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05000403
AUTH.NAME AUTHOR AFFILIATION
MCDUFFIE,M.A. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
PARR,O.D. Light Water Reactors Branch 3

SUBJECT: Requests assistance in resolution of applicable codes for containment penetration grout hole closure detail.Related details & drawing encl.

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	BC LWR #3	1	0	LA LWR #3	1	0
INTERNAL:	01 REG FILE	1	1	02 NRC PDR	1	1
	06 I & E	2	2	08 OPERA LIC BR	1	1
	09 GEOSCIEN BR	4	4	10 QAB	1	1
	11 MECH ENG BR	1	1	12 STRUC ENG BR	1	1
	13 MATL ENG BR	2	2	15 REAC SYS BR	1	1
	16 ANALYSIS BR	1	1	17 CORE PERF BR	1	1
	18 AUX SYS BR	1	1	19 CONTAIN SYS	1	1
	20 I & C SYS BR	1	1	21 POWER SYS BR	1	1
	22 AD SITE TECH	1	0	26 ACCDNT ANLYS	1	1
	27 EFFL TRT SYS	1	1	28 RAD ASMT BR	1	1
	29 KIRKWOOD	1	1	AD FOR ENG	1	0
	AD PLANT SYS	1	0	AD REAC SAFETY	1	0
	AD SITE ANLYSIS	1	0	DIRECTOR NRR	1	0
	HYDRO-METEOR BR	2	2	MPA	1	0
	OELD	1	0			
EXTERNAL:	03 LPDR	1	1	04 NSIC	1	1
	30 ACRS	10	10			

LTR

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MAY

CP&L
Carolina Power & Light Company

January 28, 1980

Mr. Olan D. Parr, Chief
Light Water Reactors Branch No. 3
Division of Project Management
United States Nuclear Regulatory Commission
Washington, D. C. 20555

SHEARON HARRIS NUCLEAR POWER PLANT UNIT NOS. 1, 2, 3 AND 4
DOCKET NOS. 50-400, 50-401, 50-402, AND 50-403
CONTAINMENT PENETRATION GROUT HOLE CLOSURE DETAIL

Dear Mr. Parr:

During a constructability review of the Unit No. 1 containment exterior wall, members of my staff concluded that special precautions would be necessary to ensure proper consolidation of concrete under the larger containment penetrations with dense supplementary reinforcing steel around them. It was concluded that it would be prudent to have holes in the bottom of each of these penetrations to facilitate insertion of vibrators. Chicago Bridge & Iron Company Drawing 27, Revision 1 is attached as Enclosure (1) and shows the related details for penetrations S-57, S-58, S-150, S-151, and S-152. As can be seen, the closure weld detail requires ultrasonic and magnetic particle examination.

Our engineers do not feel this situation is clearly addressed by applicable codes and are therefore requesting technical concurrence with our interpretation and planned course of action. Enclosure (2) summarizes the technical references and considerations. Our basic concern is that at least one (1) interpretation may be that radiographic examination is required. This would require that a gap be provided under each penetration for a film pack and the constructability of this approach severely diminishes the original objective.

Our project commitments and exceptions relative to the containment liner are detailed in Appendix 5H of the preliminary safety analysis report. Since the certificate of authorization, code stamping, and inspection by authorized inspectors is not required, we are requesting technical concurrence from you rather than the ASME committee. The authorized inspector does not participate in the containment since it is not code stamped.

B001
SE
1/1

411 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

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Our construction schedule requires a resolution on our course of action by February 1, 1980. We would appreciate a conference call to discuss this matter at your earliest convenience.

Yours very truly,

M. A. McDuffie
Senior Vice President
Engineering and Construction

MAM/jc
Enclosures

cc: Mr. James P. O'Reilly

SHEARON HARRIS NUCLEAR POWER PLANT

CONCRETE GROUT HOLES IN PENETRATIONS

Ebasco Specification: CAR-SH-AS-1
Title: Containment Liner, Air Lock, Hatch

Applicable Code: None required for "concrete containment system at time of design and fabrication; however, A/E designed penetrations to meet code requirement for "metal containment" ASME Section III, Divsion I, Subsection NE, "MC Components"

Field work to ASME Section III, Division I, 74 edition, W76

Problem Area; 3 small 4" diameter holes, in a row in bottom of penetrations to facilitate concrete pour to ensure sound area under each penetration.

Equipment:
With Holes

Equipment Hatch	24' diameter
Personnel Lock	9" diameter
Escape Lock	5" diameter
H&V Sleeve	4" diameter

Code: No weld type joint specifically shown on vessel illustration, Fig. NE 3351-1 for Category A,B,C,D, weld joints which are similiar to closure plate for the holes.

The penetration components were redesigned to add thicker plate in hole areas for reinforcement such as openings. A hole 4" diameter cut through and counterbored to provide a lip to act as a backing for closure weld after concrete has been poured.

Design: For compliance with NDE requirements for Category A or B type weld joints by inspecting with UT in lieu of RT for inaccessible welds per Para NE 5211.1

Problem: Para. NE 5211.2 on hydro inspection of Category A and B welds states that examination of embedded or inaccessible welds of containment vessels may be waivered if they are double butt welded and fully radiographed prior to covering and are leak tightness tested with a gas medium test such as a halide leak detector test.

Resolution:
(a) Full penetration butt weld; area reinforced like an opening per code requirements.
(b) UT inspection per code in lieu of RT.
(c) Perform gas leak test by leak chase channel.

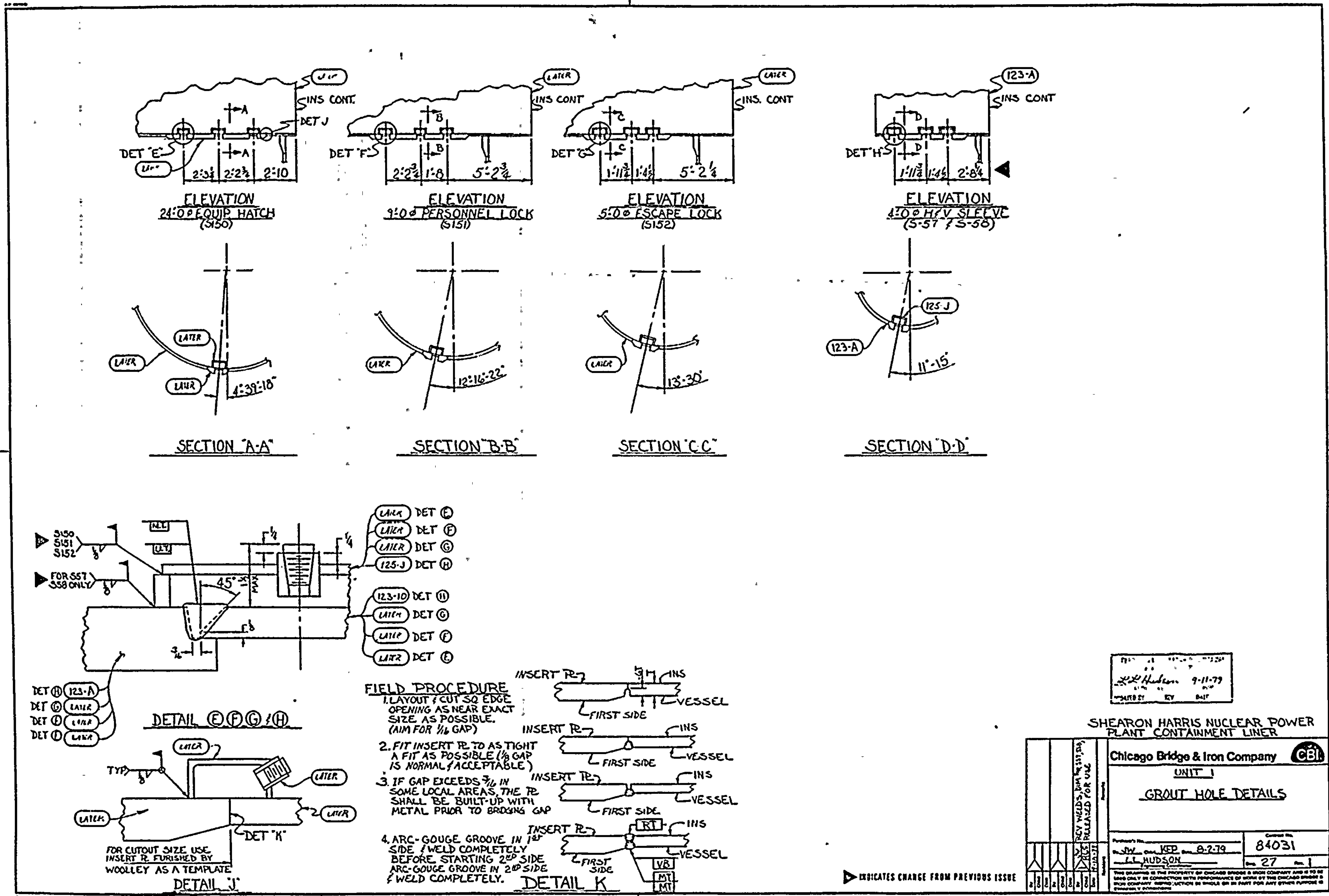
Justification:
(1) Not a code stamped penetration; however, the commitment is to NRC to design and build to code. Design is conservative.
(2) UT in lieu of RT per NE 5211.1.

(3) Magnetic particle inspection
(4) Leak test by leak chase channel.
(5) The remainder of the containment liner, ASME Section III, Div. 2 is inspected by magnetic particle or liquid penetrant inspection and leak chase test with RT done as a spot examination in areas not backed by concrete only.
(6) The holes are backed by concrete.

ADDITIONAL DATA TO SUPPLEMENT DRAWING

PENETRATION	THICKNESS OF PENETRATION WALL	THICKNESS OF THICKENED SECTION	THICKNESS OF PLUG	MATERIAL TYPE FOR THICKNED SECTION AND PLUG
S-57	1"	1½"	3/4"	SA516 GR 70
S-58	1"	1½"	3/4"	SA516 GR 70
S-150	1¼"	1½"	3/4"	SA516 GR 70
S-151	½"	1 "	½ "	SA516 GR 70
S-152	½"	1 "	½"	SA516 GR 70

Enclosure 2



INS CONT
DET J
DET "E"
2:3½
2:2¾
2:10
ELEVATION
24:0 ø EQUIP HATCH
(S150)
DET "F"
2:2¾
1:8
5:2¾
ELEVATION
9:0 ø PERSONNEL LOCK
(S151)
DET "G"
1:11¾
1:4½
5:2¼
ELEVATION
5:0 ø ESCAPE LOCK
(S152)
123-A
DET "H"
2:8¾
ELEVATION
4:0 ø H/V SLEEVE
(S-57 & S-58)
LATER
4°39'18"
12°16'22"
13°30'
125-J
11°-15'
SECTION "A-A"
SECTION "B-B"
SECTION "C-C"
SECTION "D-D"
S150
S151
S152
FOR S57
S58 ONLY
45°
DET (E)
DET (F)
DET (G)
DET (H)
123-10
DETAIL (E)(F)(G) & (H)
TYP
DET "K"
FOR CUTOUT SIZE USE INSERT PL FURNISHED BY WOOLLEY AS A TEMPLATE
DETAIL "J"
FIELD PROCEDURE
1. LAYOUT & CUT SQ EDGE OPENING AS NEAR EXACT SIZE AS POSSIBLE. (AIM FOR 1/16 GAP)
2. FIT INSERT PL TO AS TIGHT A FIT AS POSSIBLE (1/8 GAP IS NORMAL & ACCEPTABLE)
3. IF GAP EXCEEDS 3/16 IN SOME LOCAL AREAS, THE PL SHALL BE BUILT-UP WITH METAL PRIOR TO BRIDGING GAP
4. ARC-GOUGE GROOVE IN 1ST SIDE & WELD COMPLETELY BEFORE STARTING 2ND SIDE ARC-GOUGE GROOVE IN 2ND SIDE & WELD COMPLETELY.
INSERT PL
INS
VESSEL
FIRST SIDE
RT
VB
MT
DETAIL K
INDICATES CHANGE FROM PREVIOUS ISSUE
9-11-79
SHEARON HARRIS NUCLEAR POWER PLANT CONTAINMENT LINER
Chicago Bridge & Iron Company
CBI
UNIT 1
GROUT HOLE DETAILS
RCV WELDS, DIM
RELEASED FOR USE
JW
KEP
8-2-79
L.L. HUDSON
84031
27
1