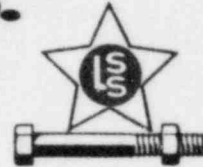


Lone Star Screw Co.

☆ SCREWS • BOLTS • NUTS • WASHERS ☆

5826 ARMOUR DRIVE • P. O. BOX 15211 • HOUSTON, TEXAS 77020

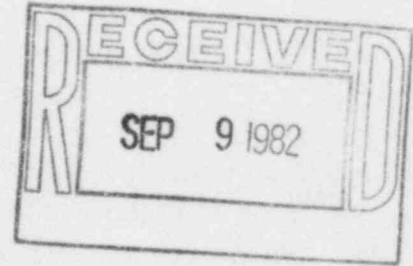


AREA CODE 713 PHONE: 675-5281

September 1, 1982

United States Nuclear Regulatory Commission,
Region IV
611 Ryan Plaza Drive
Arlington, Texas 76011

Attn: Mr. John Collins
Regional Administrator



Subject: Reportage of Defects and Noncompliances pursuant to 10CFR
Part 21, Paragraph 21.21 "Notification" (see attachments)

Dear Sir:

Based upon a Nuclear Regulatory Commission investigation conducted on August 25, 1982 by Messrs. John R. Boardman and Donald D. Driskill, several documentation inconsistencies were disclosed on Brown & Root Purchase Order #35-1197-16105 for the South Texas Project.

Pursuant to this investigation, the Lone Star Screw Company reviewed all of the subject documentation and found that documentation packages for Purchase Order #35-1197-16105 were incomplete.

The results of this review were satisfactory with the exception of the three (3) items identified below.

Amended documentation packages for these items in question (i.e., except those identified as noncomplying) will be forwarded to:

- (a) Mr. John R. Boardman
United States Nuclear Regulatory
Commission; and
- (b) Mr. Dennis Keating
South Texas Project
Site Project Quality Assurance Supervisor (HL&P)
P. O. Box 308
Bay City, Texas 77414

The amended documentation packages will be forwarded prior to September 6, 1982.

8406220163 820901
PDR ADOCK 05000498
S PDR

IE 19
11

Noncompliance #1

Noncompliance #1 was reported at 7:25 P.M. on August 27, 1982 to United States Nuclear Regulatory Commission, Region IV, Duty Officer, Mr. Eric Johnson.

Objective evidence indicates that the material and the mechanical test drops were heat treated in different heat treat batches (ref. Attachment I).

The material was heat treated on June 27, 1979, as indicated by Lindberg/Cook Heat Treat Chart #72092, and the mechanical test drops were heat treated on June 29, 1979, as indicated by Lindberg/Cook Heat Treat Chart #72083.

Material Description:

- a) Brown & Root Purchase Order #35-1197-16105
- b) Purchase Order Item #11
- c) Description: (Parts) 2 1/2" \emptyset X 43" Long, ASTM A-540 B23, Class 3, Double End Studs (40 pieces)
- d) Description: (Drops) 2 1/2" \emptyset X 6" Long, ASTM A-540 drops (2 pieces)
- e) Heat Code No.: 7B
- f) Crubicle Mill Heat No.: 115950

Resolution

One piece of the subject material (i.e., (1) 2 1/2" \emptyset X 43" Long, D.E. Stud, Heat Code #7B) was located during the investigation of June 21 through 23, 1982 and identified in the Lone Star Screw Company response of July 28, 1982, and tested to verify conformance to the material specification (ref. Attachment II). The results are satisfactory as indicated by the Laboratory Report.

Please accept these results as a representation of Purchase Order Item #11 - Heat Code #7B.

Noncompliance #2

Noncompliance #2 was reported at 11:18 A.M. on August 30, 1982 to United States Nuclear Regulatory Commission, Region IV's Mr. Uldis Potapovs.

There is no objective evidence of mechanical test drops being heat treated with Heat Code #7D for Item #20 (ref. Attachment III).

The material was heat treated on May 31, 1979, as indicated by Lindberg/Cook Certification #70633. There is no objective evidence, as referenced by Lindberg/Cook Supplement to the Certification, dated May 31, 1979, of mechanical test drops being heat treated with the subject material.

Material Description

- a) Brown & Root Purchase Order #35-1197-16105
- b) Purchase Order Item #20
- c) Description: 1 1/2" \emptyset , ASTM A-540, B23, Class 3, Heavy Hex Nuts (5 pieces)
- d) Heat Code No.: 7D
- e) Crucible Mill Heat No.: 64410

Resolution

Based upon the satisfactory mechanical results of Heat Code #6B and Heat Code #3B (as referenced on Lindberg/Cook's Supplement to Certification #70633 - Attachment III), the Lone Star Screw Company sincerely believes that the integrity of the subject material (i.e., 5 pieces of Heat Code #7D) has not been impaired. Therefore, please allow the Lone Star Screw Company to perform mechanical testing on one (1) piece of the subject material to verify conformance to the material specification.

Noncompliance #3

Noncompliance #3 was reported at 7:25 P.M. on August 30, 1982, to United States Nuclear Regulatory Commission, Region IV, Duty Officer, Mr. Blane Murray.

Objective evidence indicates that the hardness of the subject material exceeds the maximum range allowed by the material specification (ref. Attachment IV).

In addition, the subject material was heat treated in a different lot than the parts identified in Noncompliance #2.

Material Description

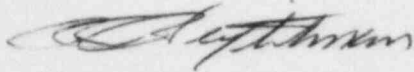
- a) Brown & Root Purchase Order #35-1197-16105
- b) Purchase Order Item #19
- c) Description: 1 1/2" \emptyset , ASTM A-540, B23, Class 4, Heavy Hex Nuts (200 pieces)
- d) Heat Code No.: 7D
- e) Crucible Mill Heat No.: 64410

Resolution

It is apparent that the subject material exceeds maximum hardness requirements of the material specification. Therefore, the Lone Star Screw Company requests that the subject material be recalled, tempered, and re-tested to demonstrate compliance to the material specification.

If you should have any questions regarding this matter, please do not hesitate to contact me. Your continued cooperation is greatly appreciated.

Sincerely,



R. T. Weightman
Quality Manager

RTW/dhl

cc: Judith C. Jandl, President
Joe Kratoville, Vice President
Quality Files, Lone Star Screw Company
Quality Files, Jandl Manufacturing

Attachments:

- I - Heat Treat Records for Heat Code #7B - Item #11
- II - (a) Page 2 of 4 and 3 of 4 of July 28, 1982 response
(b) Laboratory Report for Heat Code #7B
- III - Heat Treat Records for Heat Code #7D - Item #20
- IV - Laboratory Test Report for Mechanical Results of Heat Code #7D -
Item #19

SUPPLEMENT

LINDBERG/COOK
HEAT TREATING
COMPANY



Division of
LINDBERG
CORPORATION

P. O. BOX 24147 • HOUSTON, TEXAS 77029 • 713/672-6601

CERTIFICATION OF HEAT TREATMENT

LONE STAR SCREW CO.

DATE: 6/25/79

CERTIFICATION NO. 72083

CUSTOMER'S ORDER NO. 11080

The following items are reflected in attached certification:

QUANTITY	DESCRIPTION OF MATERIALS	QUANTITY	DESCRIPTION OF MATERIALS
2	ITEM # 11 & 12 2 1/2 OD x 6 LG CLASS 3 DROPS CODE 7B		
16	ITEM # 12 2 1/2 OD x 56 LG CLASS 3 CODE 4B, 5B, 3D, 7B		
2	ITEM # 12 2 1/2 OD x 6 LG CLASS 3 DROPS CODE 3D		
2	ITEM # 12 2 1/2 OD x 6 LG CLASS 3 DROPS CODE 4B		
2	ITEM # 12 2 1/2 OD x 6 LG CLASS 3 DROPS CODE 5B		

CUSTOMER Sone Star Screw
DATE 6-29-79 CHT 72083
P. O. # 11080 W. O. # _____
PART # _____ HEAT # _____
ASME GRADE 4340 H. T. LOT # _____
NO. OF PCS. 24 SPEC. # ASTMA 540
SPEED OF CHART 1 inch Per Rev
OPERATOR _____

DEC 7 500 400 300 200 100 1100 1400 1600

CUSTOMER Sone Star Screw
DATE 6-29-79 CHT 72083
P. O. # 11080 W. O. # _____
PART # _____ HEAT # _____
ASME GRADE 4340 H. T. LOT # _____
NO. OF PCS. _____ SPEC. # ASTMA 540
SPEED OF CHART 1 inch Per Rev

CHROMEL-100 W. 1600 1400 1200

LINDBERG/COOK HEAT TREATING COMPANY



Division of
LINDBERG
CORPORATION

P. O. BOX 24147 • HOUSTON, TEXAS 77029 • 713/672-6601

CERTIFICATION OF HEAT TREATMENT

LONE STAR SCREW CO.

DATE: 6/25/79
 CERTIFICATION NO. 72083
 CUSTOMER'S ORDER NO. 11080
 OTHER ORDER NOS.: (NONE)
 NUMBER OF PARTS: TWENTY FOUR (24)
 PART NUMBERS: SEE SUPPLEMENT

WE HEREBY CERTIFY THAT THE PARTS DESCRIBED WERE GIVEN THE FOLLOWING HEAT TREATMENT

	°F	TIME AT HEAT	COOLANT
ANNEALED	°F		
NORMALIZED	°F		
QUENCHED	1525 °F	2 1/2 HRS	OIL
DRAWN	1125 °F	4 HRS	AIR
NITRIDED	°F		
STRESS RELIEVED	°F		
HARDNESS TEST <u>293-340 BRN</u> OF PCS. TESTED <u>5%</u>			

SPEC. NO. _____
 MATERIAL: 4340 ANN

We further certify that heat treatment described above is true and correct and that temperatures and test results were obtained with standard approved methods.

Subscribed and sworn to before me this

10TH day of JULY, 19 79

LINDBERG/COOK HEAT TREATING COMPANY

_____, Notary Public
 in and for the County of Harris, State of Texas

PAUL GAMBLE
 PLANT SUPERINTENDENT

My Commission Expires 4/3/81

LINDBERG/COOK HEAT TREATING COMPANY



Division of
LINDBERG
CORPORATION

P. O. BOX 24147 • HOUSTON, TEXAS 77029 • 713/672-6601

CERTIFICATION OF HEAT TREATMENT

LONE STAR SCREW CO.

DATE: 6/25/79

CERTIFICATION NO. 72092

CUSTOMER'S ORDER NO. 11080

OTHER ORDER NOS.: (NONE)

NUMBER OF PARTS: FORTY (40)

PART NUMBERS: ITEM # 11

2 1/2 OD x 43 LG CLASS 3

CODE 7B

SPEC. NO. _____

MATERIAL: 4340 ANN

WE HEREBY CERTIFY THAT THE PARTS DESCRIBED WERE GIVEN THE FOLLOWING HEAT TREATMENT

	TIME AT HEAT	COOLANT
ANNEALED °F		
NORMALIZED °F		
QUENCHED 1525 °F	2 1/2 HRS	OIL
DRAWN 1125 °F	4 HRS	AIR
NITRIDED °F		
STRESS RELIEVED °F		
HARDNESS TEST: <u>364 BHN</u> % OF PCS. TESTED <u>5%</u>		

We further certify that heat treatment described above is true and correct and that temperatures and test results were obtained with standard approved methods.

Subscribed and sworn to before me this

10TH day of JULY, 19 79

LINDBERG/COOK HEAT TREATING COMPANY

Notary Public
in and for the County of Harris, State of Texas

My Commission Expires 4/3/81

PAUL GAMBLE
PLANT SUPERINTENDENT

CUSTOMER Sone Star Screw
DATE 6-27-79 CH 72092
P. O. # 11080 W. O. #
PART # _____ HEAT # _____
ASME GRADE A340 H. T. LOT # _____
NO. OF PCS. 40 SPEC. # ASTM-A540
SPEED OF CHART 1 inch Per Hr

CUSTOMER Sone Star Screw
DATE 6-27-79 CH 72092
P. O. # 11080 W. O. #
PART # _____ HEAT # _____
ASME GRADE A340 H. T. LOT # _____
NO. OF PCS. 40 SPEC. # ASTM A-540
SPEED OF CHART 1 inch Per Hr
OPERATOR _____

Sir:

Upon performing a thorough evaluation and compilation of data for the subject deficiencies, please find enclosed the Lone Star Screw Company, Jandl Manufacturing Division response.

Noncompliance #1

Based upon the results of the investigation it has been disclosed that the materials referenced in Attachment I have been heat treated in batch type ovens, as confirmed by the "Letters of Confirmation" (Attachment II) from the applicable vendor. The original vendor Material Test Report or Laboratory report (as subcontracted by this company) shows actual Charpy impact test results.

Therefore, it is our belief that the subject material is acceptable based upon the type of heat treatment (i.e., batch type) and the ASME response to Code Interpretations III-1-78-172 (Attachment III) and III-1-79-166 (Attachment IV).

Noncompliance #2

Based upon the results of the investigation it has been disclosed that:

- (A) Objective evidence is unclear to demonstrate full compliance to paragraph 12.2 of A540 (i.e., discard requirements) although common shop practice is to discard, during the cutting operation, at least one (1) end of each bar where a complete (length) item cannot be removed from the bar stock.
- (B & C) Objective evidence indicates that:
 - (1) Some work orders for the subject material (identified in Attachment V) reference the cutting of (2) test coupons per heat code number (HC#); and,
 - (2) laboratory reports reflect mechanical results for (1) coupon only.

Therefore it is apparent that objective evidence is insufficient to demonstrate full compliance to paragraph 13.1.1 of A540.

In addition several pieces of material (i.e., overages from the original Customer Orders of the materials referenced in Attachment V) have been located in our Nuclear Stock area.

The subject materials are:

(a) 2 3/4" \emptyset Heavy Hex Nuts - HC# 7C, 8C and 9C

→ (b) 2 1/2" \emptyset X 43" D. E. Anchor Bolt - HC# 7B

The subject material was charpy impact tested, tensile tested and hardness tested to verify compliance to A540. Subsize tensile specimens had to be utilized for HC#'s 7C, 8C, and 9C (2 3/4" Heavy Hex Nuts). However, full size charpy specimens were available.

→ Full size tensile/charpy specimens were available for HC# 7B (2 1/2" X 43" D. E. Anchor Bolt).

The test results were acceptable (Attachment VI) meeting the original Customer Requirements as follows:

	<u>Results</u>	<u>Original Requirements</u>
HC# 7C	A540 Grade B23 Class 3 and 4	A540 Grade B23 Class 3
HC# 8C	A540 Grade B23 Class 1 and 3	A540 Grade B23 Class 1 and 3
HC# 9C	A540 Grade B23 Class 3 and 4	A540 Grade B23 Class 3
→ HC# 7B	A540 Grade B23 Class 3 and 4	A540 Grade B23 Class 3 and 4

Also, please be advised that objective evidence indicates that the subject materials were purchased in the E-4340-H unheat treated condition and heat treated (via subcontract) by Lone Star Screw Company in the semi-finished (i.e., blanks cut to the required size) condition and not in bar form. Heat treatment lots consisted of the semi-finished pieces and test drops (see Attachment VII for heat treat certifications).

Please accept these results as a representation of the materials identified in Attachment V based upon the Laboratory test results in Attachment VI and the method of heat treatment (i.e., not in bar form).



Metallurgical Chemistry and Testing Laboratory

HOUSTON, TEXAS 77017

TELEX NO. 775-798

PHONE: AREA CODE 713/644-7501

P.O. BOX 12265

3704 BROADWAY

July 19, 1982

page 4 of 4

Jandl Manufacturing co.
Attn: Mr. B. Weightman

P. O. No. JA-1757
Report No. 82-3836-4

IDENTIFICATION: 2-1/2" x 43" Lg., SA-540 D. E. Stud,
SN-7B-11-26

TENSILE TEST

(0.2% offset) .505" Dia. Tensile

<u>Dia.</u>	<u>Y. S. psi</u>	<u>T. S. psi</u>	<u>%El in 2"</u>	<u>%R. A.</u>
.499"	134,000	149,400	19.0	62.9

IMPACT TEST

(Longitudinal)


10mm x 10mm CVN @ + 10° F

<u>Foot/Pounds</u>	<u>Lateral Expansion (mils)</u>	<u>%Shear</u>
71.0	35	100
68.0	37	100
67.0	42	100

HARDNESS TEST

BUN 321

All activities performed for this order shall be performed in accordance with a quality system meeting the requirements of ASME Section III, Sub-section NCA-3800 as audited and approved by LSS company on 7-21-81 and so certified in the above test report.


Donald Derrick
Mechanical Testing Supervisor

DD/ds

Star 20

LINDBERG/COOK HEAT TREATING COMPANY



Division of
LINDBERG
CORPORATION

P. O. BOX 24147 • HOUSTON, TEXAS 77029 • 713/672-6601

CERTIFICATION OF HEAT TREATMENT

DATE: 5/31/79

CERTIFICATION NO. 70633

CUSTOMER'S ORDER NO. 11080

OTHER ORDER NOS.: (NONE)

TWO HUNDRED TWENTY EIGHT (228)
NUMBER OF PARTS: _____

PART NUMBERS: SEE SUPPLEMENT

• LONE STAR SCREW CO.

WE HEREBY CERTIFY THAT THE PARTS DESCRIBED WERE GIVEN THE FOLLOWING HEAT TREATMENT

		TIME AT HEAT	COOLANT
ANNEALED	F		
NORMALIZED	°F		
QUENCHED	1525 °F	3 HRS	OIL
DRAWN	1150 °F	5 HRS	AIR
NITRIDED	°F		
STRESS RELIEVED	°F		
HARDNESS TEST 302-321 BHN % OF PCS. TESTED 5%			

SPEC. NO. _____

MATERIAL: 4340 ANN

*50 of these
nuts were
7/8 & no
drops
sent*

We further certify that heat treatment described above is true and correct and that temperatures and test results were obtained with standard approved methods.

Subscribed and sworn to before me this
15TH day of JUNE, 19 79

[Signature] Notary Public
in and for the County of Harris, State of Texas

My Commission Expires 10/31/80

LINDBERG-COOK HEAT TREATING COMPANY

[Signature]
PAUL GAMBLE
PLANT SUPERINTENDENT

LINDBERG/COOK
HEAT TREATING
COMPANY



Division of
LINDBERG
CORPORATION

P. O. BOX 24147 • HOUSTON, TEXAS 77029 • 713/672-6601

CERTIFICATION OF HEAT TREATMENT

DATE: 5/31/79

CERTIFICATION NO. 70633

CUSTOMER'S ORDER NO. 11080

• LONE STAR SCREW CO.

The following items are reflected in attached certification:

QUANTITY	DESCRIPTION OF MATERIALS	QUANTITY	DESCRIPTION OF MATERIALS
224	1 1/2 8 HVY HEX NUTS 2 3/4"OD x 1 1/2"ID x 1 3/4"THK	> 6B	3B 72(5)
2	2 3/4 x 4" DROP BARS 2 3/4"OD x 2 5/16"LG	> 6B	
2	2 3/4 x 5" DROP BARS 2 3/4"OD x 2 7/16"LG	> 3B	



TELEX NO. 775-798

Metallurgical Chemistry and Testing Laboratory

HOUSTON, TEXAS 77051

June 22, 1979

ONE AREA CODE 713/646-1151
P.O. BOX 12265
3224 BROADWAY

page 1 of 1

Long Star Screw Co
P.O. Box 15211
Houston, Texas 77020
Attn: Mr. Bob Gray

P.O. No. H013
Report No. 79-3023 1-2

IDENTIFICATION: Item 19, Size 1-1/2" x 16", Class 4, Code 7D, Heat No. 64410
SPECIFICATION: ASTM-A-540-823
MATERIAL: AISI-E-4340-H

TENSILE TEST

.505" Dia. Tensile Test

	<u>Y. S. psi</u>	<u>T. S. psi</u>	<u>%EL in 2"</u>	<u>%R. A.</u>
#1	170,100	181,400	15.0	53.8
#2	168,800	178,600	15.0	52.1

HARDNESS TEST

RC 39 HVN 362
RC 39 HVN 362

IMPACT TEST

10mm x 10mm Charpy "V" Notch @ + 10°F
(longitudinal)

	<u>Foot/Pounds</u>	<u>Lateral Expansion(mils)</u>	<u>%Shear</u>
#1	38.0	23	100
	40.0	25	100
	37.0	22	100
#2	39.0	25	100
	40.0	27	100
	37.0	23	100

QUALITY CONTROL
 AC 6-24-79 RE
INSP SJ 6#5

BJB/rh

E. J. Bohman
E. J. Bohman, Vice President
Material Processing