0500014C (02/88)
QEP-3120

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

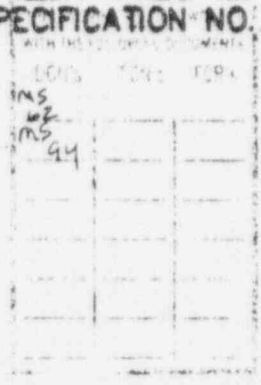
SPECIFICATION
FOR

ALTERNATE VALVE PACKING AND LIVE LOAD DESIGN

HOUSTON LIGHTING & POWER CO.

SPECIFICATION NO. 5L749TS1018

RPE CERTIFICATIONS



ASME SECTION III RPE CERTIFICATION REQUIRED YES ☐ NO ☒

THIS IS TO CERTIFY THAT THIS DOCUMENT HAS BEEN REVIEWED BY ME, THE UNDERSIGNED, AND IS CORRECT, COMPLETE, AND IN COMPLIANCE WITH THE ____ EDITION, WITH ADDENDA UP TO AND INCLUDING THE _____ ADDENDUM, OF THE ASME CODE SECTION III, DIVISION 1 PARAGRAPH NCA-3252 (CONTENTS OF DESIGN SPECIFICATIONS).

0	N/A / N/A	N/A	N/A
REV. NO.	SIGNATURE/DATE	PRINT NAME	RPE NO.

REV	DATE	REVISION DESCRIPTION	RE	REW	SE	NA	PE
0	6/25/90	Issued for Purchase/Construction	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	7/20/90	Revised Spec. No. from 5L749TS1017 to Correct	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Duplicate Sequence No.					

77pp.

E, 09.11

STP 3259C (06/93)
REV 4

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

PCF AMENDMENT FORM

(Page 1 of 3)

T40534

940179
PCF NUMBER

1. Affected Document 5L749TS1018 Rev. 1 Unit 1&2

Key Document Yes ☐ No ☒

2. Amendment 1

Page 1 of 3

3. Description of the change (identify affected pages for Vendor Manual, specifications, DBD's, etc.).

Revise Section 5.1 and Figure 2 of specification no. 5L749TS1018 as shown on the attached pages to allow the use of Chesterton Style 5800 wedge type packing set.

4. [signature] 5/24/94 [signature] 5-25-94 5. 7-25-94

ENGINEER	DATE	REVIEWER	DATE	DC ISSUE	DATE
[signature]	5/24/94	[signature]	5-25-94		7-25-94

INSERT G: (FROM DCN # MS-62)

5.1 The following manufacturers and model numbers are acceptable:

5.1.1 Braided End Rings

A. Chesterton Style 1

B. Argo Style 524

5.1.2 Die Formed Square Graphite Rings

A. Chesterton Style 5300

B. Argo Style 6300

5.1.3 EPRI Wedge Die Formed Graphite Rings

A. Chesterton Style 5350 (OR CHESTERTON STYLE 5800 WEDGE)

THIS PCF

5.1.4 Split Carbon Bushings

A. Chesterton Style 5100

B. Argo Style 5005

5.1.5 Live Loading Assemblies

A. Chesterton Style 5150

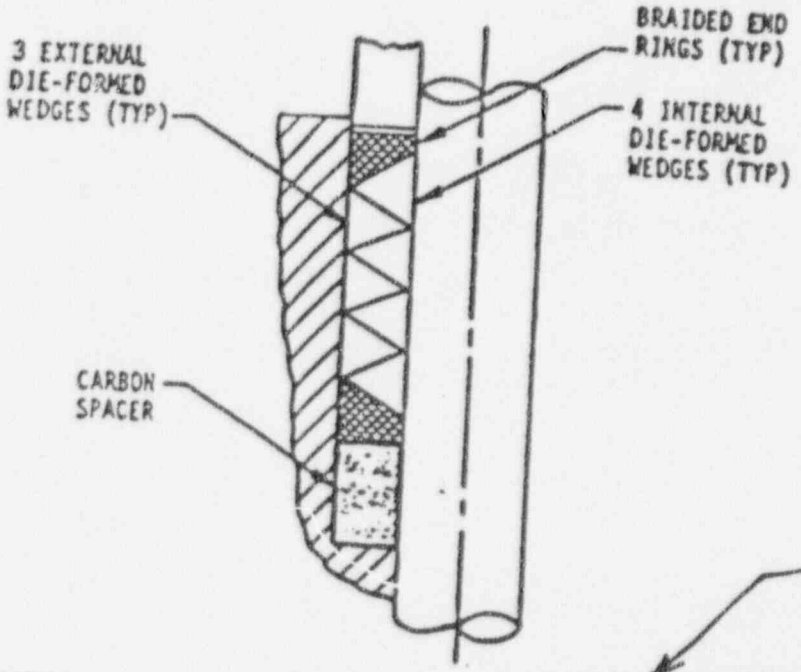
B. Argo Style 6250

5.1.6 Composite End Rings

A. Argo Style 6000

TITLE
ALTERNATE VALVE PACKING
AND LIVE LOAD DESIGN

NUMBER	REV	PAGE
5L749T81018	1	11



NOTE: CHESTERTON STYLE 5800 WEDGE may be used as an alternate packing set for the EPRI wedge packing set, CHESTERTON STYLE 5350. STYLE 5800 WEDGE is a five-ring graphite packing set which consists of two die-formed end rings, two inside diameter sealing rings and one outside diameter sealing ring.

EPRI WEDGE PACKING SET

FIGURE 2

D6864

STP 627 (02/93)
REV 1
OEP-6.030
17. QUALITY RELATED CHANGE YES ☑ NO ☐

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

DOCUMENT CHANGE NOTICE

2. DCN NO. M5-94
PAGE 1 OF 3
PRIORITY 4 PRI. AUTH. _____

1. DOCUMENT TYPE/TITLE: SPECIFICATION FOR ALTERNATE VALVE PACKING AND LIVE LOAD DESIGN. SYSTEM VARIOUS CORRESP. UNIT DCN. N/A

4. DOCUMENT NO./REV. NO. 5L749TS1Ø18 REV. 1 7. KEY DRAWING YES ☐ NO ☒ 3. UNIT 1 ☐ 2 ☐ BOTH ☒

DOCUMENT NO./REV. NO. _____ KEY DRAWING YES ☐ NO ☐ 18. DC ISSUE DATE 2/5/93

☐ ADDITIONAL AFFECTED DOCUMENTS LISTED ON PAGE N/A

8. RE/REQUESTOR DATE
B. J. Mower 2-4-93

9. REVIEWER DATE
J. Starks 2-4-93

10. OTHER DISCIPLINE(S) APPROVAL DATE
N/A

11. PED CONCURRENCE DATE
(ROD. FOR KEY DWGS AND FOR SETPOINT CHANGES)
N/A
ZE-31 REQUIRED? YES ☐ NO ☐

12. RPE SIGNATURE DATE
N/A

14. HL&P SE OR A/E SE OR DED APPROVAL DATE
J. Bynum 2/4/93

5. REASON FOR CHANGE: TO ADD VENDOR RECOMENDATIONS TO SPECIFICATION FOR PACKING ADJUSTMENT OF ALTERNATE AND/OR LIVE LOADED VALVES.

6. CHANGE DESCRIPTION: INCORPORATION REQUIRED YES ☒ NO ☐
ADD SECTION 4.13 TO PAGE 6 AS PER ATTACHED.

STP CONTROLLED COPY FEB 09 1993 900 DOCUMENT CONTROL

ENG. NOTIFICATION REQD. FOLLOWING INSTALLATION? YES ☐ NO ☒
PCF/ECNP/MOD PACKAGE REQD PRIOR TO INSTALLATION? YES ☐ NO ☒

15. ADDITIONAL INFORMATION:

	YES	NO
A. NPOD PROG./PROC. POTENTIALLY IMPACTED	☒	☐
B. 10CFR50.59 EVALUATION ATTACHED	☒	☐
C. PLANT LABELING CHANGE	☐	☒

D. MED. CHANGE FORM NO. N/A

IF NO, PROVIDE PRELIMINARY SCREENING JUSTIFICATION:

16. PLANT LABELING COORD. CONCUR. (IF APPLICABLE)
N/A
DATE

FOR CONTINUATION, USE ANY CONTINUATION SHEET WITH "DCN NO._____ PAGE_____OF_____ DOC. NO._____ TITLE_____"

ADD TO REQUIREMENTS 4.0

4.13 Packing Adjustment FOR VALVES REPACKED WITH CHESTERTON PRODUCTS

4.13.1 If valve develops a leak tighten gland nut to the torque value which was specified.

4.13.2 If leakage continues torque value may be increased by as much as 20%.

4.13.3 Increase torque in increments of 5% until leakage is stopped.

4.13.4 If leakage continues valve may have to be repacked.

10CFR50.59 SCREENING FORM

(TYPICAL)

UNIT #1 ☐ UNIT #2 ☐ BOTH ☒

☐ PROCEDURE ☐ PLANT MODIFICATION ☐ ECNP ☒ DCN

☐ UFSAR CN ☐ OTHER ______

ORIGINATING DOCUMENT NO.: 5L749TS1Ø18 REV. NO.: 1

DESCRIPTION OF CHANGE: ADD VENDOR RECOMENDATIONS FOR PACKING ADJUSTMENTS OF ALTERNATE AND/OR LIVE LOADED VALVES

REASON FOR CHANGE: TO PROVIDE DIRECTION AND/OR RECOMENDATIONS IF VALVES INCUR PACKING LEAKS

PRELIMINARY SCREENING

	YES	NO
1. Does the proposed change represent a change to the Plant Technical Specifications?	☐	☒

2. If an Unreviewed Safety Question is known to be associated with the subject change, then further screening is not required; refer to IP-1.190.

If "Yes" refer to IP-1.190. Further screening is not required.

Does the proposed change represent:	YES	NO
3. A change to correct a typographical, editoral or drafting error?	☒	☐
4. A change which is identical to and addressed in its entirety by an existing approved 10CFR50.59 Screening/USQE?	☐	☒
5. A procedure change in which the format or text changed without changing actions or intent?	☐	☒
6. A spare or replacement part/component change with an equivalent part/component? (see Section 3.16 for a definition of equivalent)	☐	☒

If all answers to the above questions are "No" perform the final screening and mark N/A in the approval blocks below.

If the answer to any question (3) through (6) is "Yes" a final screening is not necessary. Sign approval blocks below and discard pages 2 thru 4.

Provide an explanation/justification and references if any of items (3) through (6) are answered "Yes".

#3 THE CHANGE TO THE SPECIFICATION IS EDITORIAL IN NATURE AS DURING INCEPTION OF THE SPECIFICATION DIRECTION AND/OR RECOMMENDATIONS WERE NOT SPECIFIED IN THE EVENT THAT VALVES REPACKED IN ACCORDANCE WITH THE SPECIFICATION INCURRED LEAKAGE.

Prepared by: B. S. Mower (Originator) Date: 2-4-93

Approved by: [signature] (Section Supervisor) Date: 2/4/93

D692

STP 627 (02/93)
RE / 1
OEP-6 03Q

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

2. DCN NO. MS-112

DOCUMENT CHANGE NOTICE

PAGE 1 OF ~~2~~ 2 Rum 8-6-93

17. QUALITY RELATED CHANGE YES [X] NO [ ]

PRIORITY 4B PRI. AUTH. N/A

1. DOCUMENT TYPE/TITLE: SPECIFICATION / ALTERNATE VALVE PACKING... SYSTEM VARIOUS CORRESP. UNIT DCN. N/A

4. DOCUMENT NO./REV. NO. 5L749TS1018 / REV. 1 7. KEY DRAWING YES [ ] NO [X] 3. UNIT 1 [ ] 2 [ ] BOTH [X]

DOCUMENT NO./REV. NO. N/A KEY DRAWING YES [ ] NO [ ] 18. DC ISSUE DATE 8/27/93

[ ] ADDITIONAL AFFECTED DOCUMENTS LISTED ON PAGE N/A .

8. RE/REQUESTOR DATE
Carl Engelken 8/9/93 8/4/93
CARL ENGELKEN MTS-N x7583

5. REASON FOR CHANGE: ALLOW ALTERNATE TEST METHODS FOR THE DETERMINATION OF DENSITY AND SULFER CONTENT. CORRECT TYPOGRAPHICAL ERROR FOR ASH CONTENT LIMIT.

9. REVIEWER DATE
R. M. Rimm 8-6-93

10. OTHER DISCIPLINE(S) APPROVAL DATE
N/A

6. CHANGE DESCRIPTION: INCORPORATION REQUIRED YES [X] NO [ ]
INCORPORATE THE CHANGES SHOWN ONE PAGES 2 AND 3 OF THIS DCN.

STP CONTROLLED COPY AUG 31 1993 900 DOCUMENT CONTROL

11. PED CONCURRENCE DATE
(RQD. FOR KEY DWGS AND FOR SETPOINT CHANGES)
N/A

ZE - 31 REQUIRED? YES [ ] NO [ ]

ENG. NOTIFICATION REQD. FOLLOWING INSTALLATION? YES [ ] NO [X]

PCF/ECNP/MOD PACKAGE REQD. PRIOR TO INSTALLATION? YES [ ] NO [X]

12. RPE SIGNATURE DATE
N/A

15. ADDITIONAL INFORMATION:

	YES	NO		YES	NO
A. NPOD PROG./PROC. POTENTIALLY IMPACTED	[ ]	[X]	C. PLANT LABELING CHANGE	[ ]	[X]
B. 10CFR50.59 EVALUATION ATTACHED	[X]	[ ]	D. MED CHANGE FORM NO.	N/A	

IF NO, PROVIDE PRELIMINARY SCREENING JUSTIFICATION:

14.HL&P SE OR A/E SE OR DED APPROVAL DATE
Bruce E. Hughes 8/23/93

16. PLANT LABELING COORD. CONCUR. (IF APPLICABLE)
N/A / DATE

TITLE
ALTERNATE VALVE PACKING
AND LIVE LOAD DESIGN

NUMBER	REV	PAGE
5L749TS1018	1	9

CHEMICAL AND PHYSICAL PROPERTIES

PROPERTY		BRAIDED RINGS	DIE-FORMED RINGS	TEST METHOD
CARBON	% min.	97	97	ASTM-D-3178-84 PARA.4.2.3.2
ASH	MAX % ~~min.~~	3	3	ASTM-C-561-85 PARA.4.2.3.2
MOISTURE	% max.	3	3	ASTM-C-562-85 PARA.4.2.3.2
DENSITY	g/cc	1.4 min.		ASTM-C-135-76 PARA.4.2.3.3
DENSITY	g/cc		1.30-1.50	WATER IMMERSION OR DENSITY FORMULA SHOWN BELOW **
WATER LEACHABLE CHLORIDES	ppm max.	100	50	ASTM-D-512-81 METHOD D OR ION CHROMATOGRAPHY
WATER LEACHABLE FLUORIDES	ppm max.	100	50	ASTM-D-1179-80 METHOD B OR ION CHROMATOGRAPHY
TOTAL CHLORINE	ppm max.	200	200	ASTM-D-808-81 OR ION CHROMATOGRAPHY
TOTAL FLUORINE	ppm max.	200	200	ASTM-D-3761-84 OR ION CHROMATOGRAPHY
ACTIVE SULPHUR	ppm max.	700	700	ASTM-D-129-78, ASTM C816-85 OR ION CHROMATOGRAPHY
TOTAL HEAVY METALS	ppm max.	200	200	ATOMIC ABSORPTION
INDIVIDUAL HEAVY METAL*	ppm max.	150	150	ATOMIC ABSORPTION

* ANTIMONY, ARSENIC, BISMUTH, CADMIUM, COPPER, GALLIUM, INDIUM, LEAD, MERCURY, SILVER, TIN, & ZINC

** DENSITY FORMULA (FOR DIE-FORMED RINGS ONLY):

$$DENSITY\left(\frac{g}{cm^3}\right) = \frac{WEIGHT\ (g)}{\left[\pi\left(\frac{OD\ (cm)}{2}\right)^2 - \pi\left(\frac{ID\ (cm)}{2}\right)^2\right] X\ HEIGHT\ (cm)}$$

TABLE 2

STP 681A (07/92) SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION ATTACHMENT IP-3.200-2

10CFR50.59 SCREENING FORM

(TYPICAL)

UNIT #1 ☐ ☐ PROCEDURE ☐ PLANT MODIFICATION ☐ ECNP ☒ DCN
UNIT #2 ☐
BOTH ☒ ☐ UFSAR CN ☐ OTHER ______

ORIGINATING DOCUMENT NO.: DCN-MS-112 REV. NO. NA

DESCRIPTION OF CHANGE: Incorporation of alternate methods to calculate material density and to test Sulphur content in Graphite. Correction of editorial error regarding max. ash content.

REASON FOR CHANGE: Allow alternate methods for the determination of density and Sulphur content. Correct typographical error for ash content limit.

PRELIMINARY SCREENING

	YES	NO
1. Does the proposed change represent a change to the Plant Technical Specifications?	☐	☒
2. If an Unreviewed Safety Question is known to be associated with the subject change, then further screening is not required; refer to IP-1.190.		

If "Yes" refer to IP-1.190. Further screening is not required.

Does the proposed change represent:	YES	NO
3. A change to correct a typographical, editoral or drafting error?	☒	☐
4. A change which is identical to and addressed in its entirety by an existing approved 10CFR50.59 Screening/USQE?	☐	☒
5. A procedure change in which the format or text changed without changing actions or intent?	☒	☐
6. A spare or replacement part/component change with an equivalent part/component? (see Section 3.16 for a definition of equivalent)	☐	☒

If all answers to the above questions are "No" perform the final screening and mark N/A in the approval blocks below.

If the answer to any question (3) through (6) is "Yes" a final screening is not necessary. Sign approval blocks below and discard pages 2 thru 4.

Provide an explanation/justification and references if any of items (3) through (6) are answered "Yes".
This is a paper change only: An obvious typographical error was corrected to limit the ash content to 3% maximum and an alternate method to determine material density by calculation instead of the cumbersome submersion method was added. Also added to the procedure was an ASTM appro combustion - iodometric Titration method for determination of Sulphur content in Graphite (ASTM C 816-85). This new method is a substitute for the old method using an explosive device. The updating will assure that correct replacement parts are used for valve packings. There is no change in the intent of this specification. Form, fit and function of the valve packings are not changed in any way by this DCN.

Prepared by: R. M. [signature] 8-6-93
Originator Date

Approved by: Quoc K. Huynh 8/23/93
Section Supervisor Date

D6773

SIP 627 (10/91)
OEP-6.030

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

DOCUMENT CHANGE NOTICE

2. DCN NO. MS-62
PAGE 1 OF 48
PRIORITY 2 PRI. AUTH. 1RE04

17. QUALITY RELATED CHANGE YES ☒ NO ☐

1. DOCUMENT TYPE/TITLE: SPEC/ALTERNATE VALVE PACKING SYSTEM VARIOUS CORRESP. UNIT DCN. N/A

4. DOCUMENT NO./REV. NO. 5L749TS1018/1 7. KEY DRAWING YES ☐ NO ☒ 3. UNIT 1 ☐ 2 ☐ BOTH ☒

DOCUMENT NO./REV. NO. ______ KEY DRAWING YES ☐ NO ☐ 18. DC ISSUE DATE 5/8/92

8. RE/REQUESTOR DATE
Quoc K. Huynh 5-6-92

9. REVIEWER DATE
V. Ifarko 5-6-92

10. OTHER DISCIPLINE(S) APPROVAL DATE
Rmlanday 5/8/92
(Ref. DCN EM-176)

11. PED CONCURRENCE DATE
(REQD. FOR KEY DWGS, FOR SETPOINT CHANGES, AND FOR WD DCNs)
N/A
ZE-31 REQUIRED? YES ☐ NO ☐

12. RPE SIGNATURE DATE
N/A

13. NUCLEAR ASSURANCE DATE
(REQD. FOR Q-RELATED P&IDs, ONE-LINES, SPECS, DES CRIT, AND WD DCNs)
D.R. Montenegro 5-8-92

14. HL&P SE OR A/E SE OR DED APPROVAL DATE
Mark P. Kamm 5/7/92

14A. PLANT MANAGER (FOR WD DCNs ONLY)
(THIS APPROVAL AUTHORIZES INSTALLATION)
N/A

5. REASON FOR CHANGE: (REF. RFA 91-1426 & SPR 910322 R7)

TO ALLOW ALTERNATE VALVE PACKING DESIGN. (ARGO). THIS CHANGE WILL IMPROVE MATERIALS DELIVERY AND PROVIDES FLEXIBILITY FOR MAINTENANCE.

6. CHANGE DESCRIPTION: INCORPORATION REQUIRED YES ☒ NO ☐

REVISE PAGES 3, 5, 6 AND 7 & ADD FIGURE 7.
SEE ATTACHED FOR DETAILS.

BUDGETARY AUTH
(FOR WD DCNs ONLY)
N/A / MAINT MGR DATE
N/A / DED MGR DATE

WORK DOC. (WD) DCN? YES ☐ NO ☒ WORK DOC. NO. N/A

ENG. NOTIFICATION REQD. FOLLOWING INSTALLATION? YES ☐ NO ☒
ECNP/MOD PACKAGE REQD. PRIOR TO INSTALLATION? YES ☐ NO ☒

15. ADDITIONAL INFORMATION:

	YES	NO
A. NPOD PROG./PROC. IMPACTED	☒	☐
B. 10CFR50.59 EVALUATION ATTACHED	☒	☐
C. PLANT LABELING CHANGE	☐	☒

D. MED. CHANGE REQ. NO. N/A

IF NO, PROVIDE PRELIMINARY SCREENING JUSTIFICATION:

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DOCUMENT CONTROL

16. PLANT LABELING COORD. CONCUR. (IF APPLICABLE)
N/A / DATE

14B. WD DCN INSTALLATION
INSTALLATION IS IN PROGRESS OR COMPLETE
ENTERED BY N/A DATE ______

FOR CONTINUATION, USE ANY CONTINUATION SHEET WITH "DCN NO.______ PAGE____OF____ DOC. NO.______ TITLE______"

TITLE	NUMBER	REV	PAGE
ALTERNATE VALVE PACKING AND LIVE LOAD DESIGN	5L749TS1018	1	3

1.0 Scope

1.1 This specification provides alternate valve stem packing design approved for installation as a maintenance activity in place of the vendor designed packing, at the option of the Cognizant Engineer or Responsible Maintenance Authority (RMA).

1.2 This specification provides alternate design to include live loading on packing gland studs as a maintenance activity at the option of the Cognizant Engineer or RMA.

1.3 The following valve types and sizes are covered by this specification: gate, globe, angle, stop check, and angle stop check from 1" to 36" NPS; with manual, air, motor, or hydraulic operators. INSERT A

1.4 Packing on the Feed Water Isolation Valve hydraulic actuators is specifically included in the scope of this specification. Packing on other hydraulic cylinders is not included in the scope of this specification.

1.5 The following items are not included in the scope of this specification:

1.5.1 Main turbine throttle & governor valves

1.5.2 Main turbine reheat intercept & stop valves

1.5.3 All code safety relief valves

1.5.4 ~~All~~ rotary stem valves (except butterfly & ball)

1.5.5 Solenoid valves

1.5.6 FPT throttle & governor valves

1.5.7 AFPT governor valve

1.5.8 Packless Metal Diaphragm valves

1.5.9 Bellows Sealed valves

4.2 The following packing designs are acceptable per this specification, for valves without lantern rings.

INSERT B

4.2.1 Two braided end rings and three die-formed graphite rings. (Figure 1)

4.2.2 Two braided end rings and seven EPRI wedge shaped die-formed graphite rings. (Figure 2)

4.2.3 Two braided end rings and two die-formed graphite rings. (Figure 3)

INSERT C

4.3 Excess space below the packing set shall be eliminated by insertion of a spacer, if required to provide adequate clearance of the gland, flange and stuffing box. Minimum clearance before compression is 1.5 times the height of one packing ring.

INSERT D

4.4 ~~If the bottom of the stuffing box is beveled, the bottom of the spacer shall be beveled to match.~~

4.5 Two or more tapped & threaded holes may be added to the top of the spacer to insert packing tools for removal of spacer.

INSERT E

4.6 ~~Valves with operable leak-off connections and lantern rings shall be repacked with two braided end rings and two die formed square graphite rings above the lantern rings, and two braided end rings and seven EPRI wedge die formed graphite rings below the lantern rings. A carbon spacer shall be installed below the bottom rings, if required to eliminate excess space. This configuration is shown in Figure 4.~~

INSERT F

4.7 ~~Valves which have plugged leak-off connections and lantern rings shall be repacked with the lantern ring removed, per one of configurations in 4.2. Split carbon spacers shall be installed below the packing set. The total height of carbon spacers should set the packing set above the leak off connection.~~

4.8 The required packing gland nut torque shall be provided by the packing supplier for the actual configuration. The torque shall be sufficient to apply a pressure of a nominal 1.75 times the system operating pressure or at least 2000 psi for initial installation of square packing sets. Initial torque for EPRI wedge packing sets shall be per the packing

supplier's recommendation. The maximum pressure shall not exceed the capacity of the packing installed.

4.9 Square packing ring size shall be determined after physical measurement of the valve stem and stuffing box diameter. Dimensional tolerances on die formed packing rings are:

ID= STEM OD (+0.005 in., -0.000 in.)
OD= Stuffing Box ID (+0.000 in., -0.010 in.)

4.10 Packing height before compression shall be below or flush with the top of the stuffing box.

4.11 Live load spring packs, where required, shall be supplied by the vendor to provide for additional inservice consolidation. The configuration shall be designed by the vendor to provide a minimum inservice consolidation of 3% of the uncompressed packing height, unless the space available does not allow sufficient live load stack height. In this case, 2% inservice consolidation is acceptable.

4.12 The additional height required to accommodate the live loading spring packs may require replacement of the existing gland studs with longer studs. This is acceptable provided the material specified on the valve bill of materials is used for the replacement studs. This also applies to eyebolts, carriage bolts, and other types of gland bolts.

5.0 Materials

5.1 The following manufacturers and model numbers are acceptable:

INSERT G

~~5.1.1 Braided end rings~~
~~Chesterton Style 1~~

~~5.1.2 Die Formed Square Graphite Rings~~
~~Chesterton Style 5300~~

~~5.1.3 EPRI Wedge Die Formed Graphite Rings~~
~~Chesterton Style 5350~~

~~5.1.4 Spacers~~
~~Chesterton Style 5100 Split Carbon Sleeve~~

INSERT 6A (CONT'D)

~~5.1.5 Live Loading Assemblies Chesterton Style 5150~~

5.2 Valves with existing stainless steel spacers may retain the S.S. spacer in lieu of adding a new split carbon spacer. This type spacer is frequently used on Valtek valves.

5.3 All live loading assemblies, spacers, and packing rings furnished for Safety Related valves shall be supplied in accordance with a Quality Assurance Program that meets the applicable portions of 10CFR50, Appendix B.

5.4 All packing and spacer materials supplied for Safety Related valves shall be lot certified to meet the requirements in Tables 1 and 2.

INSERT A: (add to section 1.3)

The following types and sizes of rotary stem valves are also included within the scope of this specification: butterfly and ball valves (including control valve variations such as "Vee Ball" and "U-Ball") from 2" to 96" NPS, with manual, air, motor, or hydraulic operators.

INSERT B: (add to section 4.2)

The specific configuration shall be selected by the Cognizant Engineer or RMA per the recommendations of the packing vendor:

INSERT C: (add)

4.2.4 Alternate packing configurations using flexible graphite / amorphous carbon composite end rings shall be in accordance with configurations A through F of the Figure 7 .

INSERT D: (revise section 4.4)

If the bottom of the stuffing box is angled, a braided or composite end ring should be installed below the bushing, per the packing vendor's recommendation. Alternates such as use of a metal junk ring are acceptable with Engineering approval.

INSERT E: (revise section 4.6)

Valves with operable leak-off connections and lantern rings shall be repacked with one of the illustrations shown in Figure 4 and Figure 7 (configurations G through M). The packing arrangement using composite end rings in Figure 7 is preferred.

INSERT F: (revise section 4.7)

Valves with plugged leak-off connections and lantern rings shall be repacked with the lantern rings removed or dropped to the bottom of the stuffing box, per one of configurations in 4.2. Split carbon spacer(s) or graphite bushing(s) shall be installed above and/or below the packing set. Under no circumstances should the packing materials be placed over the inactive leak-off port.

INSERT G: (revise section 5.1 per attached page)

INSERT H: (add attached Figure 7 to the specification)

INSERT G:

5.1 The following manufacturers and model numbers are acceptable:

5.1.1 Braided End Rings

A. Chesterton Style 1

B. Argo Style 524

5.1.2 Die Formed Square Graphite Rings

A. Chesterton Style 5300

B. Argo Style 6300

5.1.3 EPRI Wedge Die Formed Graphite Rings

A. Chesterton Style 5350

5.1.4 Split Carbon Bushings

A. Chesterton Style 5100

B. Argo Style 5005

5.1.5 Live Loading Assemblies

A. Chesterton Style 5150

B. Argo Style 6250

5.1.6 Composite End Rings

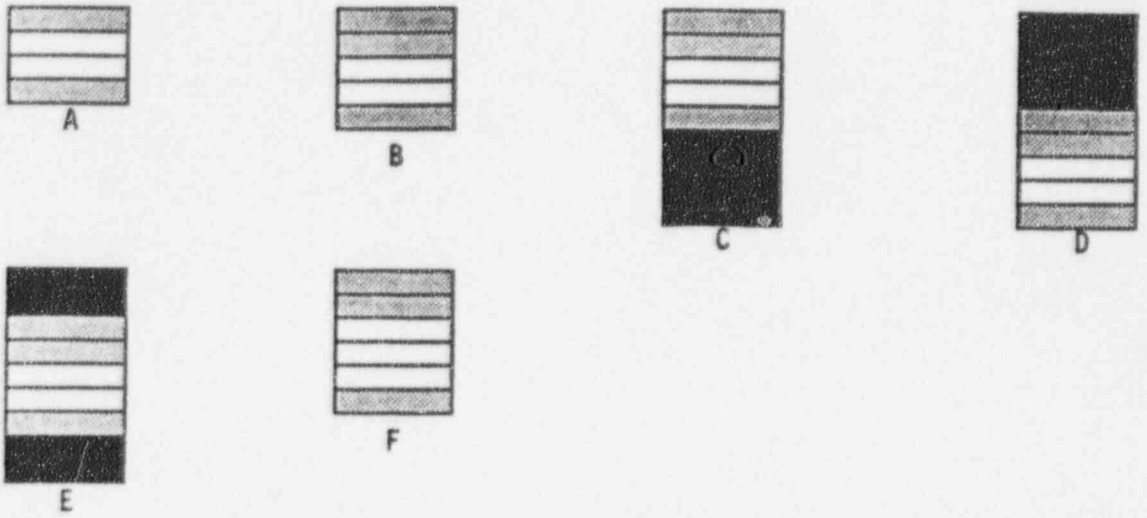
A. Argo Style 6000

FIGURE 7

ALTERNATE VALVE PACKING CONFIGURATION
USING COMPOSITE END RINGS

DCN NO. MS-62
PAGE 8 OF 9

CONFIGURATION WITHOUT LANTERN RING



CONFIGURATION WITH LANTERN RING

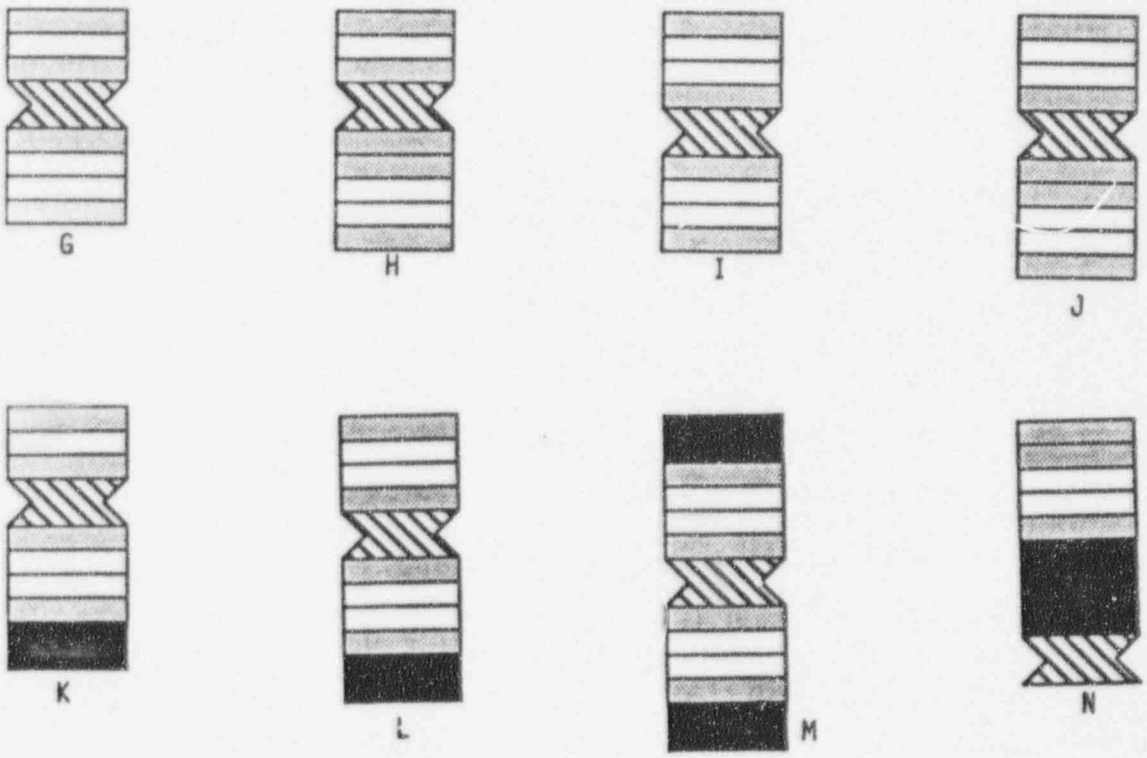


TABLE OF CONTENTS

1.0 Scope

1.1 This specification provides alternate valve stem packing design approved for installation as a maintenance activity in place of the vendor designed packing, at the option of the Cognizant Engineer or Responsible Maintenance Authority (RMA).

1.2 This specification provides alternate design to include live loading on packing gland studs as a maintenance activity at the option of the Cognizant Engineer or RMA.

1.3 The following valve types and sizes are covered by this specification: gate, globe, angle, stop check, and angle stop check from 1" to 36" NPS; with manual, air, motor, or hydraulic operators.

1.4 Packing on the Feed Water Isolation Valve hydraulic actuators is specifically included in the scope of this specification. Packing on other hydraulic cylinders is not included in the scope of this specification.

1.5 The following items are not included in the scope of this specification:

1.5.1 Main turbine throttle & governor valves

1.5.2 Main turbine reheat intercept & stop valves

1.5.3 All code safety relief valves

1.5.4 All rotary stem valves

1.5.5 Solenoid valves

1.5.6 FPT throttle & governor valves

1.5.7 AFPT governor valve

1.5.8 Packless Metal Diaphragm valves

1.5.9 Bellows Sealed valves

1.6 The removal of lantern rings and leak off connections which are shown piped to a drain tank on a P&ID is not included in this specification. Changes to valve packing and addition of live loading to these valves is included in the scope of this specification.

1.7 The scope of this specification includes both Safety Related and non-safety related valves.

2.0 General Information

2.1 Recent research has proven the effectiveness and life of valve stem packing can be improved by using spacers to reduce the number of packing rings and use of grafoil packing materials to replace asbestos-graphite braid and other packing materials.

2.2 This research and industry experience has also proven that addition of live loading to the packing gland adjustment can virtually eliminate the need for periodic packing adjustment. See Figures 5 & 6 for general information on configuration of live load equipment.

2.3 Final dimensions of valve packing design & live load design as specified herein depends on accurate field measurements of valve dimensions not generally available in design documents. Therefore, this specification provides the process for determining final dimensions of packing and live loading equipment instead of specific packing dimensions, etc.

3.0 Applicable Documents

3.1 Electric Power Research Institute (EPRI) NP-5697, Valve Stem Packing Improvements.

4.0 Requirements

4.1 Data necessary for determination of packing details shall be recorded on a data sheet similar to Appendix A, when first repacked in accordance with this specification. The completed data sheet shall be retained by Maintenance as a record of the installed configuration, and for use in future repacking or packing adjustment.

4.2 The following packing designs are acceptable per this specification, for valves without lantern rings:

4.2.1 Two braided end rings and three die-formed graphite rings. (Figure 1)

4.2.2 Two braided end rings and seven EPRI wedge shaped die-formed graphite rings. (Figure 2)

4.2.3 Two braided end rings and two die-formed graphite rings. (Figure 3)

4.3 Excess space below the packing set shall be eliminated by insertion of a spacer, if required to provide adequate clearance of the gland, flange and stuffing box. Minimum clearance before compression is 1.5 times the height of one packing ring.

4.4 If the bottom of the stuffing box is beveled, the bottom of the spacer shall be beveled to match.

4.5 Two or more tapped & threaded holes may be added to the top of the spacer to insert packing tools for removal of spacer.

4.6 Valves with operable leak-off connections and lantern rings shall be repacked with two braided end rings and two die formed square graphite rings above the lantern rings, and two braided end rings and seven EPRI wedge die formed graphite rings below the lantern rings. A carbon spacer shall be installed below the bottom rings, if required to eliminate excess space. This configuration is shown in Figure 4.

4.7 Valves which have plugged leak-off connections and lantern rings shall be repacked with the lantern ring removed, per one of configurations in 4.2. Split carbon spacers shall be installed below the packing set. The total height of carbon spacers should set the packing set above the leak off connection.

4.8 The required packing gland nut torque shall be provided by the packing supplier for the actual configuration. The torque shall be sufficient to apply a pressure of a nominal 1.75 times the system operating pressure or at least 2000 psi for initial installation of square packing sets. Initial torque for EPRI wedge packing sets shall be per the packing

supplier's recommendation. The maximum pressure shall not exceed the capacity of the packing installed.

4.9 Square packing ring size shall be determined after physical measurement of the valve stem and stuffing box diameter. Dimensional tolerances on die formed packing rings are:

ID= STEM OD (+0.005 in., -0.000 in.)
OD= Stuffing Box ID (+0.000 in., -0.010 in.)

4.10 Packing height before compression shall be below or flush with the top of the stuffing box.

4.11 Live load spring packs, where required, shall be supplied by the vendor to provide for additional inservice consolidation. The configuration shall be designed by the vendor to provide a minimum inservice consolidation of 3% of the uncompressed packing height, unless the space available does not allow sufficient live load stack height. In this case, 2% inservice consolidation is acceptable.

4.12 The additional height required to accommodate the live loading spring packs may require replacement of the existing gland studs with longer studs. This is acceptable provided the material specified on the valve bill of materials is used for the replacement studs. This also applies to eyebolts, carriage bolts, and other types of gland bolts.

5.0 Materials

5.1 The following manufacturers and model numbers are acceptable:

5.1.1 Braided end rings
Chesterton Style 1

5.1.2 Die Formed Square Graphite Rings
Chesterton Style 5300

5.1.3 EPRI Wedge Die Formed Graphite Rings
Chesterton Style 5350

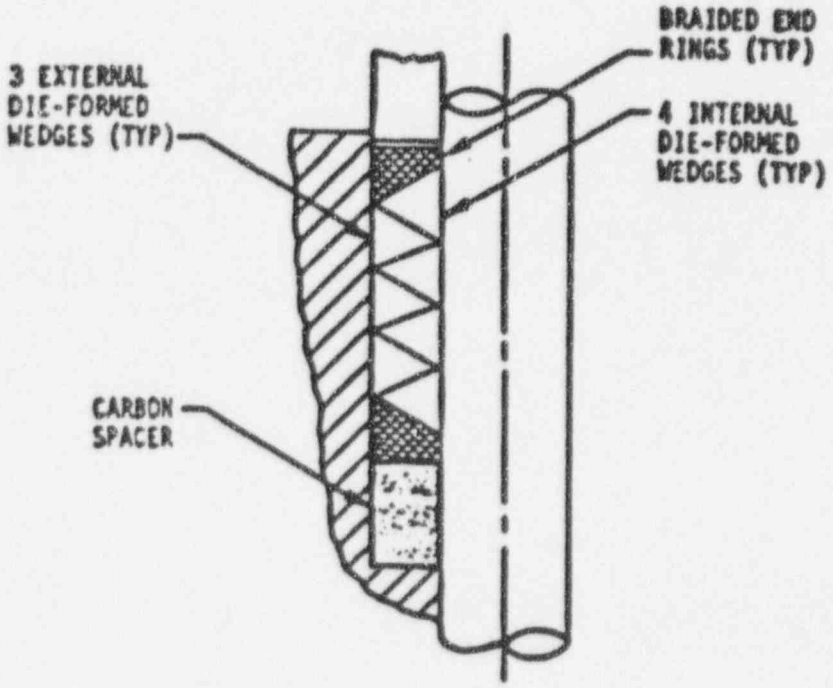
5.1.4 Spacers
Chesterton Style 5100 Split Carbon Sleeve

5.1.5 Live Loading Assemblies
Chesterton Style 5150

5.2 Valves with existing stainless steel spacers may retain the S.S. spacer in lieu of adding a new split carbon spacer. This type spacer is frequently used on Valtek valves.

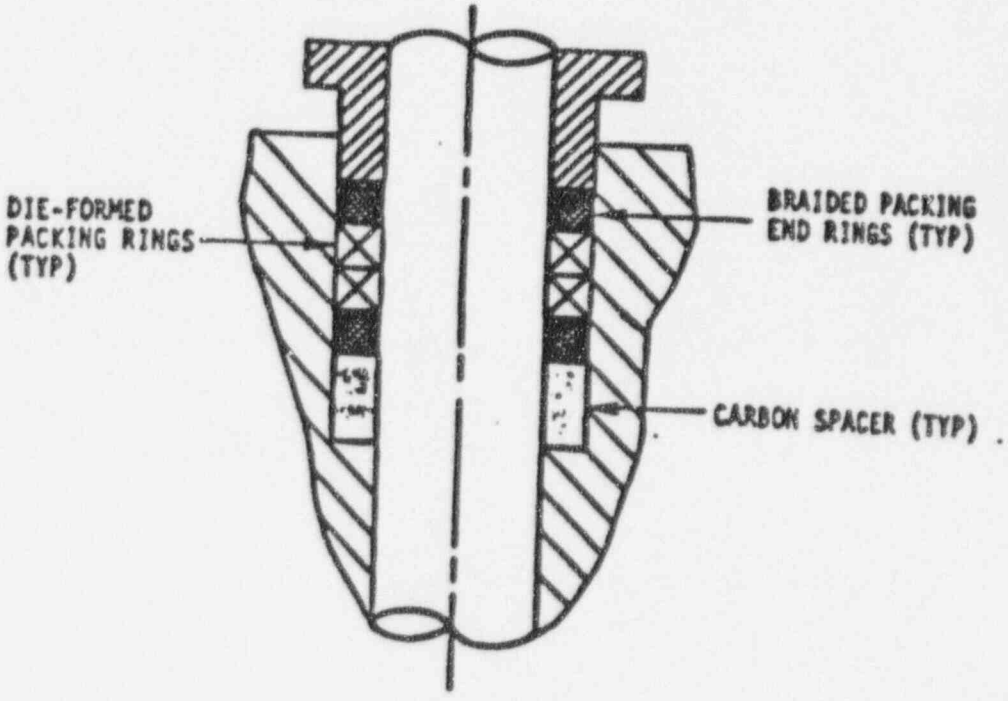
5.3 All live loading assemblies, spacers, and packing rings furnished for Safety Related valves shall be supplied in accordance with a Quality Assurance Program that meets the applicable portions of 10CFR50, Appendix B.

5.4 All packing and spacer materials supplied for Safety Related valves shall be lot certified to meet the requirements in Tables 1 and 2.



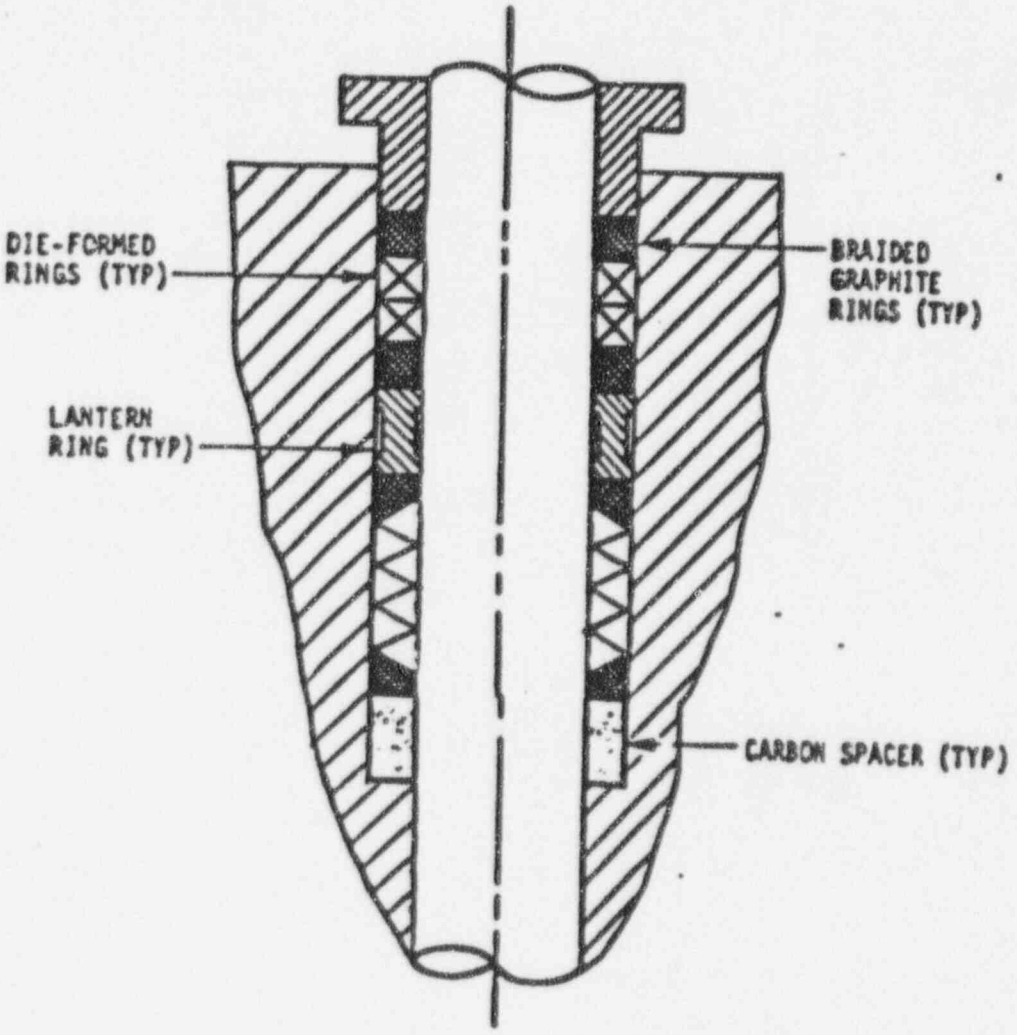
EPRI WEDGE PACKING SET

FIGURE 2



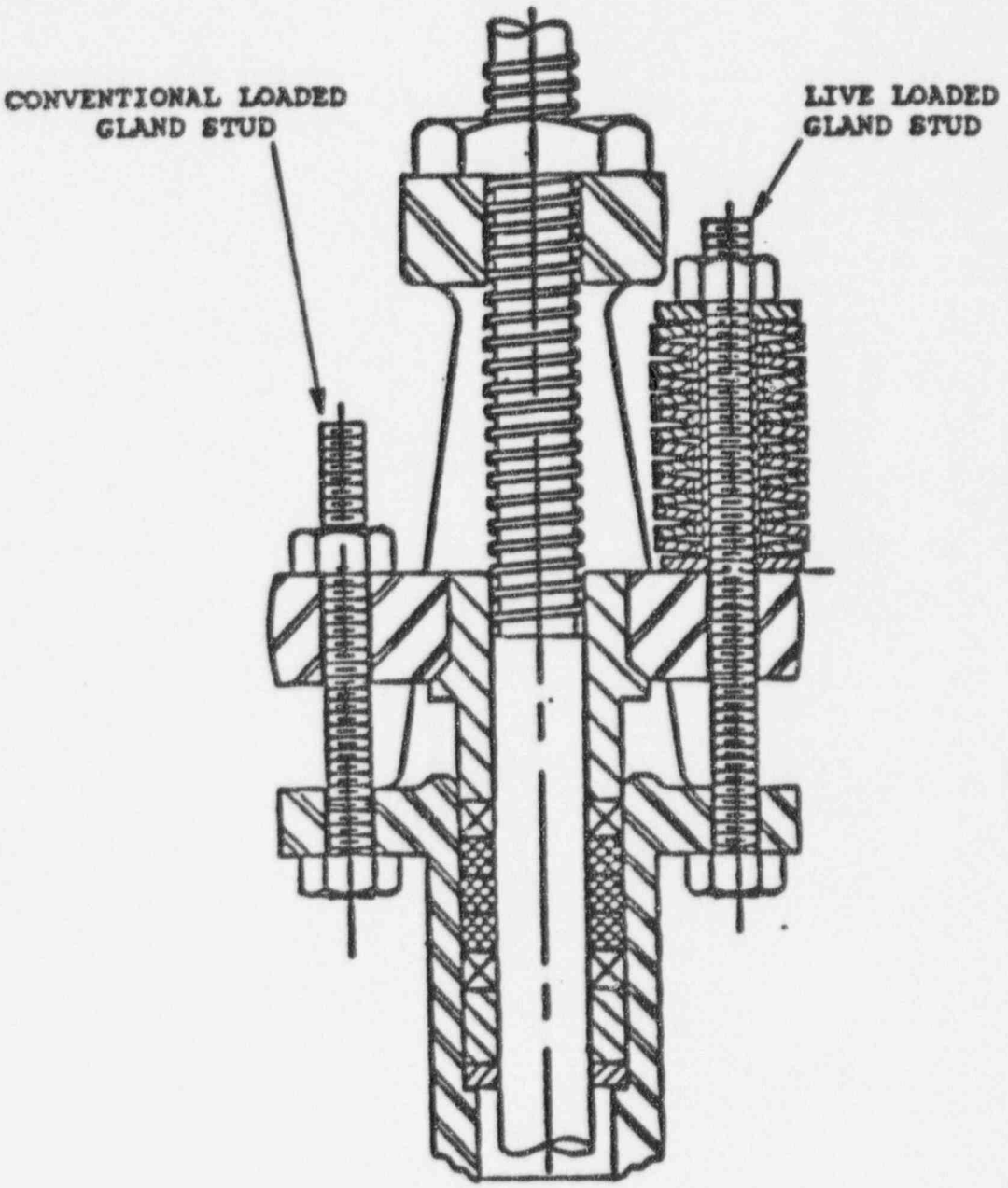
FOUR RING PACKING SET

FIGURE 3



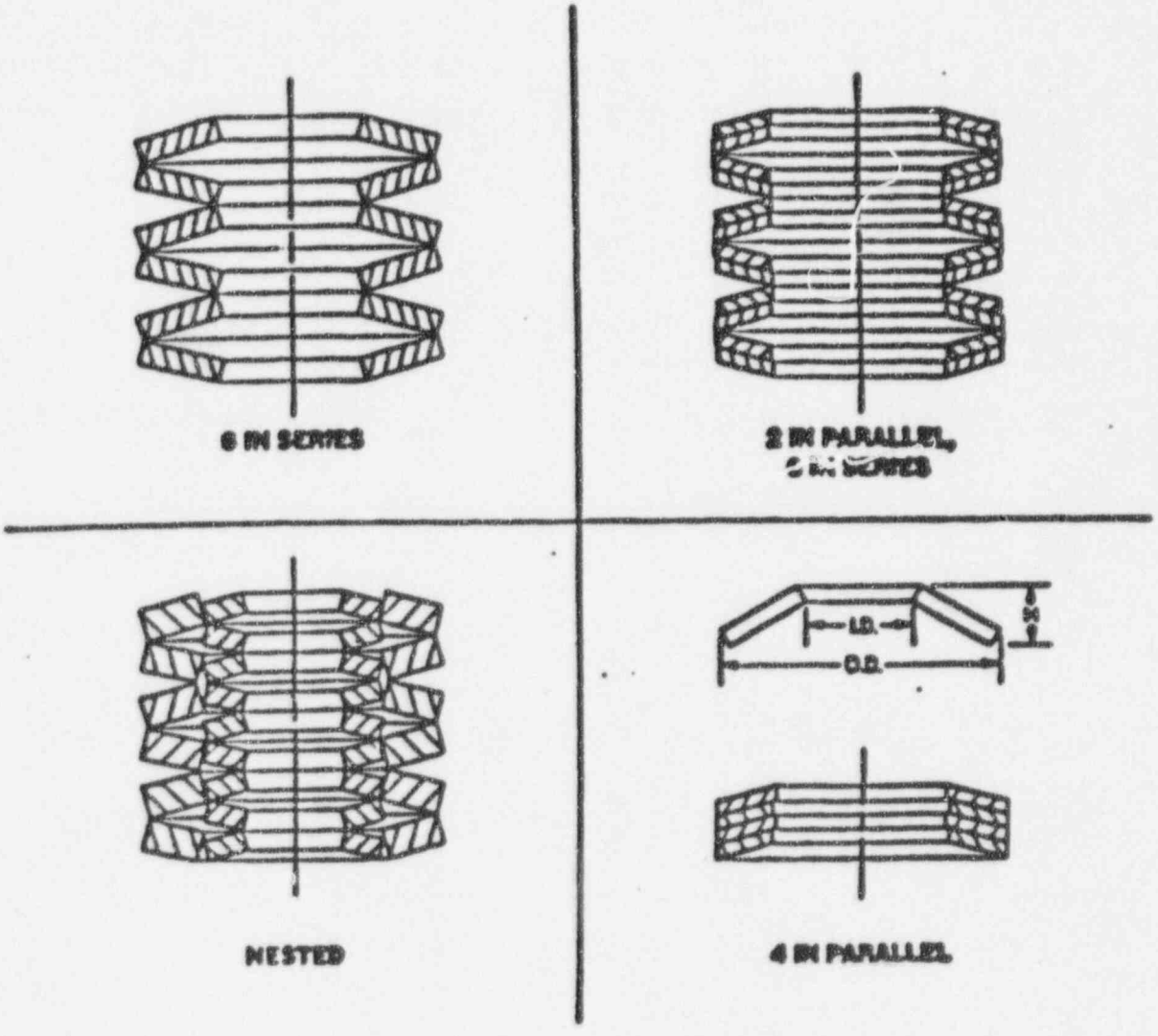
PACKING SET WITH LANTERN RING

FIGURE 4



CONVENTIONAL LOADING VS. LIVE LOADING

FIGURE 5



DISC SPRING ARRANGEMENTS

FIGURE 6

DATE _____

INDIVIDUAL VALVE SURVEY SHEET

DISTRIBUTOR _____
SPECIALIST _____
UTILITY _____ PLANT _____

COMPLETED BY _____
REVIEWED BY _____
VALVE NO. _____ PAGE NO. _____

VALVE DATA

EPN: _____ DWG. NO: _____

MFG. _____ MODEL NO: _____

SIZE: _____ TYPE: _____

SYSTEM PRESSURE: _____ TEMP: _____

LOCATION:
SYSTEM: _____
AREA: _____

CONTAINMENT: inside ☐ outside ☐
SAFETY RELATED: yes ☐ no ☐

PROCEDURE NO. _____

ACTUATION: power ☐ manual ☐
FREQUENCY OF ACTUATION: _____

PACKING DATA

STYLE 5300/STPI:
ID: _____ OD: _____ HT. _____

QTY: _____ ITEM # _____

STYLE ONE-PC:
ID: _____ OD: _____ HT. _____

QTY: _____ ITEM # _____

SEQUENCE: _____

BUSHING DATA

I.D.: _____ OD: _____ HT. _____

QTY: _____ ITEM NO: _____

STUFFING BOX DATA

STEM O.D.: _____ , BOX I.D.: _____

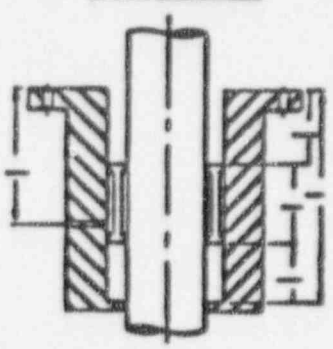
BOX DEPTH: _____

LANTERN RING:
yes ☐
no ☐
HT. _____

PIPED ☐

PLUGGED ☐

LANTERN RING



DATE PACKED: _____ _____ _____

COMMENTS: _____

STUD DATA

SWING BOLT ☐ FIGURE 1 QTY: _____
BOLT DIAMETER: _____

ALL THREAD ☐ FIGURE 2 QTY: _____
BOLT DIAMETER: _____

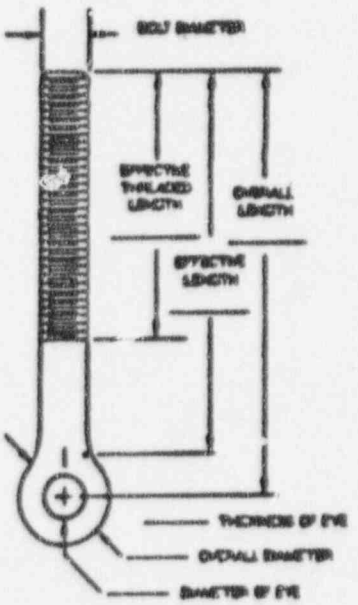


FIGURE 1

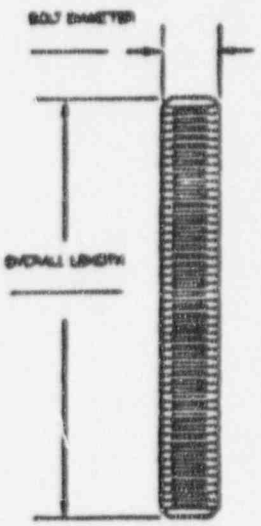
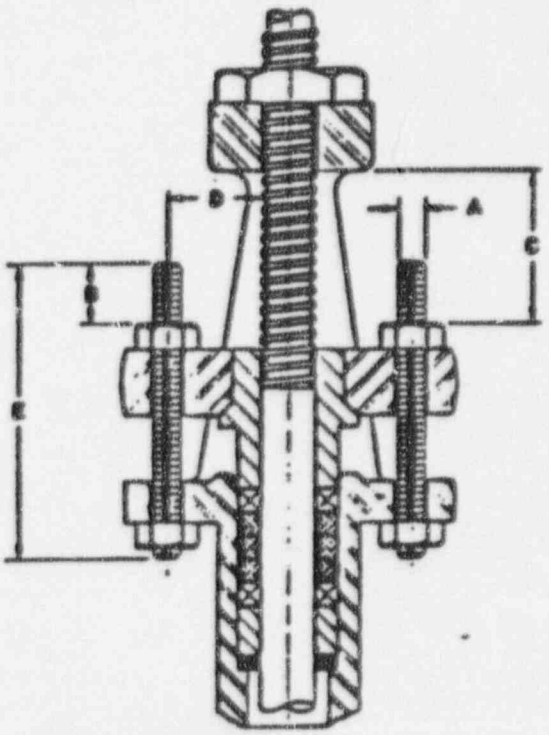


FIGURE 2

BELLEVILLE WASHER DATA



A. STUD DIAMETER: _____

B. AVAILABLE LENGTH: _____

C. AXIAL CLEARANCE: _____

D. RADIAL CLEARANCE: _____

E. OVERALL STUD LENGTH: _____

*ASSEMBLY FREE HT: _____ QTY/STUD _____

ARRANGEMENT: _____ TORQUE _____

*COMP. SPRING ASSEMBLY HT: _____

ITEM NO: _____

*Approximate Value Only

EXTERNAL ENVIRONMENTAL CONDITIONS

TEMPERATURE	UP TO 350 °F
RADIATION	UP TO 1.6×10^8 RADS, BETA + GAMMA
PRESSURE	UP TO 60 PSIG
CHEMICAL SPRAY	4.5 to 10.5 pH, 2000-4000 ppm of H_3BO_3, NaOH, and/or Na_3PO_4

PROCESS CONDITIONS

TEMPERATURE	32 °F to 650 °F
RADIATION	1.8×10^8 RADS BETA, 1.0×10^8 RADS GAMMA
PRESSURE	FULL VACUUM to 3100 PSIG
PROCESS FLUIDS	WATER STEAM BORIC ACID (6%) HYDRAULIC FLUID (TRI-ESTER PHOSPHATE) DIESEL FREON LUBE OIL HYDROGEN CARBON DIOXIDE ANHYDROUS AMMONIA AIR SODIUM HYDROXIDE (40%) AMMONIUM HYDROXIDE SODIUM HYPOCHLORITE HYDRAZINE BRINE NITROGEN SULFURIC ACID (CONCENTRATED AND DILUTE)

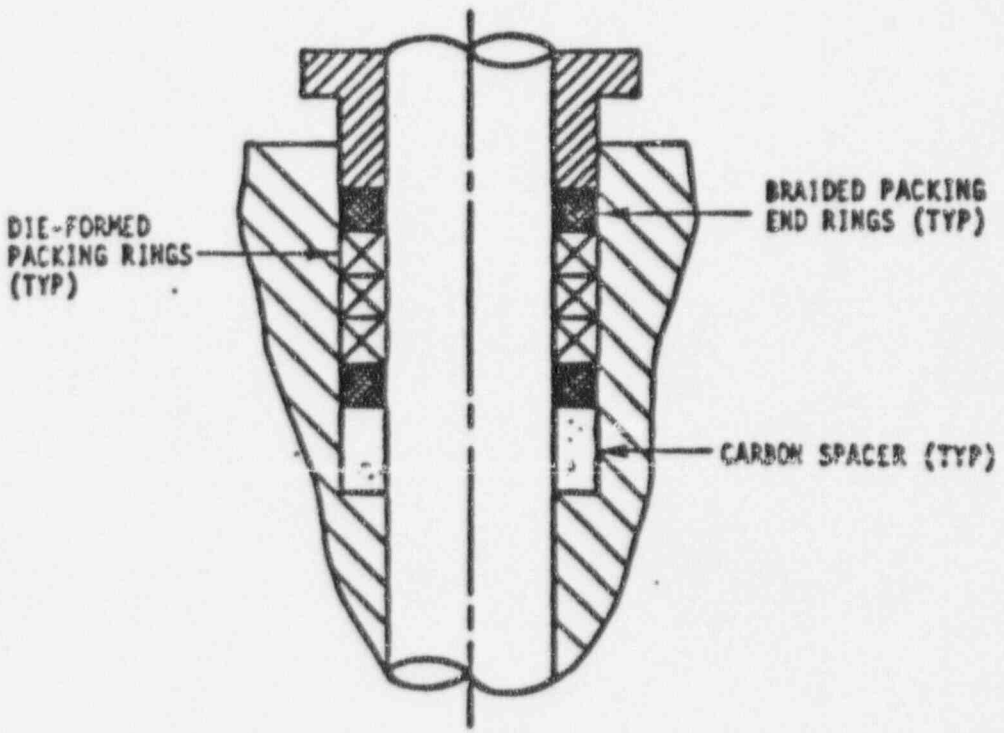
TABLE 1

CHEMICAL AND PHYSICAL PROPERTIES

PROPERTY		BRAIDED RINGS	DIE-FORMED RINGS	TEST METHOD
CARBON	% min.	97	97	ASTM-D-3178-84 PARA.4.2.3.2
ASH	% min.	3	3	ASTM-C-561-85 PARA.4.2.3.2
MOISTURE	% max.	3	3	ASTM-C-562-85 PARA.4.2.3.2
DENSITY	g/cc	1.4 min.		ASTM-C-135-76 PARA.4.2.3.3
DENSITY	g/cc		1.30-1.50	WATER IMMERSION
WATER LEACHABLE CHLORIDES	ppm max.	100	50	ASTM-D-512-81 METHOD D OR ION CHROMATOGRAPHY
WATER LEACHABLE FLUORIDES	ppm max.	100	50	ASTM-D-1179-80 METHOD B OR ION CHROMATOGRAPHY
TOTAL CHLORINE	ppm max.	200	200	ASTM-D-808-81 OR ION CHROMATOGRAPHY
TOTAL FLUORINE	ppm max.	200	200	ASTM-D-3761-84 OR ION CHROMATOGRAPHY
ACTIVE SULPHUR	ppm max.	700	700	ASTM-D-129-78 OR ION CHROMATOGRAPHY
TOTAL HEAVY METALS	ppm max.	200	200	ATOMIC ABSORPTION
INDIVIDUAL HEAVY METAL*	ppm max.	150	150	ATOMIC ABSORPTION

* ANTIMONY, ARSENIC, BISMUTH, CADMIUM, COPPER, GALLIUM, INDIUM, LEAD, MERCURY, SILVER, TIN, & ZINC

TABLE 2



FIVE RING PACKING SET

FIGURE 1

TO: Ed Halpin, TSE Administrator 6/7/93
FROM: Brian Ratté BDR
SUBJECT: **DRAIN VALVES INSTALLED BACKWARDS**

The following SRs are written against the subject valves:

VALVE	SR	VALVE	SR
N1MDLV7925	308901	N2MDLV7925	308915
N1MDLV7926	308902	N2MDLV7926	308916
N1MDLV7927	308903	N2MDLV7927	308917
N1MDLV7928	308904	N2MDLV7928	308918
N1MTFV7962	308905	N2MTFV7962	162593
N1MTFV7977	308906	N2MTFV7977	146934
N1MTFV7979	308907	N2MTFV7979	308919
N1MTFV7981	308908	N2MTFV7981	308920
N1MTFV7984	308909	N2MTFV7984	162594
N1MTFV7985	179321	N2MTFV7985	146933
N1MTFV7986	308910	N2MTFV7986	308921
N1MTFV7987	179322		
N1MTFV7900	308911		
N1MTFV7901	308912		
N1MTFV7902	308913		
N1MTFV7903	308914		

Since several pre-existing SRs are written against Unit 2 valves, care should be exercised to ensure consistent results for all PCF dispositions. Attached are copies of the typical SR and PCF written for SR numbers 308901-308921. Note that I ask for the flow arrow to be removed from the valve (if it does not point in the direction of flow) to preclude future questions.

If there are any questions or comments concerning the above, please call me at X-7636.

STP 3014 (01/92)
REV 0

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

PREVENTIVE MAINTENANCE PACKAGE DOCUMENTATION CHECKLIST 7.1.1

PM NO.: MM-1-IC-96015836 WAN: 93022692 TOTAL PAGES 6

ORIGINAL RECORDS STI-93-011003-167 ATTACHMENTS A-E (2)

- [x] PREVENTIVE MAINTENANCE WORK ORDER (PM)
- [x] PM ADDITIONAL SHEETS
- [ ] LOST TIME RECORD
- [ ] ISLT POST-MAINTENANCE PRESSURE TEST TRAVELER
- [ ] PERMIT TO BREACH FIRE BARRIER
- [ ] SCAFFOLDING PERMIT
- [ ] ISULATION PERMIT
- [ ] SPECIFIC HOT WORK PERMIT
- [ ] PAINTING PERMIT
- [ ] EMERGENCY REQUEST AUTHORIZATION
- [ ] CONTROLLED ACCESS ADMITTANCE LIST
- [ ] CONTROLLED ACCESS PERSONNEL LOG
- [ ] CONTROLLED ACCESS MATERIAL AND TOOL CONTROL
- [ ] CONFIGURATION CHANGE LOG
- [ ] DIVING OPERATIONS APPROVAL FORM
- [ ] CABLE TERMINATIONS DATA SHEET
- [ ] RAYCHEM APPLICATION DATA SHEETS
- [ ] TORQUING WORKSHEET
- [ ] PMP04-SERIES DATA SHEETS FC-0002
- [ ] PMP05--SERIES DATA SHEETS
- [ ] PMP07-SERIES DATA SHEETS
- [ ] PMP08-SERIES DATA SHEETS
- [ ] OTHER

COMMENTS

PRIORITY	IMP.FACTOR IS	PREVENTIVE MAINTENANCE WORK ORDER	PM:MM-1-JC-86013835 WAN:93022692 REV:10.0

SECTION 1: COMPONENT INFORMATION

TAG/TPNS	SERVICE DESCRIPTION	BLDG	ROOM	ELEV
7C101NCP101A	CONTAINMENT POLAR CRANE	RCB	C501	83

OTHER LOCATION INFORMATION: ROOF OF RCB

SECTION 2 : ACTIVITY DESCRIPTION

PM ACTIVITY: LUBE/INSPECT NPRDS: N

FREQUENCY: P1 | RECOMMENDED MODE: 56

EQ RELATED: N | QUALITY RELATED: Y

EOL REPLACEMENT: N RDD: | ASME SEC. XI TRVL. REQUIRED: N

SECTION 3: WORK START APPROVAL

TECHNICAL SPECIFICATIONS SECTIONS(S):

TIME WHEN SYSTEM MUST BE RETURNED TO SERVICE: Prior to Mode 4 (TIME) ____ (DATE)

AUTHORITY: Reactor Operations

SIGNATURE: [signature] DATE: 6-21-93

SECTION 4: POST MAINTENANCE TESTING

TEST REQUIRED: NO TEST REQUIREMENTS INCLUDED IN: OOS OTL# 1-93-0065

PMT COMPLETED: [YES] [NO] (NA) TP# N/A

SECTION 5: WORK COMPLETED CERTIFICATION/ACKNOWLEDGMENT

SR TAG REMOVED [YES] [NO] (NA)

CLEARANCES/PERMITS RELEASED (YES) [NO] [NA]

WORK SUPERVISOR CERTIFICATION: [signature] DATE: 7-7-93

WORK START AUTHORITY ACKNOWLEDGMENT: [signature] DATE: 7-11-93

SECTION 6: PACKAGE REVIEW

PM PLANNER REVIEW: W.R. Crowe DATE: 9-9-93

PLANT ENG DEPT REVIEW: [signature] DATE: 9-7-93

THIS PORM SHALL BE RETAINED FOR THE LIFE OF THE PLANT

SECTION 7 : SPARE PARTS / MATERIAL USED

HL&P PART NUMB	INVENTORY SEQ NUMB	QCE QCP	IN MPL	QTY UOM	HL&P PART NUMBER DESCRIPTION	MAF NUMBER	QTY USED
559-30099	N/A	7S 9	NO	1 CN	OIL, PARAFFIN BASE TYPE, COMPOUNDED WITH ANTIRUST, ANTIOXIDATION	N/A	
501-35456	N/A	7S 7	NO	1 CN	LUBRICANT, GEAR, HEAVY BODIED, DILUENT TYPE, BLACK -QTY 0 CN	N/A	
501-18810	N/A	7S 9	NO	1 CN	OIL, HYDRAULIC, AW, ISO 68, 5 GAL CN/35 LB PAIL	N/A	
559-30011	N/A	7S 9	NO	1 TB	SUPERCEDED BY CLASS-BIN 50143241 01/26/93	N/A	
501-43241	RIR 930072	7S 4	NO	1 TB	GREASE, MULTI-PURPOSE, EXTREME PRESSURE (EP), POLYEREA AND	30275	
[illegible]					Washer Lock 3/8	30277	12 ea.
501-90649	N/A				Gasket Sheet	30277	2 Ft
501-16019	920229015				Bolt, Hex Hd.	30277	12 ea.
501-34998	910527018				Washer, Flat	30277	12 ea.
501-44668					Nut 3/8 in -16	30279	12 ea

SECTION 8: PERMITS/DOCUMENTATION

HOUSEKEEPING ZONE	IV	N/A	RADIATION WORK PERMIT	Y	93-1-21
CLEANLINESS CLASS	N/A	N/A	EQUIPMENT CLEARANCE	Y	1-93-[illegible]-1888 If Req'd for 63143
CONFINED SPACE	N	N/A	ADDITIONAL SECURITY REQ	N	N/A
FIRE HAZARD EVAL	N	N/A	AFFECT CHARCOAL FILTER	N	N/A
HOT WORK PERMIT	N	N/A	SCAFFOLDING REQUIRED	N	N/A
INSULATION REQ.	N	N/A	ASME SECTION XI TRAV.	N	N/A
HAZARD SYS BREACH	N	N/A	CONTAMINATED SYS BREACH	N	N/A

SECTION 9: M&TE USED

DESCRIPTION	ID NO.	CAL DUE
0-1 IN. MICROMETER +/- .001 IN. ACCY.	N/A	N/A
1-2 IN. MICROMETER +/- .001 IN. ACCY.	N/A	N/A
6 In Dial Caliper	10C-02705-015	8-12-93

| PREVENTIVE MAINTENANCE | PM:MM-1-JC-86013835
| WORK ORDER | WAN:93022692 REV:10.0

SECTION 10: PERSONNEL PERFORMING MAINTENANCE

NAME	CRAFT	CREW	SIGNATURE	HOURS	DATE
Sidney Story	M/M	Sun	Sidney Story	10	6-21-93
Mike Cole	M/M	Sun	Mike Cole	10	6-21-93
WAYNE HUSE	M/M	WHITING	Wayne Huse	10	6-21-93
Stan Dondl	M/M	HLPP	Stan Dondl	10	6-21-93
Stan Dondl	M/M	HLPP	Stan Dondl	10	6-22-93
Mike Cole	M/M	Sun	Mike Cole	10	6-22-93
Sidney Story	M/M	Sun	Sidney Story	10	6-22-93
WAYNE HUSE	M/M	Whiting	Wayne Huse	10	6-22-93
Stan Dondl	M/M	HLPP	Stan Dondl	10	6-23-93
WAYNE HUSE	M/M	WHITING	Wayne Huse	10	6-23-93
Mike Cole	M/M	Sun	Mike Cole	10	6-23-93
Sidney Story	M/M	Sun	Sidney Story	10	6-23-93
Stan Dondl	M/M	HLPP	Stan Dondl		6-24-93
Sidney Story	M/M	Sun	Sidney Story	10	6-24-93
Mike Cole	M/M	Sun	Mike Cole	10	6-24-93
WAYNE HUSE	MM	~~WHITING~~ WHITING	Wayne Huse	10	6-24-93
WAYNE HUSE	MM	WHITING	Wayne Huse	10	6-24-93
Stan Dondl	M/M	HLPP	Stan Dondl	10	6-25-93
Story Sidney	M/M	Sun	Sidney Story	10	6-25-93
Mike Cole	M/M	Sun	Mike Cole	10	6-25-93
Jeff Irwin	M/M	Whiting	Jeff Irwin	10	6-25-93
Stan Dondl	M/M	HLPP	Stan Dondl	10	6-28-93
Jeff Irwin	M/M	Whiting	Jeff Irwin	10	6-28-93
Mike Cole	M/M	Sun	Mike Cole	10	6-28-93
Sidney Story	M/M	Sun	Sidney Story	10	6-28-93
WAYNE HUSE	MM	WHITING	Wayne Huse	10	6-28-93
WAYNE HUSE	MM	WHITING	Wayne Huse	10	6-29-93
Jeff Irwin	M/M	Whiting	Jeff Irwin	10	6-29-93
Mike Cole	M/M	Sun	Mike Cole	10	6-29-93

SECTION 11: PREVENTIVE MAINTENANCE WORK INSTRUCTION

PM.ACTIVITY: LUBE/INSPECT

TAG NUMBER	SERVICE DESCRIPTION	QAQC	EQ
7C101NCP101A	CONTAINMENT POLAR CRANE	7S	N

1.0 PREREQUISITES

1.01 GENERAL

1.01.01 OBTAIN THE LUBRICANTS LISTED IN STEP 1.03 OR THEIR EQUIVALENTS IN ACCORDANCE WITH 0PGP03-ZM-0004 (LUBRICATION PROGRAM).

1.01.02 OBTAIN A WORKING COPY OF 0PMP04-JC-0002 (POLAR CRANE INSPECTION).

1.02 SPECIAL TOOLS / EQUIPMENT

		CAL REQ
1.02.01	SUITABLE DRAIN PAN	N
1.02.02	FUNNEL	N
1.02.03	GREASE GUN	N
1.02.04	APPROVED WIPES	N
1.02.05	CLEANING SOLVENT	N
1.02.06	0-1 IN. MICROMETER +/- .001 IN. ACCY.	Y
1.02.07	1-2 IN. MICROMETER +/- .001 IN. ACCY.	Y

1.03 REQUIRED SPARE PARTS

	CLASS-BIN	DESCRIPTION	QTY	UOM
1.03.01	559-30099	OIL, PARAFFIN BASE TYPE, COMPOUNDED WITH	0	CN
1.03.02	501-35456	OIL, GEAR, HEAVY GODIED, 5 GAL PAIL	0	CN
1.03.03	501-18810	OIL, HYDRAULIC, AW GRADE 68, 5 GAL CN/35	0	CN
1.03.04	559-30011	SUPERCEDED BY CLASS-BIN 50143241 01/26/93	0	TB
1.03.05	501-43241	GREASE, MULTI-PURPOSE, EXTREME PRESSURE (	0	TB

1.04 PERMITS AND INDICATORS

1.04.01 MAINTAIN HOUSEKEEPING ZONE IV.

1.04.02 A RADIATION WORK PERMIT IS REQUIRED FOR PERFORMANCE OF THIS ACTIVITY.

1.04.03 AN EQUIPMENT CLEARANCE IS REQUIRED FOR PERFORMANCE OF THIS ACTIVITY.

2.0 PRECAUTIONS

2.01 FOLLOW PRECAUTIONS LISTED IN 0PMP4-JC-0002 (POLAR CRANE INSPECTION).

3.0 WORK INSTRUCTIONS

3.01 LUBRICATE AND INSPECT POLAR CRANE IN ACCORDANCE WITH 0PMP04-JC-0002 (POLAR CRANE INSPECTION).

3.02 CLEAN THE "MAIN" AND "AUXILLARY" HOOKS, (FOR INSPECTION).

SECTION 11: PREVENTIVE MAINTENANCE WORK INSTRUCTION

PM.ACTIVITY: LUBE/INSPECT

4.0 REFERENCES
4.01 IMPLEMENTING REFERENCES
4.01.01 0PMP04-JC-0002 POLAR CRANE INSPECTION

4.02 SOURCE DOCUMENTS
4.02.01 4013-01001-WG WHITING CORP. MANUAL

4.02.02 ESR NO. 87-JZ-003

5.0 DOCUMENTATION - NONE

PREVENTIVE MAINTENANCE WORK ORDER	PM:MM-1-JC-86013835 WAN:93022692 REV:10.0

SECTION 12: AS FOUND CONDITION

Note: ONE DUPLICATE PKG COPY MADE. JLH 6-21-93

Mode 5, Polar parked in North-South position.

N/A

SECTION 13: AS LEFT CONDITIONS

ECO Released Released. Ready for Service.

Note: Duplicate copy was destroyed. SAD 7-2-93

N/A

SECTION 14: SUMMARY OF WORK PERFORMED

Stan Dowdk is work Group Supervisor. Daryl Darrel, Daryl Darrel 6-21-93

Recieved pkg from foreman & Reviewed. obtained tools needed to perform P.M. Obtained worksheet. Coordinated w/HPs on scope of work. Performed steps 5.1 & 5.2 & 8.1 of OP-PM-JC-0002. Performed Step 5.4 thru 5.4.4 for "A" Girder Left, "A" Girder Right, & "B" Girder R Also step 5.4.6 thru 5.4.10 for "A"-L, "A"-R, & "B"-Rt. IAW. Section 5.4.3 "A"-L had slight burr on pinion and 1st intermediate gear. Per vendor its nothing to be concerned with. IAW Section 5.4.4 oil was SAT for "A"-R, "A"-L, & "B"-Rt. Gearcases. Cover gaskets were all SAT. Gearcase Breathers were SAT. Step 5.4.11 was SAT. Step 5.4.13 was SAT. 5.4.14 & 5.4.15 was SAT. Removed coupling guards on Bridge Drives and micro drive couplings. SEE Cont

SECTION 15: COG SYSTEM ENGINEER CONTACTED: (YES) [NO] [NA]

PARTS NEEDED FOR ROOT CAUSE: [YES] [NO] (NA)
PARTS TO BE REBUILT: [YES] [NO] (NA) SR NO: N/A
PARTS DISCARDED: [YES] [NO] (NA) MAF NO: N/A

AREA CLEAN: (YES) [NO] [NA] | INSULATION REMOVED: [YES] [NO] (NA)
TOOLS REMOVED: (YES) [NO] [NA] | INSULATION REINSTALLED: [YES] [NO] (NA)
HARDWARE RESTORED: (YES) [NO] [NA] | SCAFFOLDING REMOVED: (YES) [NO] [NA]

WORK COMPLETED: [signature] 7-2-93 1300 HRS
CRAFTSMAN DATE TIME

ADDITIONAL SHEETS ATTACHED & NUMBERED NO (YES) # SHEETS: 12

CONTINUATION SHEET TYPE OF DOCUMENT PM	DOCUMENT NO. [illegible] WAN NO. 9322652	Page [illegible] of [illegible]

Found on "A"-set that motor coupling had been rubbing coupling guard for some time. holes need to be slotted for guard to be corrected. zero speed switch coupling also rubbing cover. also needs to be removed. Brake missing one bolt on cover. On "A"-RL micro Drive clutch rubbing cover. Additional holes need to be drilled for cover to Fit Right. On "B"-R coupling half at Brake wheel has part of O-Ring sticking & came out. Needs to be evaluated. Stan Dowdle 6-27-93

Performed steps 5.4.1 thru 5.4.4.4 & 5.4.6 thru 5.4.15 on "B" Girder Left. Section 5.4.5 was NA. Oil was SAT. Section 5.4.26 was NA'd per vendor. Brakes didn't need Adjustment. Micro-Drive Drive Coupling will also need to be modified because cover was rubbing. According to M. Pruitt (planning) work to correct coupling guards can be worked under SR# STC-152316 with instructions from vendor. Lowered Covers to Floor and Assured each was labeled. Waiting for HP support to clear out covers to be corrected. Vendor ck'd Hoist drum groove as requested in step 5.4.28. No straight edge or calipers were available. Vendor checked Drum Groove out and Found SAT by checking Depth of cable on drum. Visual Performed steps 5.5.1 thru 5.5.3 & 5.5.6 thru 5.5.8. Step 5.5.9 could not be performed because this was a sealed bearing. Performed 5.5.10 & 5.5.12. Was notified by HP that covers were clean & could be brought to maint. shop for modification/correction. Charged blue run out of time. Stan Dowdle [illegible] 6-27-93

Note: Main Hoist & Aux Hoist Gasket For inspection covers were replaced.

5.4.6 & 5.5.2, & 5.5.9 SD

Performed steps 5.5.4 & 5.5.5. Obtained guards from R. Taylor who corrected All associated guards which were mentioned. & installed each in their proper place. Released E.C.O. and

CONTINUATION SHEET
TYPE OF DOCUMENT PM | DOCUMENT NO. PM 1-[illegible] WAN NO. 9372692 | Page NA of __

lowered hook. Ck'd out hoist, bearings, ect. Heard squeaking noise possibly from micro-drive clutch support bearing will investigate.
~~[illegible]~~ SD 6-23-93 Raised hook. Ran out of time. Stan Dvidle
6-23-93 [signature]

Was contacted by MSSD that sealant was installed to lubricate bridge wheels. Lubricated each as per vendor's instruction IAW Steps 5.4.18 Inspected wheels as per steps 5.4.19 thru 5.4.19.2 (SD 6-24-93) and was SAT per vendor. Step 5.4.19.1 cannot be performed due to lack of proper press tools. Step 5.4.20 was N/A'd because they wouldn't accept grease. Steps 5.4.21 thru 5.4.23 was SAT. 5.4.24 needs to be looked at by Ray Asbury. Some signs appear to be missing. Performed 5.6.19 & found SAT. 5.6.20 could not be done because hook has to be cleaned & QC ran out of time. Raised both hooks. Cleared area. Stan Dvidle 6-24-93
[signature]

Performed steps 5.4.25 thru (SD 6-25-93) approx 30 fasteners were appearing to be loosened. See attached drawing for number of fasteners. As per 5.4.26 vacuumed approx. 2/3 of track. Will finish Monday. Step 5.4.27 was SAT, as per vendor. Step 5.4.29 was SAT. Steps 5.6.1 thru 5.6.3 was performed 5.6.4 was N/A because rope was SAT. 5.6.5 thru 5.6.9 was SAT. 5.6.10 was N/A per R. Asbury. 5.6.11, 5.6.12, 5.6.13, ~~X~~ (SD 6-25-93) 5.6.14 was performed & 5.6.15 was SAT. 5.6.16 & 5.6.17 was SAT per visual per R. Asbury. 5.6.18 was not required. 5.6.20 was performed & found SAT. NDE Report is attached. 5.6.21 was N/A. Not required 5.6.22 was N/A for Aux. Hook, No lube points 5.6.23 was SAT. 5.6.24 was SAT for Aux. Hook. Main Hook upper sheaves was inaccessible. 5.6.26 was N/A per Ray Asbury. 5.6.27 was N/A. 5.6.28 Gear limits only. 5.6.29 was SAT. Step 5.4.22 was

CONTINUATION SHEET TYPE OF DOCUMENT PM	DOCUMENT NO. PM-MM-1-8601 3835 WAN NO. 93022692	Page __ of __

performed for main Hook. Lubricated open drum gears. Cleaned area. Stan Dowdle [signature] 6-25-93

Finished vacuuming last 1/3 of track. Removed vacuum from Polar Crane. Rechecked polar Crane rail bolts. Attached is a copy of the list of rail bolts to be suspected of being loose. While checking Rail bolts whiting [illegible] Jeff I noticed the bridge drive couplings were jumping/[illegible] when the polar crane was started up. The gearbox fasteners on some were suspected to be loose also. This unusual incident has been addressed on SR# 157921 that was initiated after the discovery. An SR was also wrote on the Rail Bolts to Inspect/Repair/Replace Bolts This # is 157969. Wiped down trolley tracks & also did shims in supports to see if there were problems & there were none. Results are attached in pkg on Attachment #3. Removed hoist from Polar Crane

Stan Dowdle [signature] 6-28-93

Wayne Went on Polar with R. Asbury to Perform insp of Gearbox problem. Ray wants m/m to write PCR on Gearbox Problem. Wayne got with Electrical and picked SR's up Pkgs. for Review.

Recived PKG FROM STAN DOWDLE. NOTIFIED ELECTRICAL MAINT OF NEED TO PERFORM STEPS 5.7.1 THRU 5.7.17 AND 5.8.1 THRU 5.8.8 AS REQUIRED IN PREREQUISITES SECTION STEP 3.6 IN OPMP04-JC-0002. WORKED JOINTLY WITH JERRY BIEGLE EM TO witness PERFORM OPERATIONAL TESTING REQUIRED IN OPMP04-JC-0002 AS WELL AS EM-1-JC-86013987. DUE TO QUESTIONS ARISING FROM ELECT. PM'S THIS TASK WILL HAVE TO BE COMPLETED TOMORROW.

WAYNE HUSE [signature] 7-1-93

CONTINUATION SHEET TYPE OF DOCUMENT PM	DOCUMENT NO. PM-MM-1-JC-B601355 WAN NO. 9302.3493	Page ___ of ___

COMPLETED SECTIONS 5.7 AND 5.8 OF OPMP04-JC-0002 IN wa 7-2-93
CONJUNCTION WITH ELECT DEPT AND EM-1-JC-B601 3487. ALL SAT. WAYNE HUBB
RAY ASBURY WILL WITNESS OPERATIONAL TEST FROM 68' ELE. wa 7-2-93

ELECTRICAL DEPT. REPLACED 2 TIMER RELAYS ON the POLAR CRANE
ON 7-2-93. CRANE WAS PUT THROUGH RUN TEST AND WAS SAT.
7-2-93

DMR/TS 98-1-SC-8601 3235 ZN 7945
WAN 91022692

PERMIT/DOCUMENT RECORD

REFERENCE: OPWP02-ZQ-0006, OPOP02-ZV-0029

PAGE ___ OF ___

PERSONNEL PERFORMING MAINTENANCE

NAME (PRINT)	SIGNATURE	HRS WKD	DATE
Sidney Story	[signature]	10	6-29-93
Stan Dowdle	[signature]	10	6-29-93
WAYNE HUSE	[signature]	3	7-1-93
JEFF IRWIN	[signature]	3	7-1-93
MIKE COLE	[signature]	3	7-1-93
SIDNEY STORY	[signature]	3	7-1-93
Sidney Story	[signature]	2	7-2-93
Mike Cole	[signature]	2	7-2-93
WAYNE HUSE	[signature]	2	7-2-93
JEFF IRWIN	[signature]	2	7-2-93
Stan Dowdle	[signature]	1	7-6-93

N/A

COMPLETED RECORDS FOR QUALITY RELATED ITEMS WILL BE RETAINED FOR FIVE YEARS.
COMPLETED RECORDS FOR NON-QUALITY RELATED ITEMS WILL BE RETAINED FOR ONE YEAR.

DATA SHEET
OPMP04-JC-0002-1
(Page 1 of 2)

5.1 SR/(EM) No. EM-1-JC-86013835 5.2 Unit No. 1

3.1

WORK SUPERVISOR SHALL MARK SECTIONS TO BE PERFORMED OR ENTER N/A			
✓	5.4 Bridge Lubrication and Inspection	✓	5.7 Operational Inspection
✓	5.5 Trolley Lubrication and Inspection	✓	5.8 Operation of Bridge
✓	5.6 Hoist Lubrication and Inspection		

3.2

MEASURING AND TEST EQUIPMENT		
DESCRIPTION	STPEGS I.D. NUMBER	CALIBRATION DUE DATE
DIAL CALIPER	100-02705-015	8-12-93
N/A	N/A	N/A

5.4.4 Checked oil in gearcase: ✓ SAT. ______ UNSAT.

5.4.5 Changed oil in gearcase: Chgd. 1RE03 4 yr. changeout ____ Oil was UNSAT ✓ N/A

5.4.28 Hoist drum groove wear percentage - SAT 6-25-93 Method: Visual

5.6.1 Notified cranes and hoists system engineer or designee. [signature] 6-25-93
Mech. Sign Date

5.6.2 Measurements of main hoist wire rope O.D.

1.270 in. 1.272 in. 1.272 in.

5.6.3 Measurements of auxiliary hoist wire rope O.D.

.500 in. .502 in. .502 in.

ENP 5.6.11 Lubrication inspection of wire ropes: [✓] SAT [ ] UNSAT

[signature] 6-25-93
System Engineer or Designee Sign Date

ENP 5.6.12 Cranes and hoists system engineer or designee determined wire ropes are to be replaced. [ ] YES [✓] NO

[signature] 6-25-93
System Engineer or Designee Sign Date

This FORM, when completed, shall be retained for the life of the plant.

A6 of 12

DATA SHEET
OPMP04-JC-0002-1
(Page 2 of 2)

5.1 SR/WR No. AA-1-JC-86013835 5.2 Unit No. 1

5.6.13 Throat gage measurement on auxiliary hook. 6 1/2 in.

5.6.14 Throat gage measurement on main hook. 23 1/2 in. 23 1/2 in.

5.6.16 Measured twist of auxiliary hook. N/A deg.

5.6.17 Measured twist of main hook. N/A deg. ______ deg.

VISUAL OK PER R. ASBURY 6-25-93 1513 HRS

ENP 5.6.26 Cranes and hoists system engineer or designee determined auxiliary and main hoist requires lubrication. [ ] YES [✓] NO

[signature] 6-25-93
System Engineer or Designee Sign DATE

5.9 Crane operates satisfactory: ✓ Yes ______ No

Comments: N/A

PERFORMED BY: [signature] Stan Donek 7-7-93
MECHANIC DATE

REVIEWED BY: [signature] 7-7-93
WORK SUPERVISOR DATE

47 of 56

GP 690 (02/90) SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION 045 06

MAGNETIC PARTICLE EXAMINATION REPORT

WORK DOC NO	COMPONENT DESCRIPTION	TPNS/COMPONENT ID NO	DATE OF INSPECTION / REPORT NO
PM: MM 1 2C AL01 3835	15 TON AUX. HOOK 500 TON POLAR CRANE HOOK	7C101NCP101A	6-24 / 6-25 / 93 REPORT NO NDE 93-1235

LOCATION UNIT NO 1 BLDG NO RCB
ROOM NO 201 ELEVATION 68'
OTHER INFORMATION N/A

ADDITIONAL INFORMATION N/A

DWG NO ☑ N/A

MATERIAL C/S

IS EXAMINATION AREA PAINTED ☐ YES ☑ NO

PAINT THICKNESS ☑ N/A

DRY FILM GAGE ID N/A DUE DATE

MT PROCEDURE NO NDEP 7.0 /2\

ACCEPTANCE STD ☐ NA
APPENDIX NO 6
☐ OTHER

CURRENT TYPE	MAGNETIZING METHOD	EQUIPMENT USED	EXAMINATION MEDIUM
☑ AC ☐ HWDC	☑ CONTINUOUS ☐ RESIDUAL	MFG MAGNAFLUX MOD Y-6 SER NO 02 CAL BLOCK ID MT-005	☐ BLACK POWDER NO 3A ☐ RED POWDER NO 8A ☑ GRAY POWDER NO 1 ☐ MAGNAGLO NO 14AM (WET)
☐ COIL AMP TURNS ☑ NA	☐ PRODS AMPERAGE ☑ NA SPACING ☑ NA	☑ YOKE LIFT VERIFICATION ☑ BEFORE AND AFTER INSPECTION ☑ 10 LBS ☐ 40 LBS	LIGHT LEVEL VERIFICATION (SAT) ☑ ILLUMINATION ☐ ULTRAVIOLET SURF TEMP ☐ < 135 °F (WET) ☑ < 600 °F (DRY)

WELD NO, PART NO, OR SERIAL NO	ACC	REJ	REMARKS	SKETCH OR DRAWING
15 TON CRANE HOOK	✓			N/A
500 TON CRANE HOOK	✓			

COMMENTS

100% OF ACCESSABLE SURFACES MT'D ON BOTH HOOKS

INSPECTOR	CERT LEVEL	DATE	SUPV/LEVEL III REVIEW	DATE
Ronald S Busby NH0032	II	6-25-93	[signature]	6/25/93
INSPECTOR	CERT LEVEL	DATE		

CONTINUATION SHEET TYPE OF DOCUMENT PM	DOCUMENT NO. MM-1-JC-BCM 3R35 WAN NO. 9302 2492	Page ___ of ___

STEP 5.4.4 A (WA 4.15.19 AND 5.4.5) VISUAL INSPECTION OF OIL PROVED OK PER WHITING VENDOR WITH CONCURRENCE OF RAY ASBURY

STEP 5.5.3 REFERENCES BACK TO STEP 5.4.B, AUX HOIST GEARBOX INPUT OIL SEALS LEAKING SR# JZ-102557 ADDRESSES THIS ISSUE AND A FIX IS BEING INVESTIGATED.

STEP 5.4.2B, VISUAL INSPECTION OF DRUM PROVED OK PER WHITING VENDOR WITH CONCURRENCE OF RAY ASBURY

STEP 5.4.20 BRIDGE AND TROLLEY END TRUCK CONNECTING PINS WOULD NOT ACCEPT LUBE, THESE PINS ARE HEAVILY LUBED AT INSTALLATION AND SHOULD NOT NEED LUBE FOR THE LIFE OF CRANE THIS STEP NOT NEEDED IN PROCEDURE PER WHITING VENDOR REP.

STEP 5.6.16 & 5.6.17 HOOK TWIST WAS CHECKED VISUALLY AND SAT PER WHITING VENDOR REP. WITH CONCURRENCE OF RAY ASBURY.

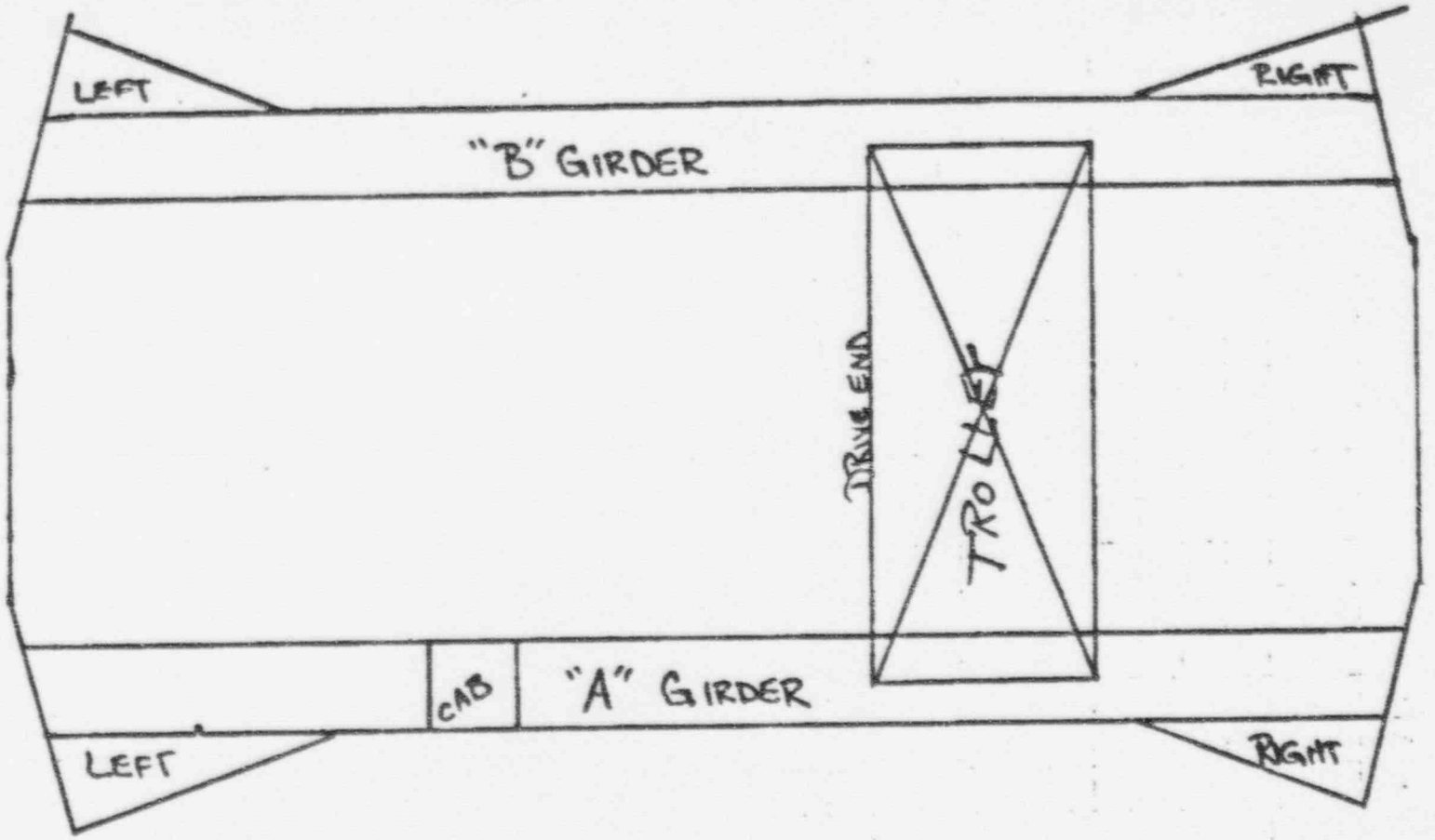
STEP 5.6.22 NO LUBE POINTS ON AUX HOIST BLOCK SHEAVES

WAYNE HUSE WHITING VENDOR REP [signature] 6-25-93

N/A

Comment Sheet

49 of 52

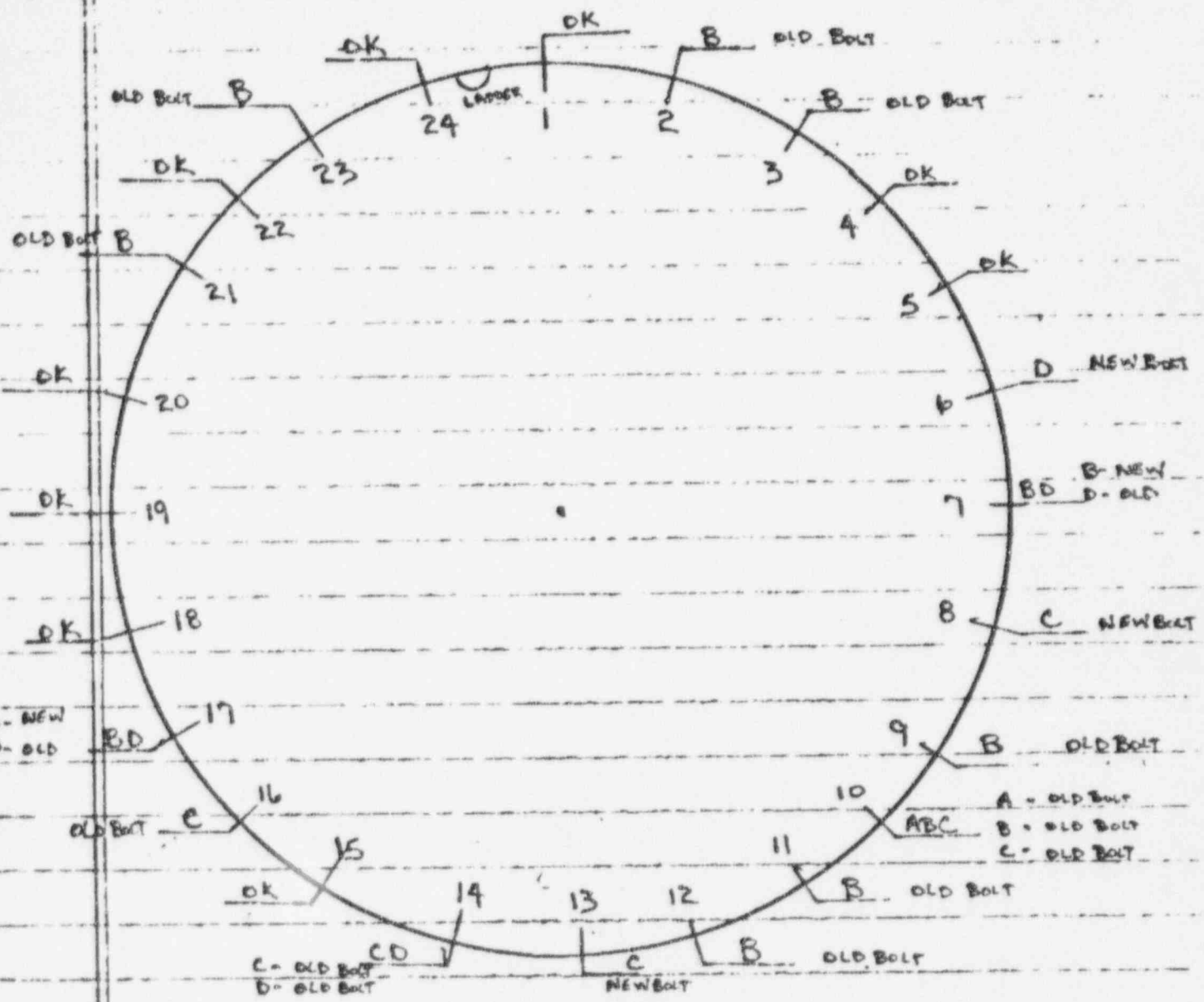


THIS IS A REFRENCE SKETCH FOR BRIDGE DR LOCATIONS

NOT TO SCALE

SKETCH 1

MM-1-WC-9601E836



A AND B BOLTS ARE IN THE ROUND HOLES

C AND D BOLTS ARE IN THE SLOTTED HOLES

LOOSE SHIMS NOTED ON INSIDE OF RADIUS LEFT OR RIGHT FACING THE WALL.

(NONE FOUND TO BE LOOSE)

Attachment 2 All of 12

Jeff Irwin
Whiting Services

mm-1-SC-96012816

Unit # 1 Polar Crane Girder Bolting

Azimuth	A	B	C	D	Left Shim	Right Shim
1	Old	New	Old	Old	ok	ok
2	Old	? Old	New	New	ok	ok
3	Old	? Old	New	New	ok	ok
4	New	New	New	New	ok	ok
5	Old	Old	Old	Old	ok	ok
6	Old	Old	New	? New	ok	ok
7	New	? New	Old	? Old	ok	ok
8	Old	Old	? New	Old	ok	ok
9	Old	? Old	Old	Old	ok	ok
10	? Old	? Old	? Old	Old	ok	ok
11	Old	? Old	Old	Old	ok	ok
12	Old	? Old	Old	Old	ok	ok
13	Old	Old	? New	Old	ok	ok
14	New	New	? Old	? Old	ok	ok
15	Old	Old	Old	Old	ok	ok
16	Old	Old	? Old	Old	ok	ok
17	New	? New	Old	? Old	ok	ok
18	Old	Old	Old	Old	ok	ok
19	Old	Old	Old	Old	ok	ok
20	Old	Old	Old	Old	ok None	ok None
21	Old	? Old	Old	Old	ok	ok
22	Old	Old	Old	Old	ok	ok
23	New	? Old	Old	Old	ok	ok
24	Old	Old	Old	Old	ok	ok

A - Round Hole
B - Round Hole
C - Slotted Hole
D - Slotted Hole

All locations determined by facing wall.

Attachment 3

*** SCAFFOLDING PERMIT *** **ORIGINAL** REFERENCE WORK CONTROL DOCUMENT: BM:MM-1-JC-86013835

7.22

WAN: 93022692 PERMIT: 001

UNIT: 1 BLDG: RCB ROOM: C501 ELEVATION: 141 SYS/TRAIN: JC

TAG/IDNS: 7C10INCP101A DRAWING NUMBER: NA LINE NUMBER: NA

*** DETAILED DESCRIPTION OF SCAFFOLD REQUIREMENTS ***

ELEVATION OF WORK PLATFORM: 135' LOCATION DRAWING NUMBER: 9N5007

UNIT 1

ACCESS REQUIREMENTS/SPECIAL CONSIDERATIONS:
CONSTRUCT SCAFFOLD TO ALLOW INSPECTION AND LUBRICATION OF TRUCK BEARINGS ON THE POLAR CRANE. SCAFFOLD TO BE CONSTRUCTED BETWEEN GIRDERS FROM 350 AZ TO 5 AZ IN THE RCB. CONTACT JOHN HENRICHSEN AT 7711 FOR FURTHER INFO.

REQUEST INITIATOR: EMPLANNER / 6346 / 06/21/93
PRINT EXT. DATE

*** SCAFFOLD PLANNING ***

IS AN RWP REQ'D: [ ] NO [X] YES RWP NO: 555 CLEAN 21 CONT

IS A CONFINED SPACE ENTRY REQ'D: [X] NO [ ] YES

IS AREA SEISMIC II/I: [ ] NO [X] YES

IS SCAFFOLD STANDARD: [X] NO [ ] YES

IS AN ECO REQ'D: [ ] NO [X] YES ECO NO: 1-93-1930 1944

IS AREA CRITICAL: [X] NO [ ] YES

CONCRETE EXPANSION ANCHORS REQ'D: [X] NO [ ] YES

DED APPROVAL: T. Robeson / 6/21/93
RESPONSIBLE ENGINEER DATE

PERMIT REVIEW: Paul Scott / 6/21/93
PLANNER DATE

*** INSTALLATION RELEASE ***

NOTE: IF SCAFFOLD IS TO BE INSTALLED IN A SEISMIC OR CRITICAL AREA. SHIFT SUPERVISORS SIGNATURE IS REQUIRED

PERMIT START: [signature] / 6/23/93
USA DATE

PROPERLY BUILT AND TAGGED: [signature] / 6-24-93
WORK SUPERVISOR DATE

PERSONNEL PERFORMING SCAFFOLD INSTALLATION:

NAME	HOURS	NAME	HOURS	NAME	HOURS
[signature]	1	N/A		N/A	
[signature]	3	[signature]	3	[signature]	3

COMMENTS:

N/A

*** REMOVAL RELEASE ***

REMOVE AS PER REQUEST OF JOHN HENRICHSEN

MAINTENANCE WORK IS COMPLETE. POST MAINTENANCE TESTING IS COMPLETE AND SCAFFOLD IS RELEASED FOR REMOVAL

[signature] / 6/24/93
PLANNER DATE
[signature] 6/24/93

PERSONNEL PERFORMING SCAFFOLD REMOVAL:

NAME	HOURS	NAME	HOURS	NAME	HOURS
M L Johnson	2 1/2	C. Booth	2 1/2	H. [signature]	2 1/2
T. W. Brune	2 1/2	R. SEGURA	2 1/2	[signature]	2 1/2

VERIFICATION THAT SCAFFOLD IS REMOVED. TOOLS/MATERIALS ARE REMOVED. AREA IS CLEAN AND ALL CLEARANCES ARE RELEASED:

M L Johnson / 6-25-93
WORK SUPERVISOR DATE

*** PERMIT CLOSURE ***

Robert W. Pratt / 6/28/93
PLANNER DATE

TOTAL MEN: 16 TOTAL HOURS: 94

RETAIN WITH THE ORIGINAL REFERENCED DOCUMENT

SE: PM: MM-1-SC-860158

ADDENDUM 1
FIRE WATCH LOG
(TYPICAL)
(Page 1 of 2)

CMSA 93-41

1. Impairment, Breach, or other Initiating Condition 0 - ____ - ____
Stg of wood in RCB-1 + MAB

Unit: 1 Bldg.: RCB Elev.: 68' From Room: N1A To Room: N1H

2. Is the watch due to OPGP03-ZF-0018 requirements? [ ] Yes [/] No

3. [/] Continuous [ ] Hourly

4. Fire Watch Assigned By: JF Boothroyd 06/22/93 17:46
Date Time

5. Special Instructions for Fire Watch Personnel: Start continious fire watch when wood is taken in to the Plant. Stop fire watch when wood is removed from the Plant. Have an extra fire extinguisher with the fire watch
(ALSO SEE "BASIC INSTRUCTIONS FOR FIRE WATCHES")
IN CASE OF EMERGENCY CALL: Extension 2111 [/] Extension 2222 [ ]

6. Fire Watch Personnel: SIGN OR INITIAL times in AND out for continuous fire watches OR SIGN OR INITIAL at least hourly for hourly fire watches skipping no lines on this log.

Fire Watch	Date	Time	Comments		Fire Watch	Date	Time	Comments
M.D.	6-23-93	1430	IN		F 2	6/24/93	0559	IN
M.D.	6-23-93	1533	OUT		F 3	6/24/93	0559	OUT
D.Y	6-23-93	1532	IN		CJNC	6/24/93	0524	IN
D.Y	6-23-93	1226	OUT		CJNC	6/24/93	0646	OUT
M.D.	6-23-93	1727	IN		F2.	6-24-93	0646	IN
M.D.	6-23-93	1927	OUT		F2.	6-24-93	0647	OUT
D.Y	6-23-93	1926	IN		CJNC	6/24/93	0720	IN
M.D.Y	6-23-93	2150	OUT		CJNC	6/24/93	0810	OUT
M.D.	6-23-93	2149	IN		F2	6/24/93	0811	IN
M.D.	6-23-93	2253	OUT		F2	6/24/93	0833	OUT
CJNC	6/23/93	10:52	22:52 IN		CJNC	6/24/93	0852	IN
CJNC	6/24/93	1:07	OUT		F2	6/24/93	0853	OUT F2 CJNC
F2	6/24/93	1:00 pm	IN		CJNC	6/24/93	10:01	IN OUT CJNC
F2	6/24/93	02:35	OUT		F2	6/24/93	10:02	OUT IN CJNC
CJNC	6/24/93	03:34	IN		F2	6/24/93	1104	IN OUT CJNC
CJNC	6/24/93	04:00	OUT		CJNC	6/24/93	1103	OUT IN CJNC

7. Permission to discontinue the fire watch SHALL be documented by the Fire Protection Coordinator (or designee) or Shift Supervisor (as applicable) on the Fire Protection Impairment Form or Permit to Breach Fire Barrier. The Fire Protection Coordinat (or designee) OR Shift Supervisor SHALL sign the last page of this log.

CJNC 6/24/93

ADDENDUM 1
FIRE WATCH LOG
(TYPICAL)
(Page 2 of 2)

1. Impairment, Breach, or other Initiating Condition 0 - ____ - ____

Unit: 1 Bldg.: RCB Elev.: 68' From Room: N/A To Room: N/A

3. [✓] Continuous [ ] Hourly

5. Special Instructions for Fire Watch Personnel: ____

(ALSO SEE "BASIC INSTRUCTIONS FOR FIRE WATCHES")

IN CASE OF EMERGENCY CALL: Extension 2111 [✓] Extension 2222 [ ]

6. Fire Watch Personnel : SIGN OR INITIAL times in AND out for continuous fire watches OR SIGN OR INITIAL at least hourly for hourly fire watches leaving no blank lines on this log.

Fire Watch	Date	Time	Comments	Fire Watch	Date	Time	Comments
CWC	6/24/93	12:00	OUT				
FZ	6.24.93	11:59	IN				
FZ	6.24.93	1313	OUT				
CWC	6/24/93	13:12	IN				
CWC	6/24/93	14:04	OUT				
FZ	6.24.93	1408	IN				
FZ	6.24.93	1441	OUT				
AG	6.24.93	1440	IN				
AG	6-24-93	1509	Out				
CRB	6-24-93	1508	IN				

Fire Watch Discontinued 6-24-93

Sheet 2 of 2

ADDENDUM 2
EXAMPLE INSTRUCTION PAGE
(Page 1 of 1)

BASIC INSTRUCTIONS FOR FIRE WATCHES

1. Read the entries in sections 1, 3, and 5 to help you understand the reason for this fire watch.

2. Pay particular attention to whether this is a continuous fire watch or an hourly fire watch, section 3 on the log.

3. If you are performing a continuous fire watch:

   a. Initial or sign in section 6 when you enter the area for your watch. Enter the date and time you begin your watch. Remain in the area until you are relieved.

   b. Initial or sign in section 6 when you end your watch. Enter the date and time you end your watch. Ensure that the person relieving you signs in per part a. above, or that the fire watch is being discontinued by the Fire Protection Coordinator or Shift Supervisor, prior to leaving the area.

4. If you are performing an hourly roving fire watch, pass through the area(s) covered by the fire watch and initial or sign the log at least once in every 60 minutes. Indicate the date and time in the space provided.

   a. Contact the Shift Supervisor or the Fire Protection Coordinator immediately if a watch or an hourly round is missed or is more than 15 minutes late for any reason to ensure that the problem is documented and corrective action is taken if necessary.

   b. Indicate on the log the reason why you were late, or use the Missed Fire watch Report.

   c. Hourly Fire watch shall switch rounds hourly to prevent boredom, when ever possible. (NRC Enforcement Action 88-216).

ADDENDUM 3
MISSED FIRE WATCH REPORT
(TYPICAL)
(Page 1 of 1)

MISSED FIRE WATCH REPORT

INFORMATION

FIRE WATCH STATION: ___-___-___

DATE _________ TIME ___:___ MINUTES LATE _____

OTHER DETAILS

NAME_____ BADGE #_____ DATE _________

SUPERVISOR_____ DATE_________

NAME OF FPC OR SS CONTACTED _____ DATE_________

FIRE PROTECTION TRACKING

REASON CODE _____

REMARKS _____

FPC _____ DATE _________

NOTE: Use this form when the fire watch round is missed (late by more than 15 minutes). Indicate "see attached" on all log sheets when using this form and attach this form to each log. Please be brief.

	PERSONNEL PERFORMING WORK (CONTINUATION SHEET)	SR # PM-MM-1-JC 86012835/c WAN #

PRC. chb 6-23-93

NAME (PRINT)	CRAFT	SIGNATURE	HRS WKD	DATE
STEPHEN E. TATE	03	[signature]	11 1/2	6-23-93
R. Flores	03	R. Flores	11 1/2	6-23-93
D Perreault	03	[signature]	11 1/2	6-23-93
M.T. Elliott	03	M. T. Elliott	11 1/2	6-23-93
Don Watkins	04	Don Watkins	11 1/2	6-23-93
Dan Speaker	03	DAN SPEAKER	11 1/2	6/24/93

STP 3128A (02/92) REV 1

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

OPGP03-ZM-0028

SCAFFOLDING CHECKLIST

SR NO: PA-MA-1-JC-9601385 6-24-93

PERMIT NO: #001

DATE: 6-24-93

SEISMIC: YES X NO ___

STANDARD: YES ___ NO X N/A ___

INSPECTION: INITIAL: X SEMIANNUAL ___

ATTRIBUTE	ACCEPT	REJECT	N/A
1. ARE THE SCAFFOLD LADDERS VERTICALLY INSTALLED IN AN APPROPRIATE LOCATION, FOR SAFE ACCESS AND EXITING OF SCAFFOLD?	✓		
2. IS THE BOTTOM OF THE SCAFFOLD LADDER LESS THAN 12" OFF THE FLOOR?			✓
3. ARE THE SCAFFOLD LADDERS INSTALLED WITH A PROPER MANUFACTURER'S BRACKET?			✓
4. DO ALL SCAFFOLD LADDERS AND/OR EXTENSION LADDERS EXTEND A MINIMUM OF 36" ABOVE SCAFFOLD PLATFORM?	✓		
5. ARE SCAFFOLD LADDERS AND PLATFORM ACCESS POINTS FREE OF INTERFERENCES (EXCLUDING PERMANENT PLANT FEATURES WHICH CANNOT BE WORKED AROUND)?	✓		
6. ARE ANY EXTENSION LADDERS BEING USED FOR SCAFFOLD ACCESS PROPERLY SECURED AT TOP AND BOTTOM?			✓
7. ARE SCAFFOLD PLATFORMS PROVIDED FOR SCAFFOLD LADDERS AT 30 FOOT INTERVALS?			✓
8. ARE HANDRAILS INSTALLED ON ALL SCAFFOLDS HAVING WORKING PLATFORMS MORE THAN ONE BUCK HIGH?	✓		
9. ARE HANDRAILS INSTALLED ON ALL SCAFFOLDS WITH PLATFORMS LESS THAN 45" IN WIDTH AND WORKING PLATFORMS MORE THAN 4 FEET HIGH?	✓		
10. ARE HANDRAILS CONSTRUCTED OF 2"X4" LUMBER, 2" NOMINAL O.D. TUBING OR OF MATERIAL SUPPLIED BY THE MANUFACTURER?	✓		
11. IF INTERFERENCES EXIST SUCH THAT HANDRAILS CANNOT BE INSTALLED ON ALL OPEN SIDES OF A SCAFFOLD, IS A "SAFETY BELT REQUIRED" STICKER ATTACHED TO THE SCAFFOLD TAG?			✓
12. ARE THE GUARDRAILS (TOP HANDRAIL) INSTALLED NO LESS THAN 36" AND NO MORE THAN 42" ABOVE SCAFFOLD PLATFORM?	✓		
13. IS THE MIDRAIL (BOTTOM HANDRAIL) INSTALLED EVENLY BETWEEN THE TOEBOARD AND GUARDRAIL?			✓

SCAFFOLDING CHECKLIST

ATTRIBUTE	ACCEPT	REJECT	N/A
14. ARE HANDRAIL POSTS SPACED NO MORE THAN 8 FEET APART?			✓
15. FOR SCAFFOLD PLATFORMS GREATER THAN 1 BUCK HIGH, ARE TOEBOARDS INSTALLED?	✓		
16. ARE TOE BOARDS A MINIMUM OF 4" IN HEIGHT AND INSTALLED ON ALL FOUR SIDES OF SCAFFOLD PLATFORM?	✓		
17. ARE ALL TOE BOARDS SECURELY TIED OFF TO SCAFFOLD PLATFORMS? NOTE: NUMBER NINE WIRE MAY BE USED FOR SECURING TOEBOARDS.	✓		
18. IS WIRE MESH OR EQUIVALENT INSTALLED ON SCAFFOLDS MORE THAN 1 BUCK HIGH WHICH ARE OVER WALKWAYS OR AROUND SAFETY RELATED EQUIPMENT?			✓
19. IS ALL SCAFFOLD PLANKING "SCAFFOLD GRADE" OR EQUIVALENT?	✓		
20. IS SCAFFOLD WOOD PLANKING OVERLAPPED A MINIMUM OF 12"?			✓
21. DOES ALL WOOD PLANKING EXTEND MORE THAN 6" AND LESS THAN 18" OVER THEIR END SUPPORTS?			✓
22. IF THE SCAFFOLD PLATFORM IS MADE FROM 2"X9" (OR GREATER) SCAFFOLD PLANKS, ARE THE PLANKS SUPPORTED AT INTERVALS OF 8 FEET OR LESS?			✓
23. ARE THE UNSUPPORTED SPANS OF PLYWOOD DECKING EQUAL TO OR LESS THAN 34 INCHES?	✓		
24. ARE SCAFFOLD NAILS DOUBLE-HEADED AND DRIVEN TO THE FIRST HEAD? (SINGLE HEADED NAILS ARE ACCEPTABLE IF FULLY DRIVEN IN.)	✓		
25. ARE SCAFFOLD NAILS DRIVEN AT AN ANGLE WHERE THEY ARE NOT SUBJECTED TO A STRAIGHT PULL ON TOEBOARDS & HANDRAILS?	✓		
26. ARE SAFEWAY SCAFFOLD FRAMES CONNECTED TOGETHER WITH AN APPROPRIATE SCAFFOLD PIN (PIGTAILS)?			✓
27. ARE SAFEWAY SCAFFOLD FRAMES BRACED WITH APPROPRIATE X-BRACING?			✓
28. ARE TUBE & COUPLER SCAFFOLDS BRACED WITH VERTICAL, DIAGONAL AND HORIZONTAL BRACES PER SCAFFOLD PROCEDURE?			✓

STP 3126C (08/92) REV 2

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

OPGP03-ZM-0028

SCAFFOLDING CHECKLIST

ATTRIBUTE	ACCEPT	REJECT	N/A
29. DOES THE VERTICAL LEG SPACING MEET THE MAXIMUM SPACING FOR SEISMIC SCAFFOLD (5'X7') AND NON-SEISMIC SCAFFOLD (4'X10' OR 5'X7')?			✓
30. ARE SCAFFOLDS TIED-OFF PER PROCEDURAL REQUIREMENTS?	✓		
31. IS A PROPER PAD/SOFTENER PLACED UNDER EACH VERTICAL LEG?			✓
32. IS SCAFFOLD CONSTRUCTED OF MATERIAL FROM SIMILAR SCAFFOLD SYSTEM TYPES?	✓		
33. FOR NONSTANDARD SEISMIC SCAFFOLDING, HAS DED APPROVED THE NONSTANDARD DESIGN?	✓		
34. ARE CLEARANCES IN ACCORDANCE WITH DRAWING 3A01-0-S-10003 OR ARE APPROVED BY DED?	✓		
35. ARE THE NAIL HOLES IN THE ALUMINUM PLANKING ACCEPTABLE?			✓

INSPECTION RESULTS: ✓ SATISFACTORY _____ UNSATISFACTORY

COMMENTS: _____

Kenneth Brannen
INSPECTOR SIGNATURE

6-24-93
DATE

ORIGINAL

COPY

COMBUSTIBLE MATERIAL STORAGE AUTHORIZATION
OPGP03-ZF-0004-1
(Page 1 of 1)

AUTHORIZATION # 93-41 EXPIRES 07/09/93
Date

REQUESTING DEPARTMENT/DIVISION MSSD/ PAUL SVATEK

BUILDING RCB-1 ELEVATION 68' ROOM(S) 501 FIRE AREA/ZONE 63/Z802

MATERIAL NAME/DESCRIPTION	UNITS	Btu/UNIT	QUANTITY	TOTAL Btu's
WOOD (FIRE RETARDANT)	LBS.	8,000	1,000	8.0E6 BTU

P 06/22/93

REQUIRED STORAGE CONDITIONS AND PRECAUTIONS ~~Fee~~ Wood to be taken in only when needed and shall be removed as soon as work is complete. Continuous fire watch ~~proved~~ provided by craft with a fire extinguisher, while wood is in RCB-1 or the MAB-1. FHE 93-245

P 06/22/93

Evaluated: [signature] 06/22/93
Fire Protection Coordinator Date

Approved: [signature] 6/23/93
Management (DM or above) Date

cc:

THIS FORM, WHEN COMPLETED, SHALL BE RETAINED FOR THREE YEARS AFTER EXPIRATION.

STP 3014 (01/92)
REV D

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

PREVENTIVE MAINTENANCE PACKAGE DOCUMENTATION CHECKLIST 7.1.1

PM NO.: MM-2-SGB8008526 WAN: 91045078 TOTAL PAGES 12

ATTACHMENTS A-6 pgs

ORIGINAL RECORDS

- [x] PREVENTIVE MAINTENANCE WORK ORDER (PM)
- [x] PM ADDITIONAL SHEETS
- [ ] LOST TIME RECORD
- [ ] PSLT POST-MAINTENANCE PRESSURE TEST TRAVELER
- [ ] PERMIT TO BREACH FIRE BARRIER
- [ ] SCAFFOLDING PERMIT
- [ ] ISOLATION PERMIT
- [ ] SPECIFIC HOT WORK PERMIT
- [ ] PAINTING PERMIT
- [ ] EMERGENCY REQUEST AUTHORIZATION
- [ ] CONTROLLED ACCESS ADMITTANCE LIST
- [ ] CONTROLLED ACCESS PERSONNEL LOG
- [ ] CONTROLLED ACCESS MATERIAL AND TOOL CONTROL
- [ ] CONFIGURATION CHANGE LOG
- [ ] DIVING OPERATIONS APPROVAL FORM
- [ ] CABLE TERMINATIONS DATA SHEET
- [ ] RAYCHEM APPLICATION DATA SHEETS
- [ ] TORQUING WORKSHEET
- [x] PMP04-SERIES DATA SHEETS JC-0002-1
- [ ] PMP05-SERIES DATA SHEETS
- [ ] PMP07-SERIES DATA SHEETS
- [ ] PMP08-SERIES DATA SHEETS
- [x] OTHER MAGNETIC PARTICLE EXAM REPORT

COMMENTS

STI-93-011227-94

PRIORITY	IMP.FACTOR	PREVENTIVE MAINTENANCE WORK ORDER	PM:MM-2-JC-88008526 WAN:91045078 REV:06.0
	1B		

SECTION 1: COMPONENT INFORMATION

TAG/TPMS	SERVICE DESCRIPTION	BLDG	ROOM	ELEV
7C102NCP201A	CONTAINMENT POLAR CRANE	RCB	C501	141

OTHER LOCATION INFORMATION: RCB ROOF

SECTION 2 : ACTIVITY DESCRIPTION

PM ACTIVITY: LUBRICATE/INSPECT NPRDS: N

FREQUENCY: P1 | RECOMMENDED MODE: 56

EQ RELATED: N | QUALITY RELATED: Y

EOL REPLACEMENT: N RDD: | ASME SEC. XI TRVL. REQUIRED: N

SECTION 3: WORK START APPROVAL

TECHNICAL SPECIFICATIONS SECTIONS(S):

TIME WHEN SYSTEM MUST BE RETURNED TO SERVICE

N/A
TIME DATE

AUTHORITY: Reactor Operations

SIGNATURE 3-2-93 DATE

SECTION 4: POST MAINTENANCE TESTING

TEST REQUIRED: NO TEST REQUIREMENTS INCLUDED IN:

PMT COMPLETED: [YES] [NO] (NA) TP#: N/A

SECTION 5: WORK COMPLETED CERTIFICATION/ACKNOWLEDGMENT

SR TAG REMOVED [YES] [NO] (NA)
CLEARANCES/PERMITS RELEASED (YES) [NO] [NA]

WORK SUPERVISOR

CERTIFICATION 3-11-93 DATE

WORK START AUTHORITY

ACKNOWLEDGMENT 5-8-93 DATE

SECTION 6: PACKAGE REVIEW

PM PLANNER REVIEW 5-17-93 DATE

PLANT ENG DEPT REVIEW 9-2-93 DATE

THIS FORM SHALL BE RETAINED FOR THE LIFE OF THE PLANT

SECTION 7 : SPARE PARTS / MATERIAL USED

HL&P PART NUMB	INVENTORY SEQ NUMB	QCE QCP	IN MPL	QTY UOM	HL&P PART NUMBER DESCRIPTION	MAP NUMBER	QTY USED
501-35456	N/A	7S 7	NO	0 CN	OIL, GEAR, HEAVY GODIED, 5 GAL PAIL -QTY 0 CN	N/A	0
559-30011 501-43241	MER 93011600	7S 9	NO	0 TB	GREASE, EXTREME PRESSURE ADDITIVE (EP), DARK GREEN IN COLOR	30043	342 oz
559-30099	MRR 9301-08004	7S 9	NO	0 CN	OIL, PARAFFIN BASE TYPE, COMPOUNDED WITH ANTIRUST, ANTIOXIDATION	30043	38 oz
501-18810	MRR 9411220042	7S 9	NO	0 CN	OIL, HYDRAULIC, AW GRADE 68, 5 GAL CN/35 LB PAIL	08655	26 oz
566-30275	N/A			1	DIAPERS	SHOP SUPPLIES	4-BOX

N/A

SECTION 8: PERMITS/DOCUMENTATION

HOUSEKEEPING ZONE	IV	N/A	RADIATION WORK PERMIT	Y	93-2-0047
CLEANLINESS CLASS	D	N/A	EQUIPMENT CLEARANCE	Y	2-93-502
CONFINED SPACE	N	N/A	ADDITIONAL SECURITY REQ	N	N/A
FIRE HAZARD EVAL	N		AFFECT CHARCOAL FILTER	N	N/A
HOT WORK PERMIT	N		SCAFFOLDING REQUIRED	N	N/A
INSULATION REQ.	N	N/A	ASME SECTION XI TRAV.	N	N/A
HAZARD SYS BREACH	N	N/A	CONTAMINATED SYS BREACH	N	N/A

SECTION 9: M&TE USED

DESCRIPTION	ID NO.	CAL DUE
0-1 IN. MICROMETER +/- .001 IN. ACCY.	100-02202-025	7-21-9
1-2 IN. MICROMETER +/- .001 IN. ACCY.	100-02203-22	3-23-9
50-250 FT LBS TORQUE WRENCH/MICROMETER	100-03130-011	4-5-93

N/A

SECTION 10: PERSONNEL PERFORMING MAINTENANCE

NAME	CRAFT	CREW	SIGNATURE	HOURS	DATE

PREVENTIVE MAINTENANCE WORK ORDER	PM:MM-2-JC-88008526 WAN:91045078 REV:06.0

Jeff Irwin	m/m	Whiting	Jeff Irwin	1	3-2-93
Andrew Palmer	m/m	Whiting	Andrew Palmer	1	3-2-93
		N/A			
Bennie Thomas	MM	Whiting	Bennie E. Thomas	4	3-3-93
Francis SHAMPINE	M.M.	WHITING	F.H. Shampine	4	3-3-93
ORVAL Knight	M/m	Sun	Orval Knight	4	3-3-93
Jim Biggs	M M	Sun	Jim Biggs	4	3-3-93
Thomas W. Crumpton	m/m	S/G	Thomas W. Crumpton	2	3-3-93
WAYNE HUSE	M/M	WHITING	Wayne Huse	2	3-3-93
Dewan Carruth	m/m	Sun	Dewan Carruth	12	3-3-93
ORVAL Knight	M/m	Sun	Orval Knight	3	3-3-93
Jim Biggs	MM	Sun	Jim Biggs	12	3-3-93
Francis SHAMPINE	M.M.	WHITING	F.H. Shampine	3	3-3-93
KENNETH SCIBA	MM	WHITING	Kenneth Sciba	6	3/5/93
Sidney Story	M/m	Whiting	Sidney Story	6	3/5/93
KENNETH Polk	M/M	whiting	Kenneth N. Polk	6	3/5/93
Andrew Palmer	M/m	whiting	Andrew Palmer	6	3 5 93
Mike Cole	M/m	whiting	Mike Cole	6	3-5-93 mc
Charles Teytich	M/M	Whiting	Charles Teytich	6	3-5-93
Jeff Irwin	M/m	Whiting	Jeff Irwin	6	3-5-93
ORVAL Knight	M/M	Sun	Orval Knight	12	3-5-93
Jim Biggs	M M	Sun	Jim Biggs	12	3-5-93
Bruce O'Boyle	M/m	Sun	Bruce O'Boyle	12	3-5-93
Dewan Carruth	M/m	Sun	Dewan Carruth	12	3-5-93
Frank SHAMPINE	M/M	WHITING	F.H. Shampine	12	3-5-93
WAYNE HUSE	M/M	Whiting	Wayne Huse	12	3-5-93

SECTION 11: PREVENTIVE MAINTENANCE WORK INSTRUCTION

PM.ACTIVITY: LUBRICATE/INSPECT

TAG NUMBER	SERVICE DESCRIPTION	QAQC	EQ
7C102MCP201A	CONTAINMENT POLAR CRANE	7S	

1.0 PREREQUISITES

1.01 GENERAL

1.01.01 OBTAIN THE LUBRICANTS LISTED IN STEP 1.03 OR THEIR EQUIVALENTS IN ACCORDANCE WITH 0PGP03-ZM-0004 (LUBRICATION PROGRAM).

1.01.02 OBTAIN A WORKING COPY OF 0PMP04-JC-0002 (POLAR CRANE INSPECTION).

1.02 SPECIAL TOOLS / EQUIPMENT

		CAL REQ
1.02.01	SUITABLE DRAIN PAN	N
1.02.02	FUNNEL	N
1.02.03	GREASE GUN	N
1.02.04	APPROVED WIPES	N
1.02.05	CLEANING SOLVENT	N
1.02.06	0-1 IN. MICROMETER +/- .001 IN. ACCY.	Y
1.02.07	1-2 IN. MICROMETER +/- .001 IN. ACCY.	Y

1.03 REQUIRED SPARE PARTS

	CLASS-BIN	DESCRIPTION	QTY	UOM
1.03.01	559-30099	OIL, PARAFFIN BASE TYPE, COMPOUNDED WITH	0	CN
1.03.02	501-35456	OIL, GEAR, HEAVY GODIED, 5 GAL PAIL	0	CN
1.03.03	501-18810	OIL, HYDRAULIC, AW GRADE 68, 5 GAL CN/35	0	CN
1.03.04	559-30011	GREASE, EXTREME PRESSURE ADDITIVE (EP), D	0	TB

1.04 PERMITS AND INDICATORS

1.04.01 MAINTAIN HOUSEKEEPING ZONE IV.

1.04.02 MAINTAIN CLASS D SYSTEM CLEANNESS.

1.04.03 A RADIATION WORK PERMIT IS REQUIRED FOR PERFORMANCE OF THIS ACTIVITY.

1.04.04 AN EQUIPMENT CLEARANCE IS REQUIRED FOR PERFORMANCE OF THIS ACTIVITY.

2.0 PRECAUTIONS

2.01 FOLLOW PRECAUTIONS LISTED IN 0PMP4-JC-0002 (POLAR CRANE INSPECTION).

3.0 WORK INSTRUCTIONS

3.01 LUBRICATE AND INSPECT POLAR CRANE IN ACCORDANCE WITH 0PMP04-JC-0002 (POLAR CRANE INSPECTION).

3.02 CLEAN THE "MAIN" AND "AUXILLARY" HOOKS, (FOR INSPECTION).

SECTION 11: PREVENTIVE MAINTENANCE WORK INSTRUCTION

PM ACTIVITY: LUBRICATE/INSPECT

4.0 REFERENCES
4.01 IMPLEMENTING REFERENCES
4.01.01 0PMP04-JC-0002 POLAR CRANE INSPECTION

4.02 SOURCE DOCUMENTS
4.02.01 8013-01001-WG WHITING CORP. MANUAL

4.02.02 STPEGS LUBRICATION STANDARD

4.02.03 ESR NO. 87-JE-003

4.02.04 FEEDBACK FORMS 27682, 28588.

5.0 DOCUMENTATION - NONE

N/A

SECTION 12: AS FOUND CONDITION

Daily Check Preformed, Polar Crane Operable / 3-3-93 WORKING AROUND SCAFFOLDING PERSONNEL - "A" GIRDER LEFT DR. BRG CAPSULE DAMAGED COUPLING GUARD RUBBING SHAFT - "A" GIRDER RIGHT COUP. BOLTS LOOSE, 1 MISSING, OVERHEAD COUP. OIL LEAK, EXTREMELY LOW OIL "B" GIRDER LOW OIL, LEAK, W.W.

SECTION 13: AS LEFT CONDITIONS

PM COMPLETE READY FOR PMT WAYNE HUSE [signature] 6 MAR 93

N/A

SECTION 14: SUMMARY OF WORK PERFORMED

[signature] 3-2-9

HOWARD ATKINS JR AND RALPH HARVEY IS DESIGNATED WORK GROUP SUPERVISOR FOR THIS JOB

Held Pre Job Briefing, Obtained Work Start, lowered Main + Aux. Hook cleaned and magnifluxed both hooks. NDE Results attached and Sat. Preformed 5.6.1 - 5.6.3 of OPMP04-JC-0002 recorded and data sheets attached

Jeff Irwin [signature] 3-2-93

3-3-93 RECIEVED WORK PACKAGE FROM DAY SHIFT. DISCUSSED WORK SCOPE. HAD M/M FORMAN SIGN ONTO ECO. CHECKED BRIDGE DRIVE GEAR BOX OIL LEVELS. NEED TO ADD OIL TO "A" GIRDER RIGHT AND "B" GIRDER LEFT AND RIGHT (SEE CONTINUATION SHT)

SECTION 15: COG SYSTEM ENGINEER CONTACTED: [YES] (circled) [NO] [NA]

PARTS NEEDED FOR ROOT CAUSE: [YES] [NO] [NA] (NA circled)
PARTS TO BE REBUILT: [YES] [NO] [NA] (NA circled)
PARTS DISCARDED: [YES] [NO] [NA] (NA circled)

SR NO: NA
MRM NO: NA

AREA CLEAN: [YES] (circled) [NO] [NA]
TOOLS REMOVED: [YES] (circled) [NO] [NA]
HARDWARE RESTORED: [YES] (circled) [NO] [NA]

INSULATION REMOVED: [YES] [NO] [NA] (NA circled)
INSULATION REINSTALLED: [YES] [NO] [NA] (NA circled)
SCAFFOLDING REMOVED: [YES] [NO] (circled) [NA]

WORK COMPLETED: [signature] CRAFTSMAN — 11 MAR 93 DATE — 0825 TIME

ADDITIONAL SHEETS ATTACHED & NUMBERED NO (YES) # SHEETS: 6

CONTINUATION SHEET

TYPE OF DOCUMENT PM

DOCUMENT NO. MM-2-JC-88008526

WAN NO. 9104/5078

NEED TO BRING APPROX. 5 GAL OF OIL.

WAYNE AUSE [signature] 3 MARCH 1993

RECEIVED PKG FROM NIGHT SHIFT HELD PREJOB MEETING.

Completed the following steps of the IN HAND section 3.0 - 5.4.4 OK, 5.4.5 - 5.4.5.3 NA, 5.4.6 - 5.4.17 OK, 5.4.21 - 5.4.22 OK, 5.4.26 - 5.4.29 OK, 5.5.4 - 5.6.9 OK, 5.6.19 - 5.6.21 OK, 5.6.24 - 5.6.25 OK

The following steps not completed due to 5.4.18 - 5.4.20 need the crane rotated to the platform for access, 5.4.23 - 5.4.24 need Power On, 5.4.25 need to rotate crane for access, 5.5 - 5.5.3 need trolley located at opp. end, 5.6.10 - 5.6.18 need hooks lowered, 5.6.22 also needs hooks lowered, 5.6.22 - 5.6.24 need hoist to run to check. Removed all covers on both Hoist drives, inspected + lubed then started installing covers. Added oil to A Girder Right + B Girder Left and Right Bridge Drive Gear Boxes.

Jeff Irwin [signature] 3-4-93 (3-3-93)

RECEIVED PKG. FROM DAY SHIFT, OBTAINED TURNOVER FROM JEFF IRWIN HELD PREJOB MEETING. REINSTALLED COVERS THAT WERE REMOVED.

WAYNE AUSE [signature] 4 MARCH 1993

Held Pre-Job meeting inspected Trolley Drive Gear Box, lubed Drive Shafts Checked Oil levels in Brake + Drive Gear Box, lube OK, Cleaned platforms, Drive shafts, Gear Boxes. Jeff Irwin [signature] 3-5-93

RECEIVED PKG FROM DAY SHIFT, OBTAINED TURNOVER FROM JEFF IRWIN HELD PREJOB MEETING FINISHED COUPLING BOLTING ON "B" GIRDER LEFT END, INSTALLED COVER, "A" GIRDER RIGHT END ~~COUPLING~~, INSTALLED MISSING BOLT AND VERIFIED TORQUE ALSO TORQUED BOLTS ON "A" "B" GIRDER LEFT BOLTS TORQUED TO 150 FT LBS CAL DUE DATE 09-05-93 ID# 00-0130-011 M&TE UXO3593 ROTATED BRIDGE AND CHECKED ALL IDLER WHEEL BRGS. LUBED WHEEL BRGS AT THIS TIME FOUND NO DETECTABLE DAMAGE BUT DID FIND A IMPROPER LUBE PROCEDURE. BRGS WERE LOW

(SEE CONTINUATION SHEET)

CONTINUATION SHEET

TYPE OF DOCUMENT PM

DOCUMENT NO. MM-2-JC-88008526
WAN NO. 91045078

Date 5-17-93 Page 3 of

~~NEED TO BRING APPROX. 5 GAL OF OIL.~~ WH 3-6-93

~~WATER HOSE Wayne Hume 3 MARCH 1993~~ WH 3-6-93

ON LUBE. Performed PM on orbital bridge the grease zerk on the top pivot point would not take any grease. REMOVED Tools AND TRASH FROM CRANE. Wayne Hume 3-6-93

3-6-93 PERFORMED OPERATION TEST OF ALL MOTIONS OF CRANE. TESTED OPERATION AT ALL SPEEDS OF ALL MOTIONS. MAIN HOIST TESTED USING SPARE DBZ 3/6/93 RADIO CONTROL BOARD FROM AUX HOIST CIRCUIT FOR ~~PURP~~ DBZ PURPOSE OF TROUBLESHOOTING AND TESTING OF MECHANICAL COMPONENTS. NO MECHANICAL DISCREPANCIES NOTED. SOUNDED GIRDER BOLTS AND TIGHTENED TEN BOLTS Daniel B. Zimkil

3-9-93 INSTALLED NEW RELAY CIRCUIT CARD UNDER SR# JC 179568. PERFORMED FULL OPERATIONAL TEST ON ALL MOTIONS OF CRANE. MEASURED AND RECORDED MAIN HOIST HOOK OPENING & TWIST. PERFORMED WALK DOWN INSPECTION OF ENTIRE CRANE. FOUND OIL LEAKS ON MAIN & AUX HOISTS CAUSED BY STRIPPED BOLTS IN THE INSPECTION COVERS. RAY ASHBURY, SYSTEM ENGINEER WILL GENERATE THE SR TO ADDRESS THIS PROBLEM. CLEANED ALL LEAKING OIL OFF TROLLEY DECK. REMOVED ALL TOOLS & MATERIALS FROM CRANE. Daniel B. Zimkil 3/6/93

N/A

PERSONNEL PERFORMING MAINTENANCE

MR # MM-2-JC-6800RS24

WAN # 91045078

Name (Print)	Signature	Hrs Wkd	Date
DANIEL B. ZIMBRICH	Daniel B. Zimbrich	6.0	3-9-93
Mike Cole	Mike Cole	6.0	3-9-93
Sidney Story	Sidney Story	6.0	3-9-93
	N/A		

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5.1 SR/PM No. MM-2-3C-88008526 5.2 Unit No. 2

3.1

WORK SUPERVISOR SHALL MARK SECTIONS TO BE PERFORMED OR ENTER N/A			
✓	5.4 Bridge Lubrication and Inspection	✓	5.7 Operational Inspection
✓	5.5 Trolley Lubrication and Inspection	✓	5.8 Operation of Bridge
✓	5.6 Hoist Lubrication and Inspection		

3.2

MEASURING AND TEST EQUIPMENT		
DESCRIPTION	STPEGS I.D. NUMBER	CALIBRATION DUE DATE
0-1 MIC	100-02202-025	7-21-93
1-2 MIC	100-02203-22	3-23-93
TORQUE WRENCH	100-03130-011	4-5-93

5.4.4 Checked oil in gearcase: DBZ SAT. _____ UNSAT.

5.4.5 Changed oil in gearcase: ____ 4 yr. changeout ____ Oil was UNSAT X N/A

5.4.28 Hoist drum groove wear percentage - NO WEAR NOTED Method: STRAIGHT EDGE

5.6.1 Notified cranes and hoists system engineer or designee. [signature] 3-2-93
Mech. Sign Date

5.6.2 Measurements of main hoist wire rope O.D.
R- 1.252 L- 1.253 in. R- 1.252 L- 1.252 in. R- 1.252 L- 1.250 in.

5.6.3 Measurements of auxiliary hoist wire rope O.D.
.486 in. .500 in. .500 in.

ENP 5.6.11 Lubrication inspection of wire ropes: [X] SAT [ ] UNSAT
Daniel B Zimbrick DANIEL B ZIMBRICH 3-3-93
System Engineer or Designee Sign Date

ENP 5.6.12 Cranes and hoists system engineer or designee determined wire ropes are to be replaced. [ ] YES [X] NO
Daniel B Zimbrick DANIEL B ZIMBRICH 3-3-93
System Engineer or Designee Sign Date

ROPE IS SAT.

This FORM, when completed, shall be retained for the life of the plant.

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5.1 SR/PM No. MM-2-~~6~~ 3C-88008526   5.2 Unit No. 2

5.6.13 Throat gage measurement on auxiliary hook. 6 5/8 in.

5.6.14 Throat gage measurement on main hook. 23 1/2 in. 23 1/2 in.

5.6.16 Measured twist of auxiliary hook. 0° deg.

5.6.17 Measured twist of main hook. 0° deg. 0° deg.

ENP 5.6.26 Cranes and hoists system engineer or designee determined auxiliary and main hoist requires lubrication. [ ] YES [X] NO

Daniel B Zimbeck DANIEL B ZIMBRCK   3-3-93
System Engineer or Designee Sign   DATE
OIL LEVELS SAT

5.9 Crane operates satisfactory: DBZ Yes ______ No

Comments: REPLACED DEFECTIVE RELAY OUTPUT CARD UNDER JC 179568

PERFORMED BY: Daniel B Zimbeck   3-9-93
MECHANIC   DATE

REVIEWED BY: John S. Griffin   3-9-93
WORK SUPERVISOR   DATE

3P 635 (02/90) SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION 045.0C

MAGNETIC PARTICLE EXAMINATION REPORT

PAGE 1 OF 1

WORK DOC NO	COMPONENT DESCRIPTION	TPNS/COMPONENT ID NO	DATE OF INSPECTION / REPORT NO
Pm mn-2-JC-88002SL Rev 60	Unit 2 CRANE Hooks	5-6-19 AUX Hook 5L20 MAIN	3-2-93 / NDE-93-0269

LOCATION UNIT NO 2 BLDG NO RCB	ADDITIONAL INFORMATION
ROOM NO Containment ELEVATION N/A	DPMP04-JC-0032 Rev 5
OTHER INFORMATION N/A	TAG 7C102NCP201A
DWG NO ☑ N/A	MATERIAL Carbon steel
IS EXAMINATION AREA PAINTED ☐ YES ☑ NO	MT PROCEDURE NO NDEP 7.0 Rev 2
PAINT THICKNESS ☑ N/A	ACCEPTANCE STD ☐ INA APPENDIX NO 6
DRY FILM GAGE ID N/A DUE DATE	☐ OTHER

CURRENT TYPE	MAGNETIZING METHOD	EQUIPMENT USED	EXAMINATION MEDIUM
☑ AC ☐ HWDC	☑ CONTINUOUS ☐ RESIDUAL	MFG MAGNAFLUX MOD YL SER NO #4 CAL BLOCK ID MT 005	☐ BLACK POWDER NO 3A ☑ RED POWDER NO 8A ☐ GRAY POWDER NO 1 ☐ MAGNAGLO NO 14AM (WET)

☐ COIL	☐ PRODS		☑ YOKE	LIGHT LEVEL VERIFICATION (SAT)
AMP TURNS ☑ NA	AMPERAGE ☑ NA	SPACING ☑ NA	LIFT VERIFICATION ☑ BEFORE AND AFTER INSPECTION ☑ 10 LBS ☐ 40 LBS	☑ ILLUMINATION ☐ ULTRAVIOLET SURF TEMP ☐ < 135 F (WET) ☑ < 600 F (DRY)

WELD NO, PART NO, OR SERIAL NO	ACC	REJ	REMARKS
500 Ton Polar Crane Lifting Hook	✓		
15 Ton Lifting Hook	✓		

SKETCH OR DRAWING: N/A

COMMENTS

NONE

INSPECTOR	CERT LEVEL	DATE	SUPV/LEVEL III REVIEW	DATE
Dart Stuhr HH0177	II	3-2-93		
PdPuss HH0177	II	3-2-93		