed embedment for 5/8" at bolt location EAST 15.

SITE Comanche Peak

EXAMINER R. H. HARRIS

LEVEL II

DATE 9/15/85

EXAMINER D. PAYNE

LEVEL _____

DATE _____

ULTRASONIC EXAMINATION

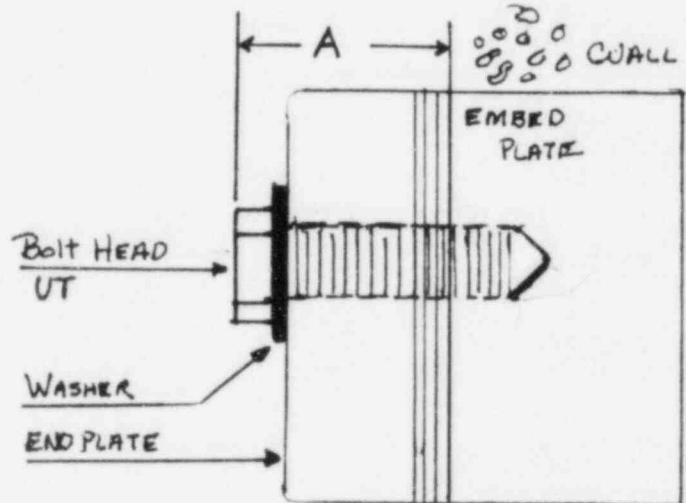
BOLT MARKING 1E

STEAM GENERATOR LATERAL SUPPORT BOLTS

SONIC MARK I

NOTA D-100

| | | | |
|----|---------|----|---------|
| 1 | MISSING | 1 | MISSING |
| 2 | " | 2 | " |
| 3 | " | 3 | " |
| 4 | 9.0 | 4 | 9.030 |
| 5 | 8.90 | 5 | 8.951 |
| 6 | MISSING | 6 | MISSING |
| 7 | 8.95 | 7 | 8.925 |
| 8 | 9.18 | 8 | 9.157 |
| 9 | MISSING | 9 | MISSING |
| 10 | 9.25 | 10 | 9.206 |
| 11 | MISSING | 11 | MISSING |
| 12 | " | 12 | " |
| 13 | " | 13 | " |
| 14 | 9.0 | 14 | 8.996 |
| 15 | 9.0 | 15 | 8.997 |
| 16 | 8.90 | 16 | 8.911 |
| 17 | 9.15 | 17 | 9.074 |
| 18 | 9.0 | 18 | 8.985 |



Comments Length of Ut made
from Bolt head using
a bolt of approximate
length. Missing bolts were
removed by licensee.

SITE Comanche Peak Unit 1

EXAMINER R.H. HARRIS LEVEL II DATE 9/15/85

EXAMINER D. PAYNE LEVEL _____ DATE _____

ULTRASONIC EXAMINATION

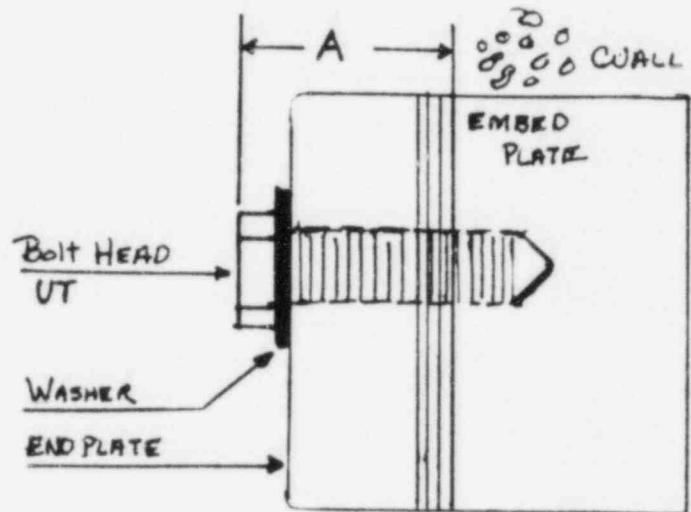
STEAM GENERATOR LATERAL SUPPORT BOLTS

BOLT MARKING 1W

SONIC MARK I

NOVA D-100

| | | | |
|----|---------|----|---------|
| 1 | 9.20 | 1 | 9.218 |
| 2 | MISSING | 2 | MISSING |
| 3 | " | 3 | " |
| 4 | " | 4 | " |
| 5 | " | 5 | " |
| 6 | " | 6 | " |
| 7 | 9.30 | 7 | 9.315 |
| 8 | 9.20 | 8 | 9.179 |
| 9 | 9.25 | 9 | 9.262 |
| 10 | 9.40 | 10 | 9.389 |
| 11 | MISSING | 11 | MISSING |
| 12 | " | 12 | " |
| 13 | " | 13 | " |
| 14 | " | 14 | " |
| 15 | " | 15 | " |
| 16 | 9.35 | 16 | 9.300 |
| 17 | 9.30 | 17 | 9.202 |
| 18 | 9.25 | 18 | 9.233 |



Comments Length of Ut made
from Bolt head using
a bolt of approximate
length.

SITE Comanche Peak Unit 1

EXAMINER R.H. Harris LEVEL II DATE 9/15/85

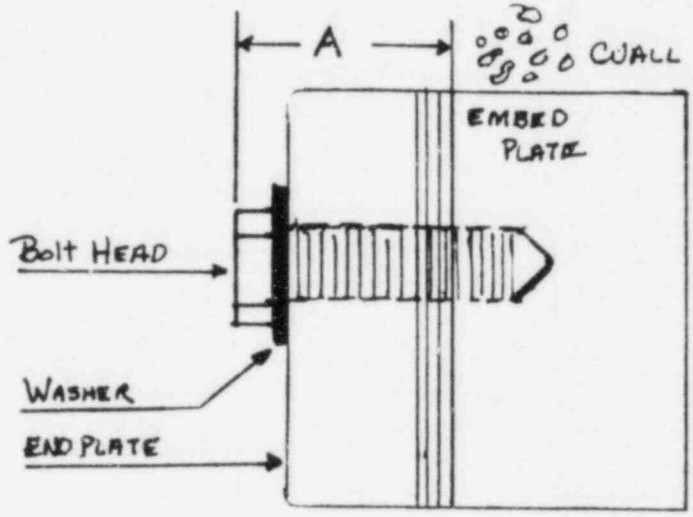
EXAMINER D. PAYNE LEVEL _____ DATE _____

VISUAL/DIMENSIONAL EXAMINATION
 STEAM GENERATOR LATERAL SUPPORT BOLTS

BOLT MARKING UNIT 1

SG-2 EAST (E) SG-2 WEST (W)

| | | | |
|----|-----------|----|------------|
| 1 | N/A | 1 | 6 1/2 |
| 2 | N/A | 2 | ** 6 7/8 |
| 3 | N/A | 3 | 6 5/8 |
| 4 | 7 7/16 | 4 | 6 11/16 |
| 5 | * 7 11/16 | 5 | ** 6 11/16 |
| 6 | * 7 1/2 | 6 | 7 |
| 7 | N/A | 7 | 6 7/8 |
| 8 | 7 1/8 | 8 | N/A |
| 9 | * 7 1/8 | 9 | 6 3/4 |
| 10 | * 7 | 10 | 6 1/2 |
| 11 | 6 7/8 | 11 | 6 1/2 |
| 12 | 7 | 12 | * 6 3/4 |
| 13 | 7 | 13 | 6 1/2 |
| 14 | 7 | 14 | 6 1/2 |
| 15 | 7 | 15 | 6 5/8 |
| 16 | 7 | 16 | 6 5/8 |
| 17 | 7 5/16 | 17 | 6 1/2 |
| 18 | 7 1/4 | 18 | * 6 3/4 |



Comments Dimension "A" in columns at left indicated in inches
 N/A. Bolts are missing * indicate Bolts and washers ** indicates bolts are mis-aligned

SITE Comanche Peak

EXAMINER R. H. Harris LEVEL II DATE 9/15/85

EXAMINER D. Payne LEVEL _____ DATE _____

ULTRASONIC EXAMINATION

Bolt MARKING 2E

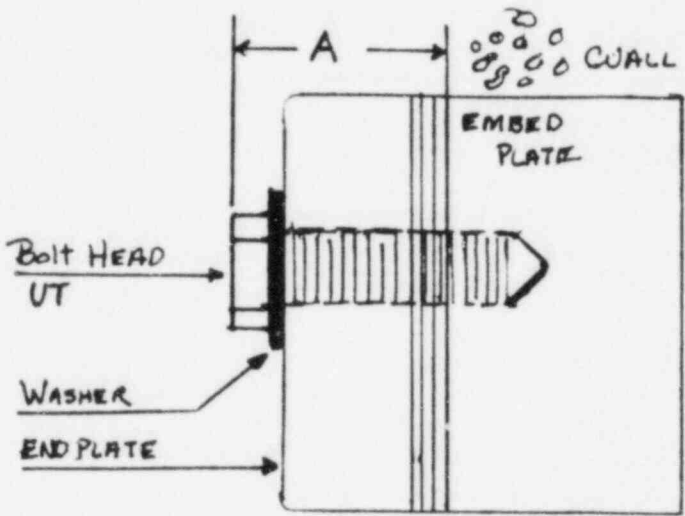
STEAM GENERATOR LATERAL SUPPORT BOLTS

SONIC MARK I

NOVA D-100

| | |
|----|---------|
| 1 | MISSING |
| 2 | 4 |
| 3 | " |
| 4 | 9.25 |
| 5 | 9.20 |
| 6 | 9.20 |
| 7 | MISSING |
| 8 | 9.0 |
| 9 | 9.20 |
| 10 | 9.20 |
| 11 | 9.10 |
| 12 | 9.20 |
| 13 | 9.10 |
| 14 | 9.30 |
| 15 | 9.25 |
| 16 | 9.10 |
| 17 | 9.25 |
| 18 | 9.15 |

| | |
|----|---------|
| 1 | MISSING |
| 2 | " |
| 3 | " |
| 4 | 9.338 |
| 5 | 9.219 |
| 6 | 9.207 |
| 7 | MISSING |
| 8 | 9.054 |
| 9 | 9.230 |
| 10 | 9.189 |
| 11 | 9.183 |
| 12 | 9.201 |
| 13 | 9.123 |
| 14 | 9.204 |
| 15 | 9.254 |
| 16 | 9.116 |
| 17 | 9.263 |
| 18 | 9.113 |



Comments Length of Ut made
from Bolt head using
a bolt of approximate
length.

SITE Conacher Peak Unit 1

EXAMINER R.H. Harris

LEVEL II

DATE 9/15/75

EXAMINER D. Wiggins

LEVEL _____

DATE _____

ULTRASONIC EXAMINATION

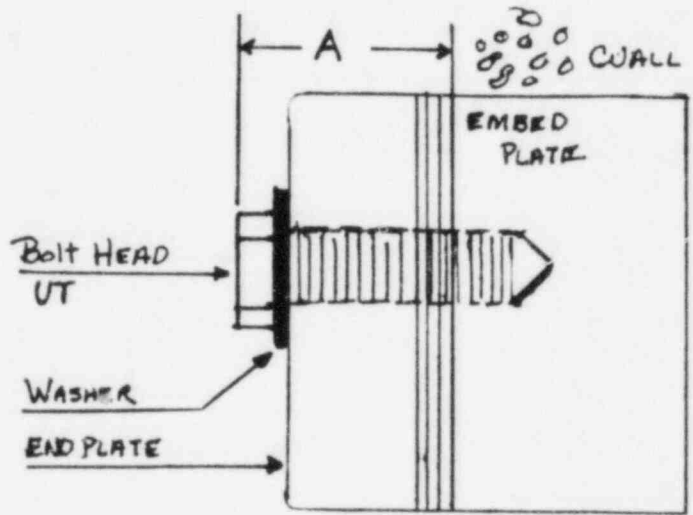
Bolt MARKING 2W

STEAM GENERATOR LATERAL SUPPORT BOLTS

SONIC MARK I

NOTA D-100

| | | | |
|----|---------|----|---------|
| 1 | 9.25 | 1 | 9.239 |
| 2 | 9.10 | 2 | 9.076 |
| 3 | 9.25 | 3 | 9.402 |
| 4 | 9.20 | 4 | 9.276 |
| 5 | 9.20 | 5 | 9.163 |
| 6 | 9.30 | 6 | 9.324 |
| 7 | 9.05 | 7 | 9.033 |
| 8 | MISSING | 8 | MISSING |
| 9 | 9.0 | 9 | 9.030 |
| 10 | 9.35 | 10 | 9.286 |
| 11 | 9.20 | 11 | 9.237 |
| 12 | 9.25 | 12 | 9.314 |
| 13 | 9.20 | 13 | 9.219 |
| 14 | 9.25 | 14 | 9.327 |
| 15 | 9.35 | 15 | 9.294 |
| 16 | 9.20 | 16 | 9.097 |
| 17 | 9.25 | 17 | 9.246 |
| 18 | 9.25 | 18 | 9.213 |



Comments length of Ut made
from Bolt head using
a bolt of approximate
length.

SITE Couanche Peak Unit 1

EXAMINER R. H. HARRIS LEVEL IV DATE 9/15/85

EXAMINER D. PAYNE LEVEL _____ DATE _____

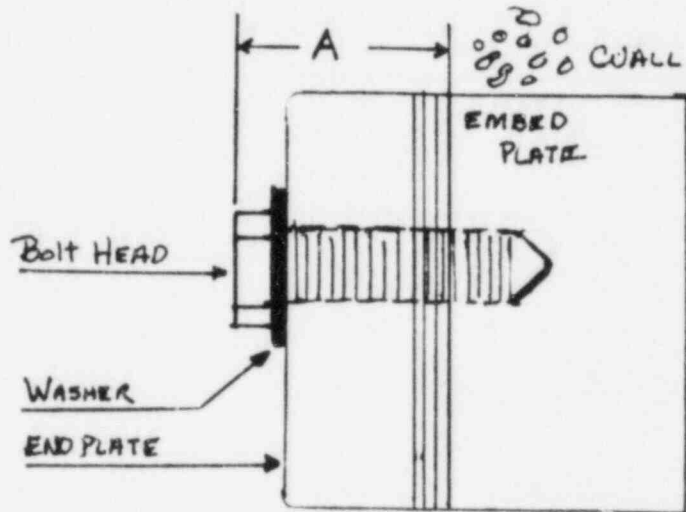
VISUAL/DIMENSIONAL EXAMINATION

STEAM GENERATOR LATERAL SUPPORT BOLTS

Bolt MARKING UNIT 1

SG-3 EAST (E) SG-3 WEST (W)

| | | | |
|----|-------------------------------|----|-----------------------------------|
| 1 | 6 ³ / ₄ | 1 | 6 ⁷ / ₈ |
| 2 | N/A | 2 | * 7 |
| 3 | 6 ¹ / ₂ | 3 | * 7 |
| 4 | 6 ³ / ₄ | 4 | 6 ³ / ₄ |
| 5 | 6 ³ / ₄ | 5 | * 6 ¹³ / ₁₆ |
| 6 | 6 ³ / ₄ | 6 | * 6 ³ / ₄ |
| 7 | 6 ³ / ₄ | 7 | 6 ¹ / ₂ |
| 8 | N/A | 8 | * 6 ³ / ₄ |
| 9 | INACCESSIBLE | 9 | * 6 ³ / ₄ |
| 10 | N/A | 10 | * 6 ³ / ₄ |
| 11 | 6 ⁷ / ₈ | 11 | 6 ¹¹ / ₁₆ |
| 12 | 6 ¹ / ₂ | 12 | * 6 ⁷ / ₈ |
| 13 | 6 ¹ / ₂ | 13 | * 6 ¹³ / ₁₆ |
| 14 | 6 ¹ / ₂ | 14 | * 6 ⁷ / ₈ |
| 15 | N/A | 15 | * 6 ⁷ / ₈ |
| 16 | N/A | 16 | * 7 ¹ / ₈ |
| 17 | N/A | 17 | * 7 ¹ / ₈ |
| 18 | 6 ³ / ₄ | 18 | * 7 ¹ / ₈ |



Comments Dimension "A" in columns at left indicated in inches. N/A Bolts missing * indicates Bolt and washer.

SITE Comanche Peak

EXAMINER R.H. HARRIS

LEVEL II

DATE 9/15/85

EXAMINER P. PAYNE

LEVEL

DATE

ULTRASONIC EXAMINATION

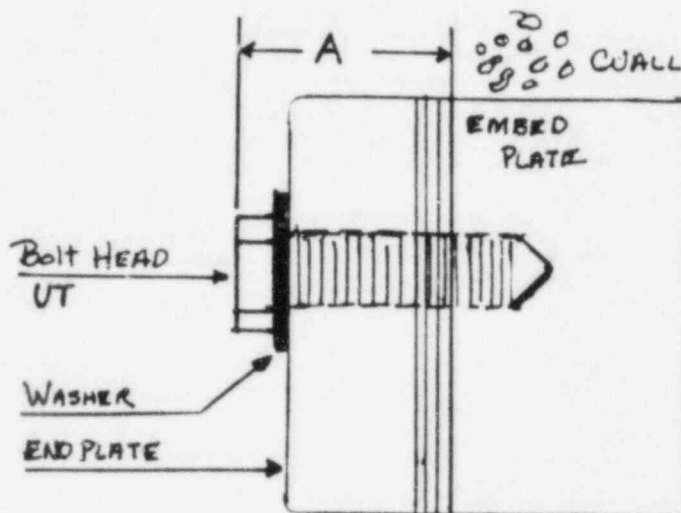
Bolt MARKING 3 E

STEAM GENERATOR LATERAL SUPPORT BOLTS

SONIC MARK I

NOVA D-100

| | | | |
|----|------|----|-------|
| 1 | 9.35 | 1 | 9.344 |
| 2 | 9.35 | 2 | 9.342 |
| 3 | 9.35 | 3 | 9.297 |
| 4 | 9.25 | 4 | 9.203 |
| 5 | 9.15 | 5 | 9.085 |
| 6 | 9.25 | 6 | * |
| 7 | 9.05 | 7 | 9.131 |
| 8 | 9.25 | 8 | 9.271 |
| 9 | 9.18 | 9 | 9.171 |
| 10 | 9.25 | 10 | 9.270 |
| 11 | 9.10 | 11 | 9.116 |
| 12 | 9.35 | 12 | 9.298 |
| 13 | 9.30 | 13 | 9.291 |
| 14 | 9.30 | 14 | 9.293 |
| 15 | 9.30 | 15 | 9.312 |
| 16 | 9.35 | 16 | 9.364 |
| 17 | 9.25 | 17 | 9.288 |
| 18 | 9.25 | 18 | 9.261 |



Comments Length of Ut made
from Bolt head using
a bolt of approximate
length. * inaccessible with
NOVA probe

SITE Comanche Peak unit 1

EXAMINER R.H. HARRIS LEVEL II DATE 9/15/85

EXAMINER D. Wiggins LEVEL _____ DATE _____

ULTRASONIC EXAMINATION

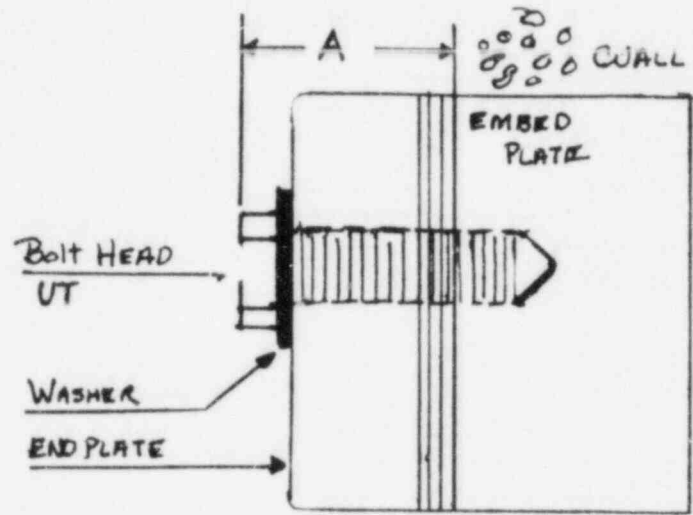
Bolt MARKING 3 W

STEAM GENERATOR LATERAL SUPPORT BOLTS

SONIC MARK I

NOVA D-100

| | | | |
|----|--------------|----|--------------|
| 1 | 9.05 | 1 | 9.026 |
| 2 | MISSING | 2 | MISSING |
| 3 | 9.15 | 3 | 9.136 |
| 4 | 9.15 | 4 | 9.026 |
| 5 | 9.0 | 5 | 9.018 |
| 6 | 9.20 | 6 | 9.195 |
| 7 | 9.20 | 7 | 9.141 |
| 8 | MISSING | 8 | MISSING |
| 9 | INACCESSIBLE | 9 | INACCESSIBLE |
| 10 | MISSING | 10 | MISSING |
| 11 | 9.05 | 11 | 8.975 |
| 12 | 8.90 | 12 | 8.816 |
| 13 | 8.95 | 13 | 8.790 |
| 14 | 9.05 | 14 | 9.067 |
| 15 | MISSING | 15 | MISSING |
| 16 | " | 16 | " |
| 17 | " | 17 | " |
| 18 | 9.05 | 18 | 9.035 |



Comments length of Ut made
from Bolt head using
a bolt of approximate
length.

SITE Comanche Peak Unit 1

EXAMINER R.H. Harris LEVEL II DATE 9/15/85

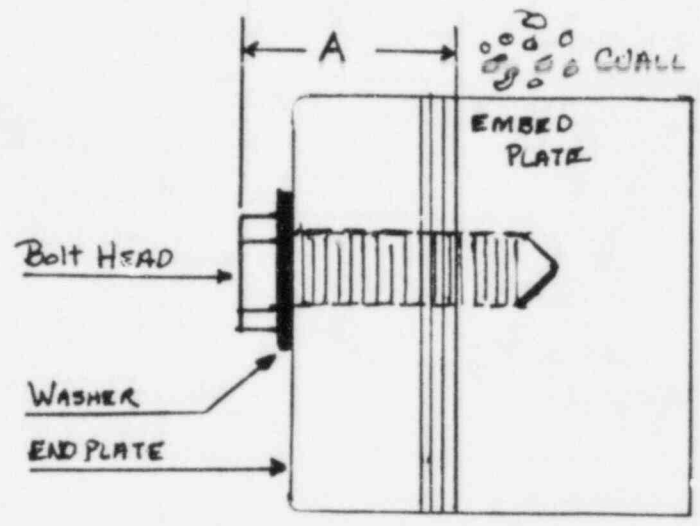
EXAMINER D. Wiggins LEVEL _____ DATE _____

VISUAL / DIMENSIONAL EXAMINATION
 STEAM GENERATOR LATERAL SUPPORT BOLTS

Bolt MARKING Unit 1

SG-4 EAST (E) SG-4 WEST (W)

| | | | |
|----|--------------------|----|--------------------|
| 1 | 6 ^{3/4} | 1 | N/A |
| 2 | 6 ^{3/4} | 2 | N/A |
| 3 | 6 ^{3/4} | 3 | N/A |
| 4 | 6 ^{3/4} | 4 | N/A |
| 5 | N/A | 5 | N/A |
| 6 | 6 ^{11/16} | 6 | N/A |
| 7 | * 7 ^{1/8} | 7 | * 7 ^{1/4} |
| 8 | 6 ^{7/8} | 8 | * 7 ^{1/4} |
| 9 | 6 ^{7/8} | 9 | * 7 ^{1/4} |
| 10 | 6 ^{7/8} | 10 | N/A |
| 11 | * 7 ^{1/8} | 11 | N/A |
| 12 | * 7 ^{1/8} | 12 | N/A |
| 13 | 7 | 13 | N/A |
| 14 | 6 ^{7/8} | 14 | N/A |
| 15 | 6 ^{11/16} | 15 | N/A |
| 16 | 6 ^{9/16} | 16 | * 7 |
| 17 | 6 ^{9/16} | 17 | * 7 |
| 18 | 6 ^{1/2} | 18 | * 7 |



Comments Dimension 'A' in
columns at left indicated in
inches. N/A Bolts are
missing or disengaged
* indicates bolt and washer

SITE Comanche Peak

EXAMINER R.H. HARRIS LEVEL II DATE _____

EXAMINER D. PAYNE LEVEL _____ DATE _____

ULTRASONIC EXAMINATION

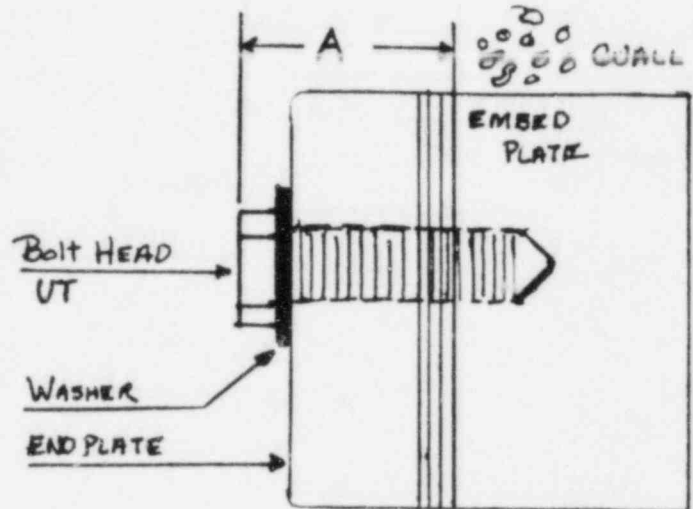
Bolt MARKING 4E

STEAM GENERATOR LATERAL SUPPORT BOLTS

SONIC MARK I

NOTA D-100

| | | | |
|----|---------|----|---------|
| 1 | 9.05 | 1 | 9.021 |
| 2 | 9.25 | 2 | 9.273 |
| 3 | 9.30 | 3 | 9.318 |
| 4 | 9.20 | 4 | 9.056 |
| 5 | MISSING | 5 | MISSING |
| 6 | 9.20 | 6 | 9.253 |
| 7 | 9.0 | 7 | 9.001 |
| 8 | 9.20 | 8 | 9.184 |
| 9 | 9.25 | 9 | 9.290 |
| 10 | 9.20 | 10 | 9.183 |
| 11 | 9.20 | 11 | 9.202 |
| 12 | 9.15 | 12 | 9.145 |
| 13 | MISSING | 13 | MISSING |
| 14 | 9.30 | 14 | 9.264 |
| 15 | 9.05 | 15 | 9.100 |
| 16 | 9.25 | 16 | 9.265 |
| 17 | 9.20 | 17 | 9.375 |
| 18 | 9.0 | 18 | 9.070 |



Comments Length of Ut made
from Bolt head using
a bolt of approximate
length.

SITE Comanche Peak Unit 1

EXAMINER R.H. Harris LEVEL II DATE 9/15/85

EXAMINER D. Wiggins LEVEL _____ DATE _____

ULTRASONIC EXAMINATION

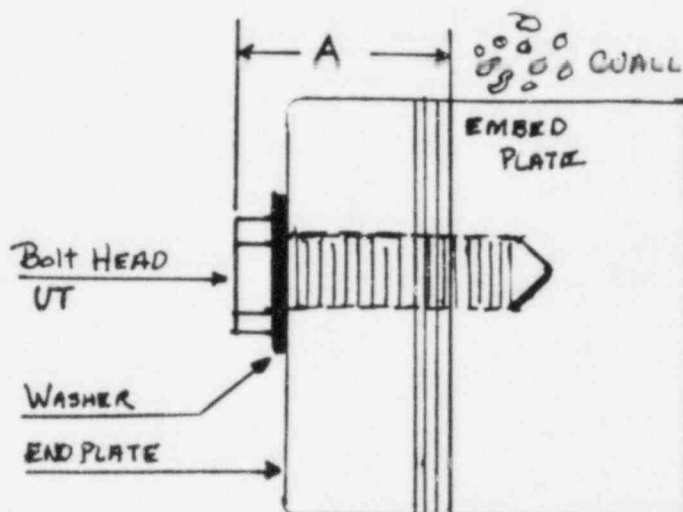
Bolt MARKING 4W

STEAM GENERATOR LATERAL SUPPORT BOLTS

SONIC MARK I

NOVA D-100

| | | | |
|----|---------|----|---------|
| 1 | MISSING | 1 | MISSING |
| 2 | 9.25 | 2 | 9.338 |
| 3 | MISSING | 3 | MISSING |
| 4 | 9.0 | 4 | 8.956 |
| 5 | MISSING | 5 | MISSING |
| 6 | " | 6 | " |
| 7 | 9.0 | 7 | 8.947 |
| 8 | 9.10 | 8 | 9.186 |
| 9 | 9.35 | 9 | 9.359 |
| 10 | MISSING | 10 | MISSING |
| 11 | " | 11 | " |
| 12 | " | 12 | " |
| 13 | 9.25 | 13 | 9.263 |
| 14 | MISSING | 14 | MISSING |
| 15 | 9.0 | 15 | 9.029 |
| 16 | 9.0 | 16 | 9.022 |
| 17 | 9.0 | 17 | 9.014 |
| 18 | 9.0 | 18 | 8.914 |



Comments Length of Ut made
from Bolt head using
a bolt of approximate
length.

SITE Comanche Peak Unit 1EXAMINER R.H. HarrisLEVEL IIDATE 9/15/85EXAMINER P. Wiggins

LEVEL _____

DATE _____