INSERVICE INSPECTION REPORT

INTERVAL - 2

PERIOD -3

OUTAGE - 4

for the

H.B.ROBINSON - UNIT 2

NUCLEAR GENERATING PLANT

for

CAROLINA POWER AND LIGHT COMPANY

Box 790

Hartsville South Carolina, 29550

REPORT DATE: FEBRUARY 1989

COMMERCIAL SERVICE DATE: March 1971

OPERATING CAPACITY: 700 MWe

Performed by

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES DIVISION
INSPECTION SERVICE
P.O. BOX 355
PITTSBURGH, PA. 15230

INDEX

FORM NIS-1 OWNER'S REPORT FOR INSERVICE INSPECTIONS
As required by the Provisions of the ASME Code Rules

1. Owner Carolina Power & Light Co., 411 Fayetteville St., P.O. Box 1551, Raleigh, N.C. 27602
(Name and Address of Owner)

2. Plant H. B. Robinson, Hwy. 151 & S.C. 23, Hartsville, S.C. 29550
(Name and Address of Plant)

3. Plant Unit 2 4. Owner Certificate of Authorization (if required) N/A

5. Commercial Service Date 3/7/71 6. National Board Number for Unit N/A

7. Components Inspected

Component or Appurtenance	Manufacturer or Installer	Manufacturer or Installer Serial No.		National Board No.
Reactor Vessel	Combustion Engineering	66109	N/A	20772
Pressurizer	Westinghouse	16A6208-1	N/A	722
Stm. Generator 'A'	Westinghouse	93732	N/A	N/A
Stm. Generator 'B'	Westinghouse	93733	N/A	N/A
Stm. Generator 'C'	Westinghouse	93734	N/A	N/A
Boron Inj. Tank	Southern Fabricators	0049	N/A	368
Vol. Cont. Tank	Richmond Engrg. Co.	L8555	N/A	N/A
Piping & Supports	Ebasco Services Inc.	N/A	N/A	N/A

Note: Supplemental sheets in form of lists, sketches, or drawings may be used, provided (1) size is 8½ in. x 11 in., (2) information in items 1 through 6 on this report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

FORM NIS-1 (Back)

8. Examination Dates 11/14/88 to 2/25/89 9. Inspection Interval from 3/81 to 3/91

10. Abstract of Examinations. Include a list of examinations and a statement concerning status of work required for current interval. See tabs B, C and E of the 1989 ISI Report.

11. Abstract of Conditions Noted. See tabs B, C and E of the 1989 ISI Report. Note: Exceptions or Limitations are shown on the limitation report form. See tab D.

12. Abstract of Corrective Measures Recommended and Taken See tab F of the 1989 ISI Report.

We certify that the statements made in this report are correct and the examinations and corrective measures taken conform to the rules of the ASME Code, Section XI.

Certificate of Authorization No. (if applicable) N/A Expiration Date N/A

Date 4/13 19 89 Signed CP&L Owner By R E Morgan

R. E. Morgan
General Manager

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina and employed by *See Below of Long Grove, Il have inspected the components described in this Owner's Report during the period 10-24-88 to 4-25-89, and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owner's Report in accordance with the inspection plan and as required by the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owner's Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection. *Lumbermens Mutual Casualty Company

Inspector's Signature Commissions NC 1007 (N)(S)(I)
National Board, State, Province, and Endorsements

Date 4-25- 19 89

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner Carolina Power & Light Company (Name) Date 3/8/89
411 Fayetteville St. Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR2
Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Project Maintenance (Name) WR/JO 87-APAQ1 (Repair Organization P.O No., Job No., etc.)
Same as Item 2. (Address)
4. Identification of System Safety Injection/Containment Spray Class 2 & 3
5. (a) Applicable Construction Code B31.1 19 67 Edition N/A Addenda, Code Cases N/A
(b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 1977, S/78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification Model	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
SI-889B	Rockwell	N/A	N/A	N/A	3674F	1971	Replaced	N/A
	Edwards				316J			
SI-889B	Rockwell	N/A	N/A	N/A	36174F	1988	Replacement	N/A
	Edwards				316T4			
Piping	Ebasco	N/A	N/A	N/A	2" S/40	1971	Replaced	N/A
Piping	Maint.	N/A	N/A	N/A	2" S/40	1988	Replacement	N/A

7. Description of Work Replaced piping and valve SI-889B with new piping and valve.
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
Pressure 388 psi Test Temp. N/A °F
9. Remarks See WR/JO 87-APAQ1 turnover package.
(Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this Replacement (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/16 (Date), 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, Il. have inspected the Replacements (Repair(s) or Replacement(s)) described in this Report on 4-4-, 19 89 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-4-89 John Hanson (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in Items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner Carolina Power & Light Company (Name) Date 3/14/89
411 Fayetteville St., Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & S.C. 23 (Name) Unit HBR2
Hartsville, S.C. 29550 (Address)
3. Work Performed by Paul Munroe Energy Products (Name) MOD-974 (Repair Organization P.O. No., Job No., etc.)
1701 W. Sequoia Ave., Orange, Ca. 92668 (Address)
4. Identification of System Steam Generators A, B & C Snubbers 1 thru 12 (3) Valve Block Assy's.
5. (a) Applicable Construction Code B31.1 19 67 Edition N/A Addenda, Code Cases N/A
(b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 1977, S/78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No. / Part No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
(3) Valve Blocks	Anker-Holth	D21.0047.014	N/A	N/A	N/A	1971	Replaced	N/A
(3) Valve Blocks	Paul Munroe	PD 92480	N/A	N/A	N/A	1988	Replacement	N/A

7. Description of Work Replaced old snubber valve blocks (3) with new valve blocks (3).
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ Lock-up and Bleed-Rate
Pressure N/A psi Test Temp. N/A °F
9. Remarks See MOD-974 turnover package.
(Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this replacement (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/16 (Date), 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, Il. have inspected the replacements (Repair(s) or Replacement(s)) described in this Report on 4-4-, 19 89 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-4-89 (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner (Name) Carolina Power & Light Company — Date 3/13/89
   (Address) 411 Fayetteville St. Raleigh, N.C. 27602 — Sheet 1 of 1
2. Plant (Name) H. B. Robinson, Hwy. 151 & SC 23 — Unit HBR2
   (Address) Hartsville, S.C. 29550
3. Work Performed by (Name) Robinson Plant Maintenance — WR/JO 88-AHMK1 (Repair Organization P.O. No., Job No., etc.)
   (Address) Same as Item 2.
4. Identification of System Service Water
5. (a) Applicable Construction Code B31.1 19 67 Edition N/A Addenda, Code Cases N/A
   (b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 19 77, S/78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
S.W. Booster Pump 'A'	Worthington	756721	N/A	N/A	8CNG104	1971	Replaced	N/A
S.W. Booster Pump 'A'	Worthington	756721	N/A	N/A	8CNG104	1988	Replacement	N/A

7. Description of Work Replaced old rotating assy. with new assy. Motor frame holes enlarged per E. Evaluation #87-0
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ Packing Adjusted
   Pressure N/A psi Test Temp. N/A °F
9. Remarks See WR/JO 88-AHMK1 turnover package.
   (Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this replacement (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/16 (Date), 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, Il. have inspected the replacement (Repair(s) or Replacement(s)) described in this Report on 4-4-, 19 89 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-4-89 Signed [illegible] (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner Carolina Power & Light Company (Name) Date 3/1/89
411 Fayetteville, St. Raleigh N.C. 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR2
Hartsville, S. C. 29550 (Address)
3. Work Performed by Robinson Project Maint. (Name) WR/JO 88-AEID1 (Repair Organization P.O. No., Job No., etc.)
Same as Item 2 (Address)
4. Identification of System Residual Heat Removal
5. (a) Applicable Construction Code B31.1 19 67 Edition N/A Addenda, Code Cases N/A
(b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 19 77, 5/78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No.	Nat'L Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Hanger	Grinnel	PT.#6100	N/A	N/A	CPL-218	1971	Repaired	No
					Sketch			
					'G'			

7. Description of Work Tightened Loose Hanger. Performed VT-3 after rework CPL-218 F. G&H
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ N/A Press. Test
Pressure N/A psi Test Temp. N/A °F
9. Remarks See WR/JO 88-AEID1 Package
(Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this Repair (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/2 (Date), 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, IL. have inspected the Repair (Repair(s) or Replacement(s)) described in this Report on 3-2-, 1989 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 3-2-89 (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner Carolina Power & Light Company (Name) Date 3/8/89
411 Fayetteville St. Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H.B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR2
Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Project Maintenance (Name) WR/JO 87-APAP1 (Repair Organization P.O. No., Job No., etc.)
Same as Item 2 (Address)
4. Identification of System Safety Injection/Containment Spray Glass 2 & 3
5. (a) Applicable Construction Code B31.1 19 67 Edition N/A Addenda, Code Cases N/A
(b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 1977 S/78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification Model	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
SI-889A	Rockwell	N/A	N/A	N/A	3674F	1971	Replaced	N/A
	Edwards				316J			
SI-889A	Rockwell	N/A	N/A	N/A	36174F	1988	Replacement	N/A
	Edwards				316T4			
Piping	Ebasco	N/A	N/A	N/A	2" S/40	1971	Replaced	N/A
Piping	Maint.	N/A	N/A	N/A	2" S/40	1988	Replacement	N/A

7. Description of Work Replaced piping and valve SI-889A with new piping and valve.
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
Pressure 388 psi Test Temp. N/A °F
9. Remarks See WR/JO 87-APAP1 turnover package.
(Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this Replacement (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/14 (Date) 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, Il. have inspected the Replacements (Repair(s) or Replacement(s)) described in this Report on 4-4- 19 89 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-4-89 (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner: Carolina Power & Light Company (Name) — Date: 3/3/89
411 Fayetteville St., Raleigh NC 27602 (Address) — Sheet 1 of 1
2. Plant: H.B. Robinson, Hwy. 151 &SC 23 (Name) — Unit: HBR2
Hartsville, SC 29550 (Address)
3. Work Performed by: Robinson Project Maint. (Name) — WR/JO 87-AFTH1 (Repair Organization P.O. No., Job No., etc.)
Same as Item 2 (Address)
4. Identification of System: Service Water
5. (a) Applicable Construction Code: B31.1 19 67 Edition: N/A Addenda, Code Cases: N/A
(b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 19 77, S/78 Addenda, Code Cases: N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Support	N/A	H2	N/A	N/A	SW-560	1987	Replacement	N/A

7. Description of Work: Welded Shim Stock to existing H2 Support for Valve SW-560
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ N/A Pressure Test
Pressure N/A psi Test Temp. N/A °F
9. Remarks: See WR/JO 87-AFTH1
(Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this Replacement (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/7 (Date), 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, IL have inspected the Replacement (Repair(s) or Replacement(s)) described in this Report on 4-4-, 19 89 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-4-89 (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in Items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner: Carolina Power & Light Company (Name) — Date: 3/28/89
   411 Fayetteville St., Raleigh, NC 27602 (Address) — Sheet 1 of 1
2. Plant: H.B. Robinson, Hwy. 151 & SC 23 (Name) — Unit: HBR2
   Hartsville, SC 29550 (Address)
3. Work Performed by: Robinson Plant Construction (Name) — WR/JO #88-AGUS1, JR #1850 (Repair Organization P.O. No., Job No., etc.)
   Same as Item 2 (Address)
4. Identification of System: Service Water
5. (a) Applicable Construction Code: B31.1 19 67 Edition: N/A Addenda, Code Cases: N/A
   (b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 19 77, S/78 Addenda, Code Cases: N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Support	Ebasco	N/A	N/A	N/A	S6-1B	1971	Repaired	N/A

7. Description of Work: Repaired Cracked Pedestal Support for Service Water Strainer
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ Visual
   Pressure N/A psi Test Temp. N/A °F
9. Remarks: See WR/JO 88-AGUS1 & J.R. #1850 Turnover Packages
   (Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this repair (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/31 (Date), 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, IL. have inspected the repair (Report(s) or Replacement(s)) described in this Report on 4-3-, 1989 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-3-89 (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner: Carolina Power & Light Company (Name) — Date: 3/27/89
411 Fayetteville St., Raleigh, NC 27602 (Address) — Sheet 1 of 1
2. Plant: H. B. Robinson, Hwy. 151 & SC 23 (Name) — Unit: HBR2
Hartsville, SC 29550 (Address)
3. Work Performed by: Ebasco Services, Inc. (Name) — MOD-492 (Repair Organization P.O. No., Job No., etc.)
145 Technology Park/Atlanta, Norcross, GA 30092 (Address)
4. Identification of System: Various
5. (a) Applicable Construction Code: B31.1 19 67 Edition: N/A Addenda, Code Cases: N/A
(b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 19 77, S/78 Addenda, Code Cases: N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Restraints	Ebasco	N/A	N/A	N/A	N/A	1971	Replaced	N/A
& Supports								
Restraints	Ebasco	N/A	N/A	N/A	N/A	1984-	Replacement	N/A
& Supports						1988		

7. Description of Work: Install, Replace and/or modify Q-List/Seismic Class I Supports & Restrai
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ NDE
Pressure N/A psi Test Temp. N/A °F
9. Remarks: See MOD-492 for installation, replacement and/or modification of pipe restraints and supports on Q-List/Seismic Class I Systems that have been determined to be insufficient by analysis or test when compared to design criteria.
(Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this replacement (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/27 (Date) 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, IL. have inspected the replacements (Repair(s) or Replacement(s)) described in this Report on 4-5- 19 89 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-5-89 (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner Carolina Power & Light Company (Name) Date 3/13/89
411 Fayetteville St. Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR2
Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Plant Const. (NELD) (Name) MOD-747 (Repair Organization P.O. No., Job No., etc.)
Same as Item 1. (Address)
4. Identification of System Steam Generator Blowdown and Wet Layup Class 2
5. (a) Applicable Construction Code B31.1 19 67 Edition N/A Addenda, Code Cases N/A
(b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 19 77, S/78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Piping	Ebasco	N/A	N/A	N/A	N/A	1971	Replaced	N/A
Piping	NELD	N/A	N/A	N/A	N/A	1984	Replacement	N/A

7. Description of Work Replaced existing blowdown system with larger diameter piping.
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
Pressure — psi Test Temp. — °F *
9. Remarks *See MOD-747 turnover package for review of numerous tests performed.
(Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this replacement (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/15 (Date), 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, Il. have inspected the replacement (Repair(s) or Replacement(s)) described in this Report on 4-6-, 19 89 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-6-89 (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CASE N-308

1. Carolina Power & Light Co., P.O. Box 1551, Raleigh, N.C. 27602
2. H. B. Robinson, Hwy. 151 & SC 23, Hartsville, S.C. 29550
3. Unit 2
4. Owner Certificate of Authorization: N/A
5. Commercial Service Date: 3-07-71
6. National Board No. N/A

FORM NIS-2 OWNER'S REPORT OF REPAIR OR REPLACEMENT
As Required by the Provisions of ASME Code Section XI

1. Owner Carolina Power & Light Company (Name) Date 3/3789
411 Fayetteville St. Raleigh, NC 27602 (Address) Sheet 1 of 1
2. Plant H.B. Robinson, Hwy. 151 & SC23 (Name) Unit HBR2
Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Project Maintenance (Name) WR/JO 88-ABBK1 (Repair Organization P.O. No., Job No., etc.)
Same as Item 2 (Address)
4. Identification of System Main Steam
5. (a) Applicable Construction Code B31.1 19 67 Edition N/A Addenda, Code Cases N/A
(b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 19 77 S/78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfrs. Ser. No.	Nat'L Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Valve	Schutte & Koerting	67-XC-143	N/A	N/A	MS-VI-3B Isol.	1971	Repaired	No

7. Description of Work Seating Surface of Valve Rockshaft Cover built up with weld metal.
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐ N/A Pressure Test
Pressure _____ psi Test Temp. _____ °F
9. Remarks See WR/JO 88-ABBKI Package
(Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and this repair (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 3/7 (Date), 19 89

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina, employed by Lumbermens Mutual Casualty Company of Long Grove, Il. have inspected the Repair (Report(s) or Replacement(s)) described in this Report on 4-6-, 19 89 and state that to the best of my knowledge and belief, this repair or replacement has been constructed in accordance with Section XI of the ASME Code. By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair or replacement described in this Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-6-89 (Inspector) Commissions NC 1007 (State or Province, National Board)

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. X 11 in., (2) information in items 1 through 4 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON UNIT II
Interval 2 - Period 3 - Outage 4
Inspection Examination Summary

INTRODUCTION

An inservice examination of Class 1, 2, and 3 components was conducted at the H. B. Robinson Unit 2 in December, 1988 and January, 1989. The examinations were performed in accordance with the program plan located under Tab C of the Final Report.

The program plan for this outage was derived from the Inservice Ten Year Inspection Plan. This plan incorporates the ASME Code Section XI requirements defined in the 1977 Edition through the Summer 1978 Addenda and the Carolina Power & Light Technical Specification 4.2.

RESULTS

The examination data sheets recording all of the Class 1, 2, and 3 volumetric, surface, and visual results are located under Tab D of the Final Report. Various examinations produced recordable indications in accordance with the ISI procedure recording criteria, which are generally more restrictive than specified in the ASME Section XI Acceptance Standards. The evaluations of these indications are located under Tab F of the Final Report. An explanation of the Summary of Recorded Indications is as follows:

CLASS I

The Class I examinations produced a total of 42 recordable indications, of which 19 were surface and 23 were visual. Of the 19 surface indications, 18 were accepted as is and the remaining indication and two other indications were reworked to remove the indications. All surface indications were recorded using liquid penetrant. Of the 23 visual indications, 10 were loose nuts or bolts. These were reworked and accepted. Five had missing parts. Four had a gap between the building and the base plate. Three showed evidence of leakage and one was a spring can with the reading off scale. Also at this time, the surge line was examined and three recordable indications were located on the three supports. These indications were reworked.

CLASS II

The class II examinations produced 2 surface indications. One was accepted as is and the other was reworked and accepted. Three indications were monitored from the last outage. No change in the indications was found. Also, one visual indication was monitored. This support was found to be loose and was reworked.

CLASS III

The Class III examinations consisted of monitoring previous indications. One support was verified as no support in that location.

EXAMINATIONS

Ultrasonic examinations were conducted to review as much of the examination zone as was practical, within geometric, metallurgical and physical limitations. When the required ultrasonic examination volume or area could not be examined 100%, the examination was considered to be a partial and was so noted. Generally noted as fitting-to-fitting assemblies (as explained under LIMITATIONS) and in areas where integrally welded supports, lugs, or hangers, etc., preclude access to some part of the examination area. All of these areas were listed as LIMITATIONS.

Ultrasonic examination that produced greater than reference level sensitivity from reflectors that are characteristic of metallurgical structure or the I.D. and/or O.D. surfaces of an item were acknowledged only. Examples of areas that generally produce such geometric indications are as follows:

(1) Inside diameter weld preparation or root configuration and the outside diameter crown overlay or toe.

(2) The I.D. radius of the tube sheet on the channel head to tube sheet weld of steam generators, when examining from tube sheet side.

(3) The metallurgical structure of the cast materials.

(4) Responses from the thread areas of bolting.

LIMITATIONS

Some of the arrangements and details of the piping system and components were designed and fabricated before the access and examinations requirements of Section XI of the 1977 Code could be applied; consequently, some examinations are limited or not practical due to geometric configuration or accessibility. Generally these limitations exist at all fitting-to-fitting joints such as elbow to tee, elbow to valve, reducer to valve, etc., where geometry and sometimes surface condition preclude ultrasonic coupling or access for the required scan length.

The limitations exist to a lesser degree at pipe to fitting assemblies, particularly where the weld is not ground flush with the pipe O.D. surface. At these joints examinations can be conducted from the pipe side; however, the fitting again limits or precludes examination from the opposite side. When the weld surface is flat, the fitting side examination is replaced by a calibrated straight beam examination on the weld.

In most cases, examinations in limited areas were accomplished as a best effort attempt to cover as much of the code required area or volume (generally, the weld and base metal for 1 "T" on each side) as possible.

However, the extent of examination coverage in the base metal of the fitting or component cannot be specifically quantified as being 100% These areas where complete examination of 100% of the required volume of area could not be achieved were calculated by the examiner and noted on the data sheet with the limiting cause.

The principal basis for LIMITATIONS is to identify the inability to examine 100% of the required base metal volume for the 1 T distance beyond the edge of the weld on a fitting or component. Examples are (1) ultrasonic examination of a pipe to elbow assembly, where scanning on the intrados of the elbow causes de-coupling of the sound beam and (2) a pipe to flange or valve assembly where scanning the entire volume on the fitting or component side is limited by configuration. The resulting coverage is such that examination of the weld, heat affected zone and base metal for 1 "T" on the pipe side can be achieved by scanning from the pipe side of the weld. An indeterminate coverage of the base metal on the fitting or component side may be achieved during this pipe side scan depending on the calibrated sweep length, attenuation, joint configuration, etc. However, the volume on the fitting or component side additionally cannot be scanned completely for transverse indications as required by Code. In either case, 100% of this 1 "T" volume cannot be assured, thus a LIMITATION is required as a disclaimer to having satisfied code requirements, albeit the intent is satisfied to the extent practical.

PRESSURE TESTING

With regard to the H. B. Robinson Pressure Testing Program, the second 40 month pressure testing requirements were completed since the 1987 report was submitted. In addition, the Hydrostatic Pressure Tests required for the third 40 month period was initiated during the 1988 Outage.

The following is a listing of the pressure tests conducted to complete the second 40 month period. (Ref. Plant Procedure TMM-020).

1. EST-077 Inservice Insp. Press. Test of Feedwater System
2. EST-078 Inservice Insp. Press. Test of SI Pump Discharge Piping Outside Containment.
3. EST-079 Inservice Insp. Press. Test of Containment Spray System
4. EST-084 Inservice Insp. Press. Test of Spent Fuel Pit Cooling System
5. EST-088 Inservice Insp. Press. Test of CCW Inside the Auxiliary Building
6. EST-091 Inservice Insp. Press. Test of SIS and CS Pump Suction Piping
7. EST-092 Inservice Insp. Press. Test of Spray Additive Tank and Associated Piping.
8. EST-093 Inservice Insp. Press. Test of Chemical and Volume Control System
9. EST-094 Inservice Insp. Press. Test of Service Water System
10. EST-097 Inservice Insp. Press. Test of Steam Supply Piping to SDAFW Pump
11. EST-098 Inservice Insp. Press. Test of Diesel Fuel Oil System Piping

Procedure EST-083 for the Reactor Coolant System leakage performed at refueling outages was upgraded per the requirements of plant procedure PLP-040 to detect Boric Acid Corrosion of Reactor Coolant System Carbon Steel Bolting.

The third 40 month period Hydro Static Testing Program was initiated this (1988) Outage by way of Special Procedure SP-440 for the Reactor Coolant System and portions of associated Class 2 Safety Injection Piping and the Class 2 portion of RVLIS.

In addition to the above, SP-386 was performed to pick-up the portion of piping located between valve SI-887 and SI-863 A & B previously missed during the 1982 Hydrostatic Test Program.

All of the listed procedures and records available at the Robinson Site for review.

The Hydrostatic Testing Overall Program for the second ten year interval will be submitted prior to the 1990 Refueling Outage at which time numerous hydrostatic tests will be performed. This program has yet to be formalized.

Examination Program Plan
for
Carolina Power & Light Company
H. B. Robinson Unit #2
Inservice Inspection
Interval 2 - Period 3 - Outage 4

All items and areas listed below were examined as indicated in accordance with the requirements of the 1977 Edition of Section XI with addenda up to and including the 1978 Summer Addenda to the extent practical with the access provided and the limitations of component geometry.

Program Item	IWB-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure			Sketch Reference CP&L
			U.T.	Surf.	V.T.	
		Class I				
1.	B5.10	14 & 14DM (Loops A,B,C)	-	11	-	107, 107A&B
2.	B5.20	Ref. 551B & C 1DM	206	11	-	118A&B
3.	B7.20	11 thru 16 M.W. Bolts	-	-	8	103
4.	B3.140	H.L. & C.L. Inner Radii	-	-	8	105
5.	B3.140	H.L. & C.L. Inner Radii	-	-	8	105A
6.	B3.140	H.L. & C.L. Inner Radii	-	-	8	105B
7.	B5.30	4DM & 5DM	206	11	-	107B
8.	B7.30	1 thru 16 Hot Leg	-	-	8	105B
9.	B7.30	1 thru 16 Cold Leg	-	-	8	105B
10.	B9.11	11	206	11	-	107B
11.	B9.11	8	206	11	-	109
12.	B9.11	10, 10A & 16	206	11	--	110
13.	B11.10	DD	-	-	8	110
14.	B10.10	F-WS	206	11	-	110
15.	B9.11	14	206	11	-	111
16.	B11.10	F	-	-	8	111
17.	B9.11	13A & 19	206	11	-	112
18.	B11.10	D1 & E1	-	-	8	112
19.	B9.11	1	206	11	-	113
20.	B10.10	A-WS	206	11	-	114
21.	B10.10	B-WS	-	11	-	115
22.	B9.11	10 & 141	206	11	-	116
23.	B9.11	142	206	11	-	116A
24.	B9.11	161 & 18	206	11	-	116B
25.	B5.20	1DM	206	11	-	118A
26.	B9.11	8	206	11	-	118B

Program Item	IWB-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure U.T.	Surf.	V.T.	Sketch Reference CP&L
27.	B5.20	1DM	206	11	-	118B
28.	B9.31	1BC	-	11	-	120
29.	B9.21	002, 003, 16, 17	-	11	-	122
30.	B11.10	R,JJ,HH & Q-wS	-	-	8	122
31.	B9.21	33 & 34	-	11	-	122A
32.	B10.10	R-WS	-	11	-	122A
33.	B11.10	FF			8	123
34.	B9.21	63A & 64	-	11	-	123
35.	B9.21	35 & 36	-	11	-	123A
36.	B11.10	AA,ZZ & 00	-	-	8	123A
37.	B9.21	8,9 & 10	-	11	-	124
38.	B10.10	EE-WS	-	11	-	124
39.	B9.40	5 & 37 thru 50	-	11	-	125
40.	B11.10	B,C,D & E	-	-	8	125
41.	B9.40	7	-	11	-	126
42.	B9.40	5	-	11	-	127
43.	B9.40	6	-	11	-	128
44.	B9.40	3	-	11	-	131
45.	B9.40	1A,15A & 15B	-	11	-	132
46.	B11.10	Z,AA,BB,CC,DD,EE,FF, GG,HH,II,JJ,KK & LL	-	-	8	132
47.	B11.10	H,I,J,A1 & K	-	-	8	133
48.	B9.40	10,11,12,12A,12B,16A, 16B,17,18,19,20 & 21	-	11	-	134
49.	B11.10	I,J,K,L, AA & G	-	-	8	134
50.	B7.50	Flange Bolts (4)	-	-	8	134
51.	B9.32	1BC	-	11	-	138
52.	B9.40	13,14,18C,18D,18E & 18F	-	11	-	141
53.	B10.10	F-WS & O-WS	-	11		141
54.	B11.10	B,D,E,F,G,H,I,J, K,L,M,N,O & P	-	-	8	141
55.	B9.40	4,10,11 & 12	-	11	-	142
56.	B11.10	A,B,C,E,F & I	-	-	8	142
57.	B9.40	20,21,22,23,37A,36C,&37	-	11	-	143
58.	B11.10	A,B,D,E,F,G,H,I,J,K, L,M,N,P,R,S,T,AA & BB	-	-	8	143
59.	N/A	R.C. Pump Flywheels A,B&C	41		-	144
60.	B7.70	Valve Bolts V875D(16)	-	-	8	110
61.	B7.70	Valve Bolts V875E(16)	-	-	8	111
62.	B7.70	Valve Bolts V876A(16)	-	-	8	113
63.	B7.70	Valve Bolts V535(12)	-	-	8	117A

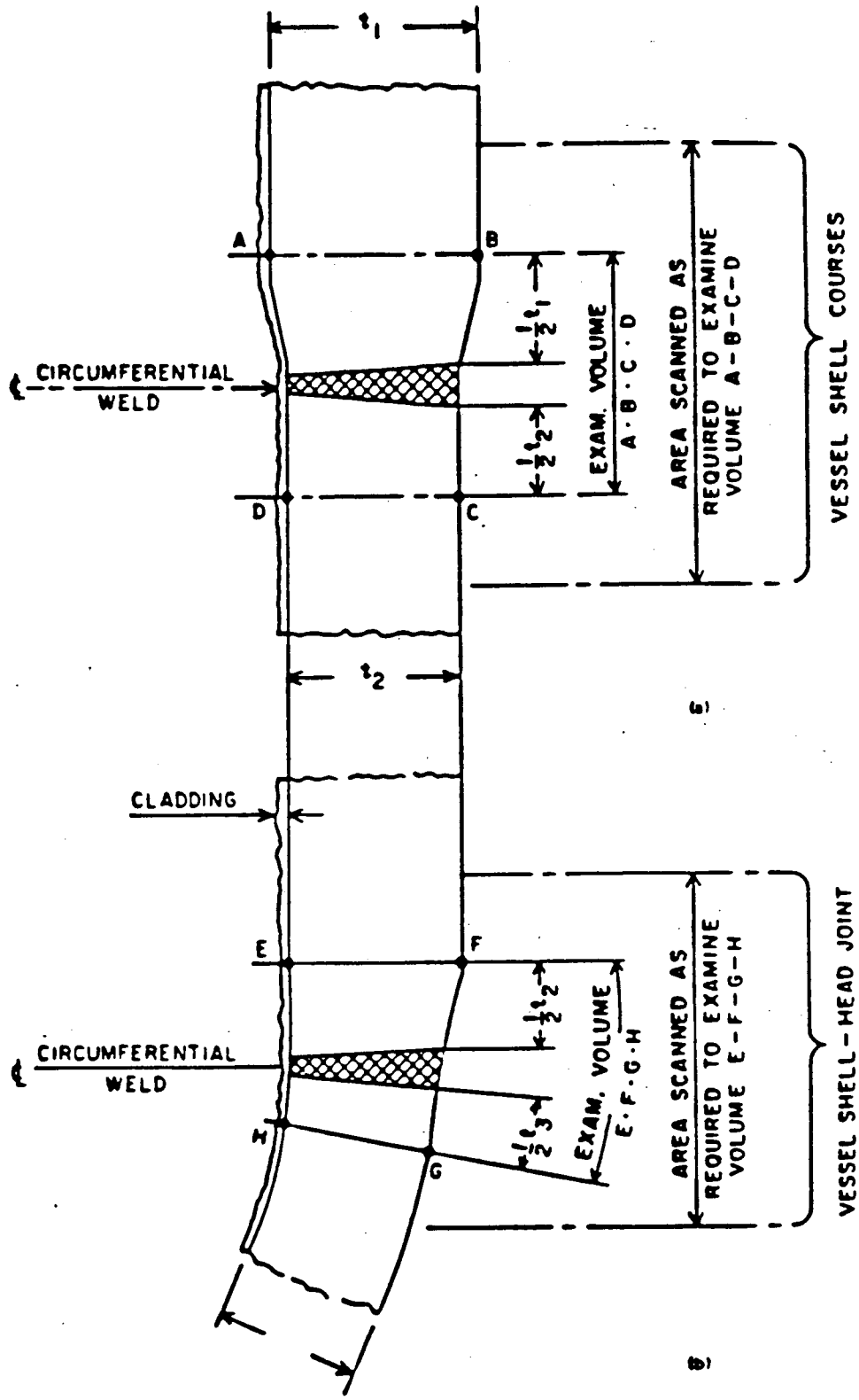
Program Item	IWB-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure U.T.	Surf.	V.T.	Sketch Reference CP&L
64.	B7.70	Valve Bolts V551A(8)	-	-	8	118
65.	B7.70	Valve Bolts V310A(6)	-	-	8	122A
66.	B7.70	Valve Bolts V312C(12)	-	-	8	123
67.	B7.70	Valve Bolts V310B(6)	-	-	8	123A
68.	B7.70	Valve Bolts V309D(2)	-	-	8	125
69.	B7.70	Valve Bolts V505B(2)	-	-	8	126
70.	B7.70	Valve Bolts V508A V508B(2)	-	-	8	127
71.	B7.70	Valve Bolts V866B(2)	-	-	8	141
72.	B7.70	Valve Bolts V866A(2)	-	-	8	142
73.	B7.70	Valve Bolts V311(6)	-	-	8	143
		Monitor Class I				
74.	B9.11	Weld 3 & 2A (New Cal. Block)	206	-	-	114
75.	B9.11	Weld 4 (New Cal. Blook	206	-	-	115
76.	B11.10	Support "D"	-	-	8	116B
		Augmented Program Class I				
77.	B9.31	Weld 1BC	206	11	-	108
78.	B9.11	Welds 1A,3 & 4 & 2	206	11	-	108
79.	B5.20	Weld 4DM	206	11	-	108
80.	B11.10	Hangers A thru G	-	-	8	108
81.	B9.11	Welds 2, & 4A	206	-	-	112
		Monitor Class II				
82.	C3.10	WS-3	-	11	-	203
83.	C3.50	Support "L"	-	-	8	215
84.	C5.21	Weld 188,186 (New Block)	206	-	-	219
85.	C5.21	Welds 203&209 (New Block)	206	-	-	219A
86.	C5.11	Welds 42 & 43	-	11	-	220
87.	C3.50	Supports K & N	-	-	8	221A

Program Item	IWD-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure U.T.	Surf.	V.T.	Sketch Reference CP&L
		Monitor Class III				
88.	D2.2/2.3	Support "A"	-	-	8	329
89.	D1.2/1.3	Support "B"	-	-	8	333
		Class II				
90.	C1.5	Bolting 1 thru 16	15	-	-	202
91.	C2.1	182, 186	-	11	-	219
92.	C4.1	V1, V2	-	11	-	219

ILLUSTRATIVE ONLY

FIGURE B-01

VESSEL SHELL CIRCUMFERENTIAL WELD JOINTS

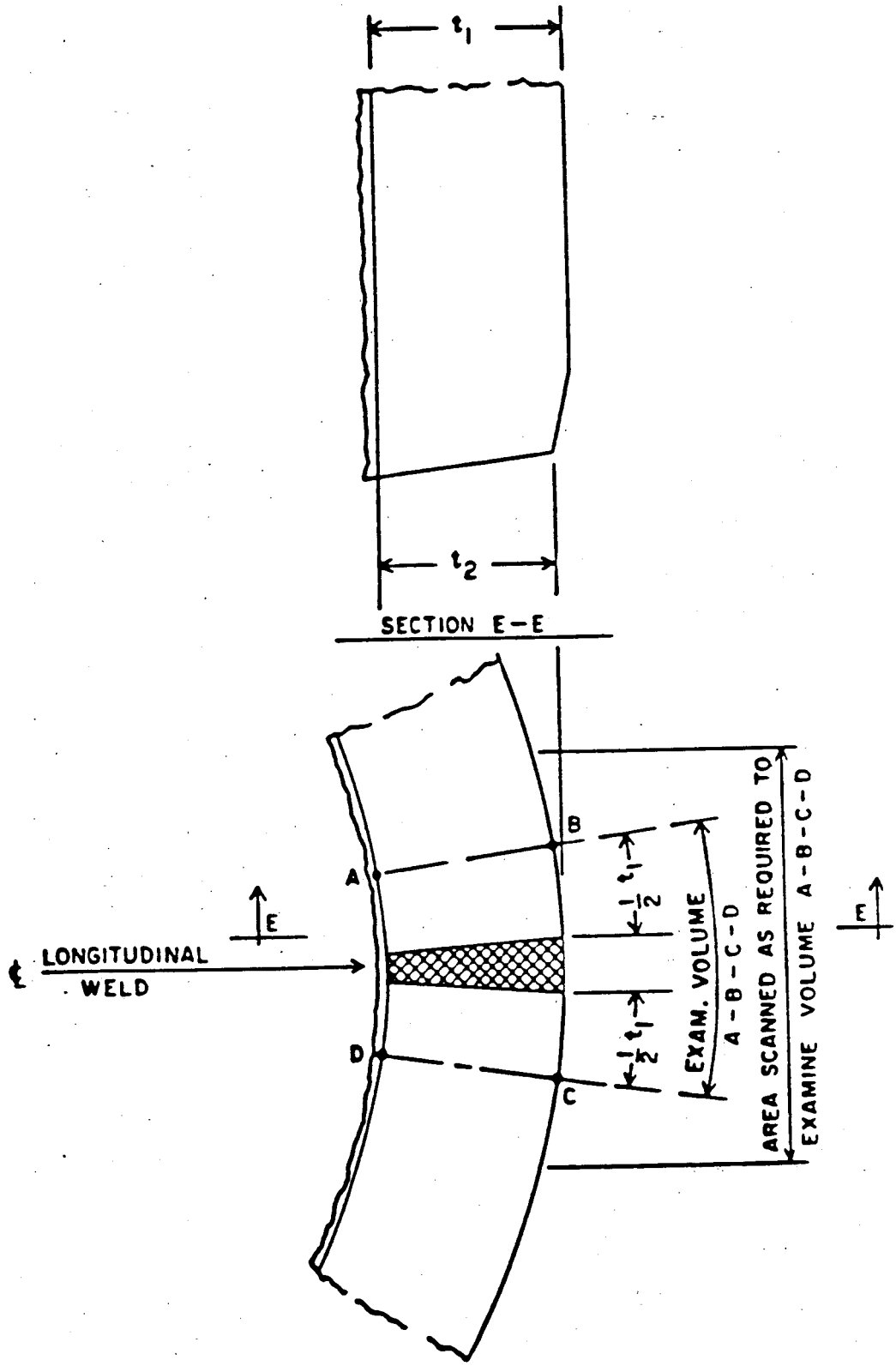


WESTINGHOUSE ELECTRIC CORPORATION

ILLUSTRATIVE ONLY

FIGURE B-02

VESSEL SHELL LONGITUDINAL WELD JOINTS

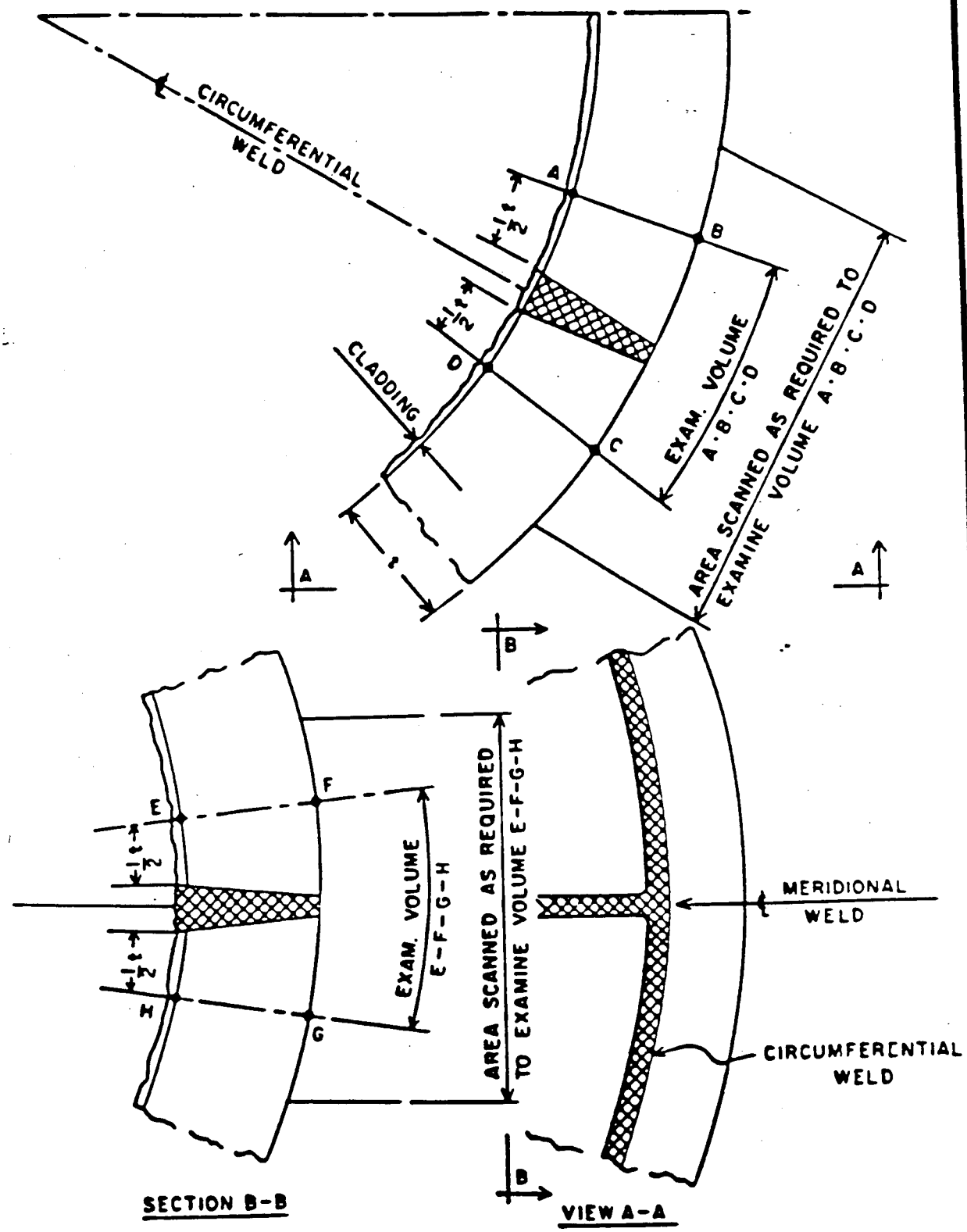


WESTINGHOUSE ELECTRIC CORPORATION

ILLUSTRATIVE ONLY

FIGURE B-03

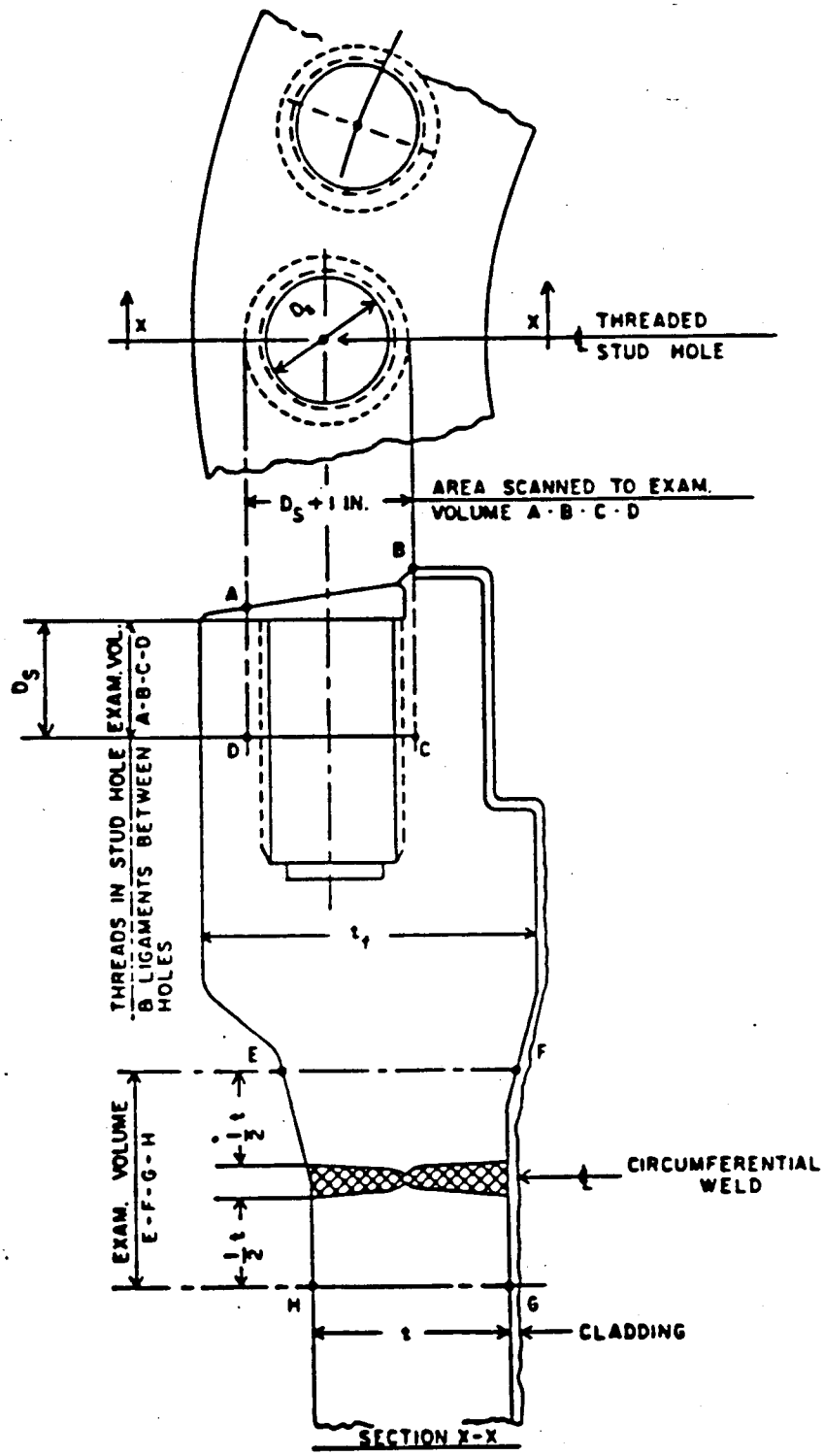
SPHERICAL VESSEL HEAD CIRCUMFERENTIAL AND MERIDIONAL WELD JOINTS



ILLUSTRATIVE ONLY

FIGURE B-04

SHELL-TO-FLANGE WELD JOINT

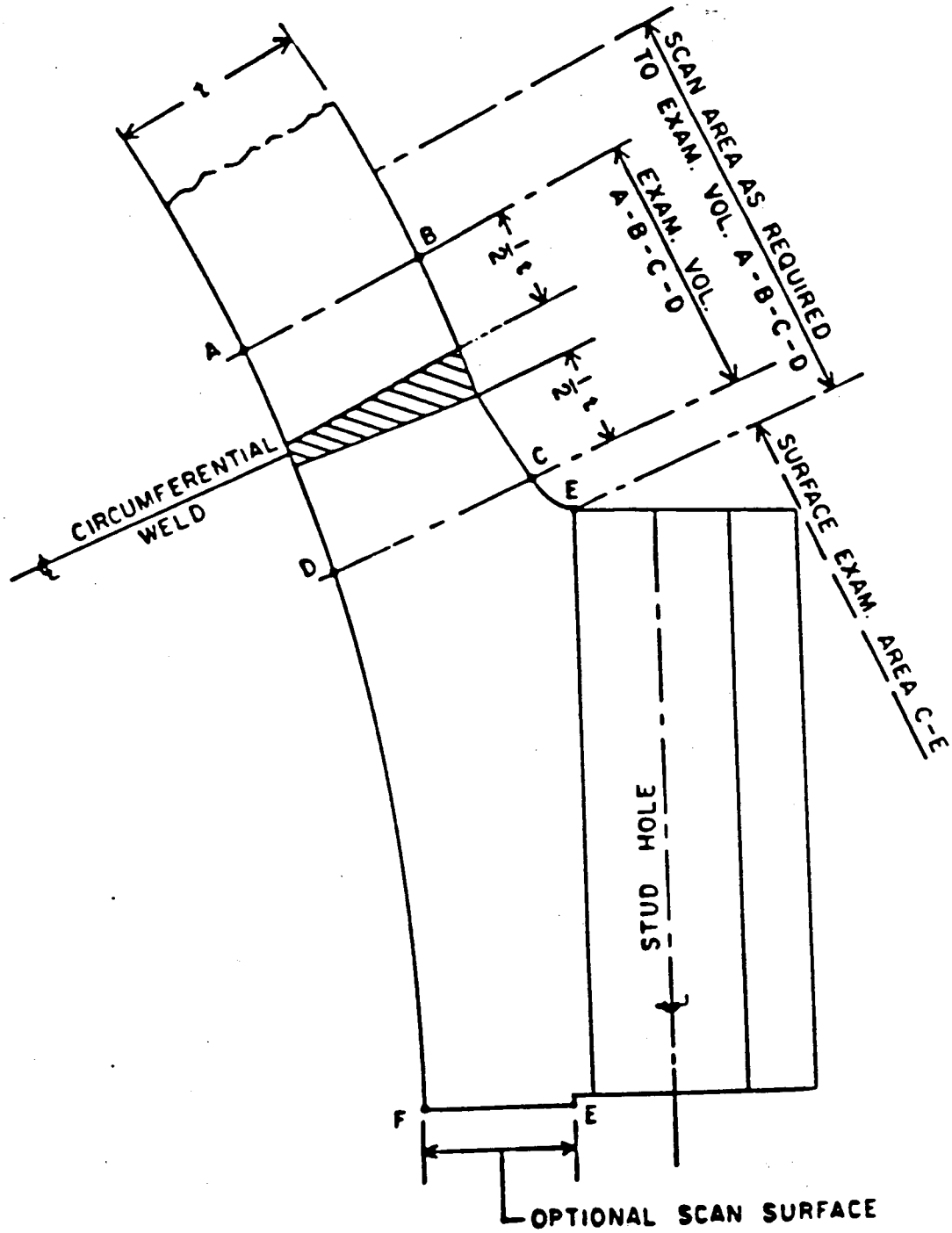


WESTINGHOUSE ELECTRIC CORPORATION

ILLUSTRATIVE ONLY

FIGURE B-05

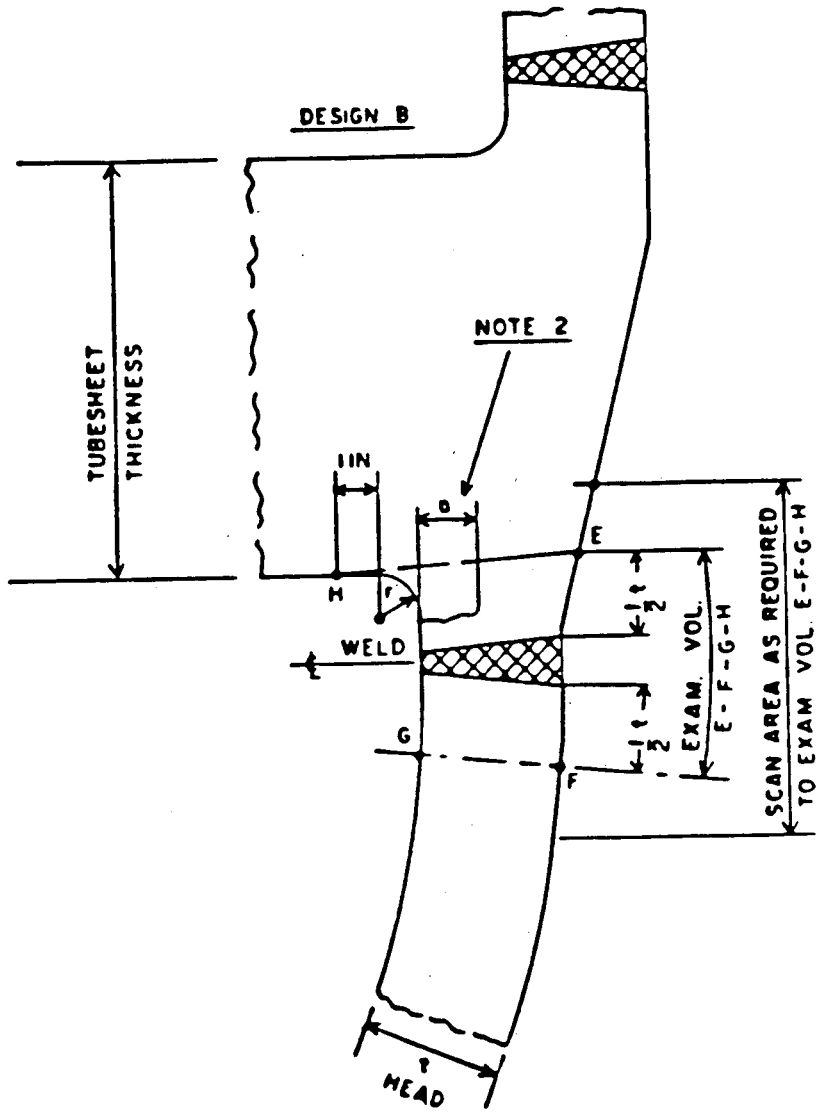
HEAD-TO-FLANGE WELD JOINT



ILLUSTRATIVE ONLY

FIGURE B-06

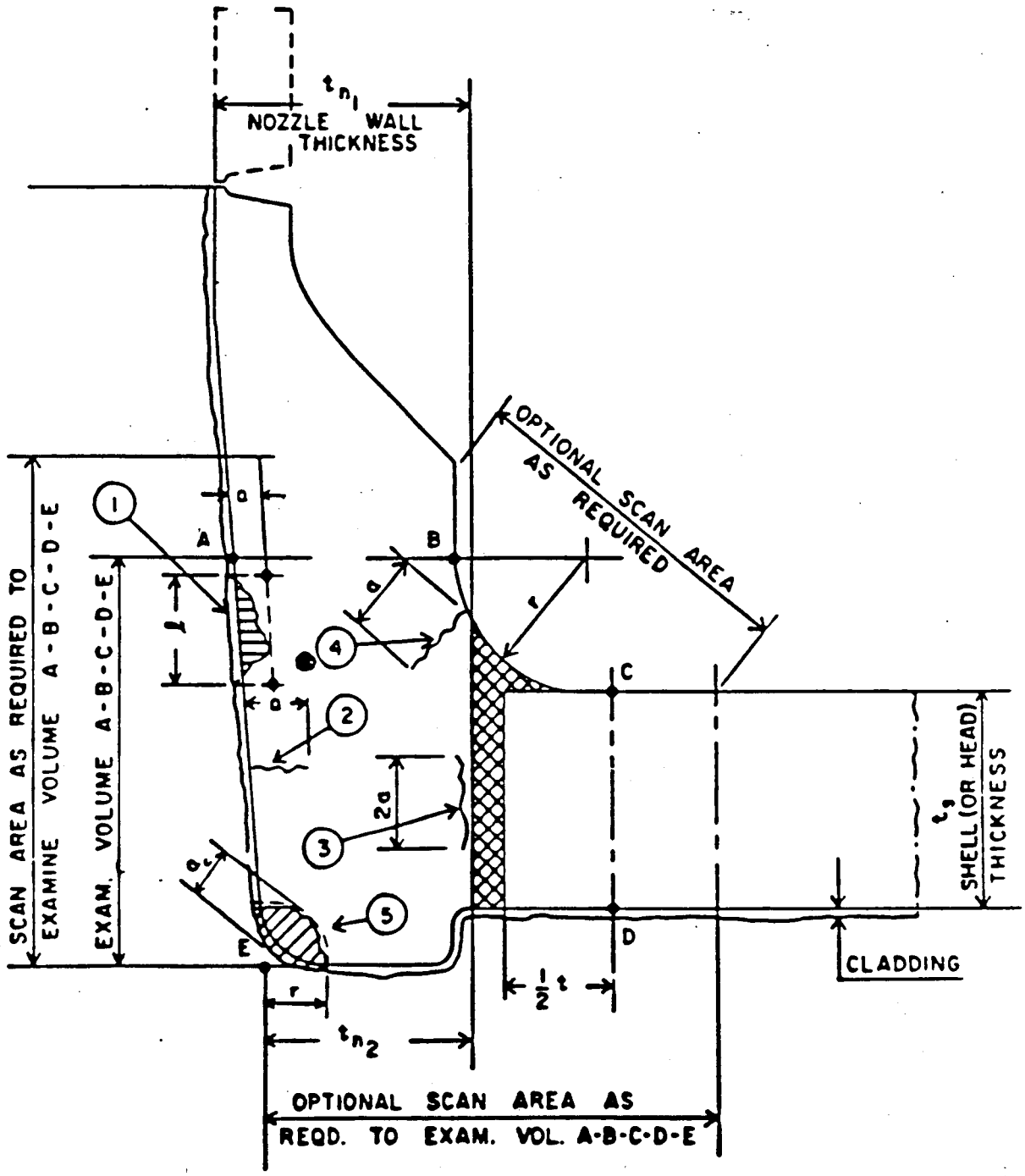
TYPICAL TUBESHEET-TO-HEAD WELD JOINTS



ILLUSTRATIVE ONLY

FIGURE B-07

NOZZLE-TO-SHELL OR HEAD WELD JOINTS

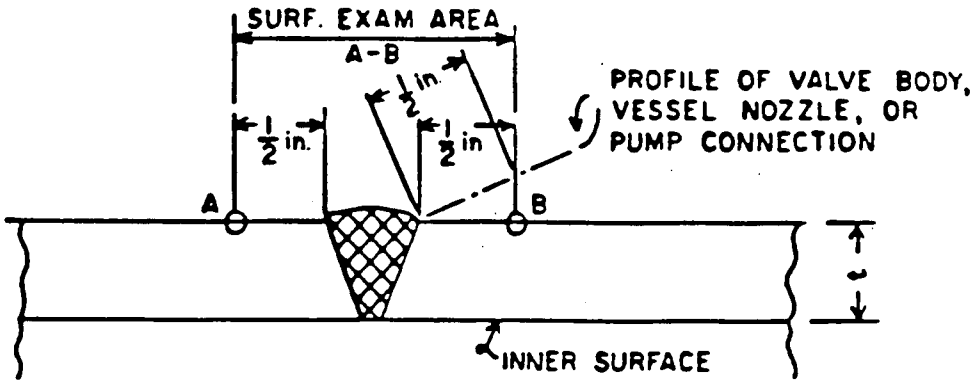


NOTE: ALL FLAWS ARE EXAGGERATED IN SIZE AND SCALE

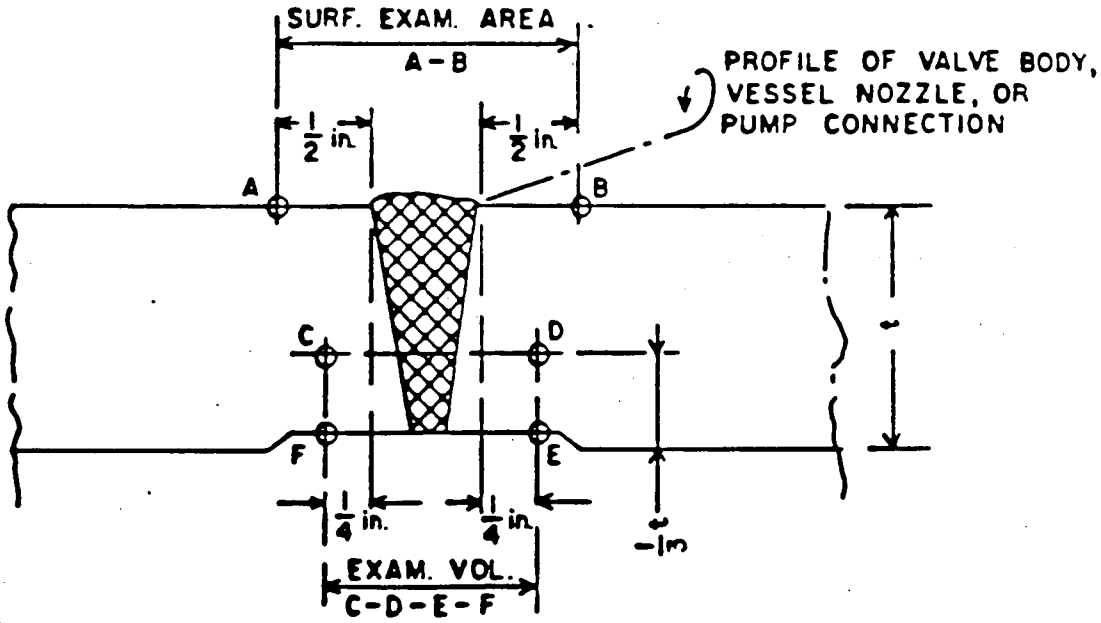
ILLUSTRATIVE ONLY

FIGURE B-08

SIMILAR AND DISSIMILAR METAL WELDS IN PIPING



NOM. PIPE SIZE LESS THAN 4 IN.

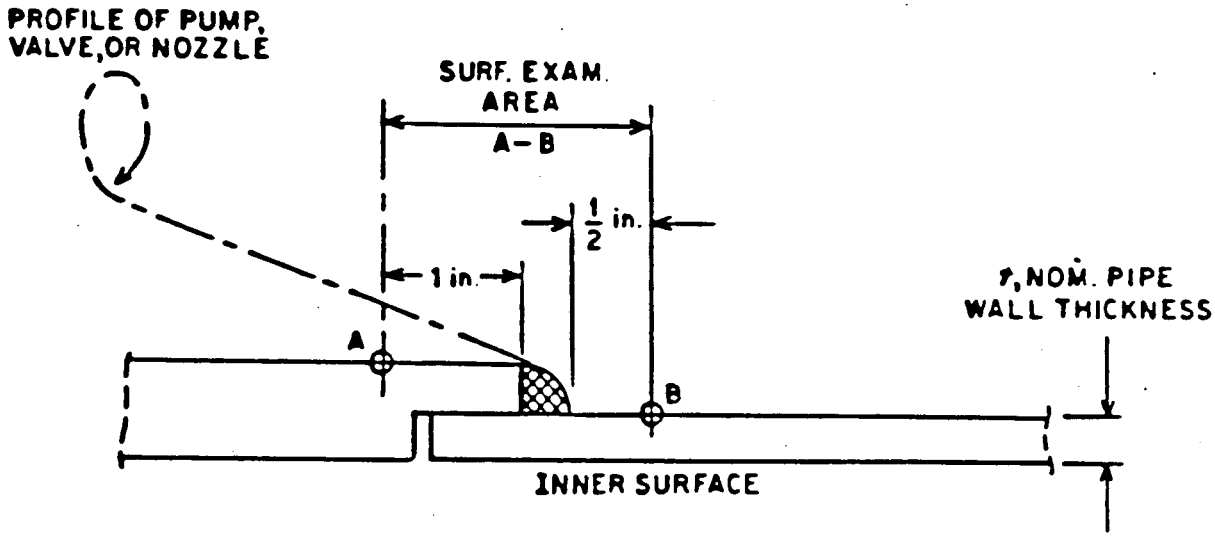


NOM. PIPE SIZE 4 IN. AND GREATER

ILLUSTRATIVE ONLY

FIGURE B-08(a)

SOCKET WELDED PIPING

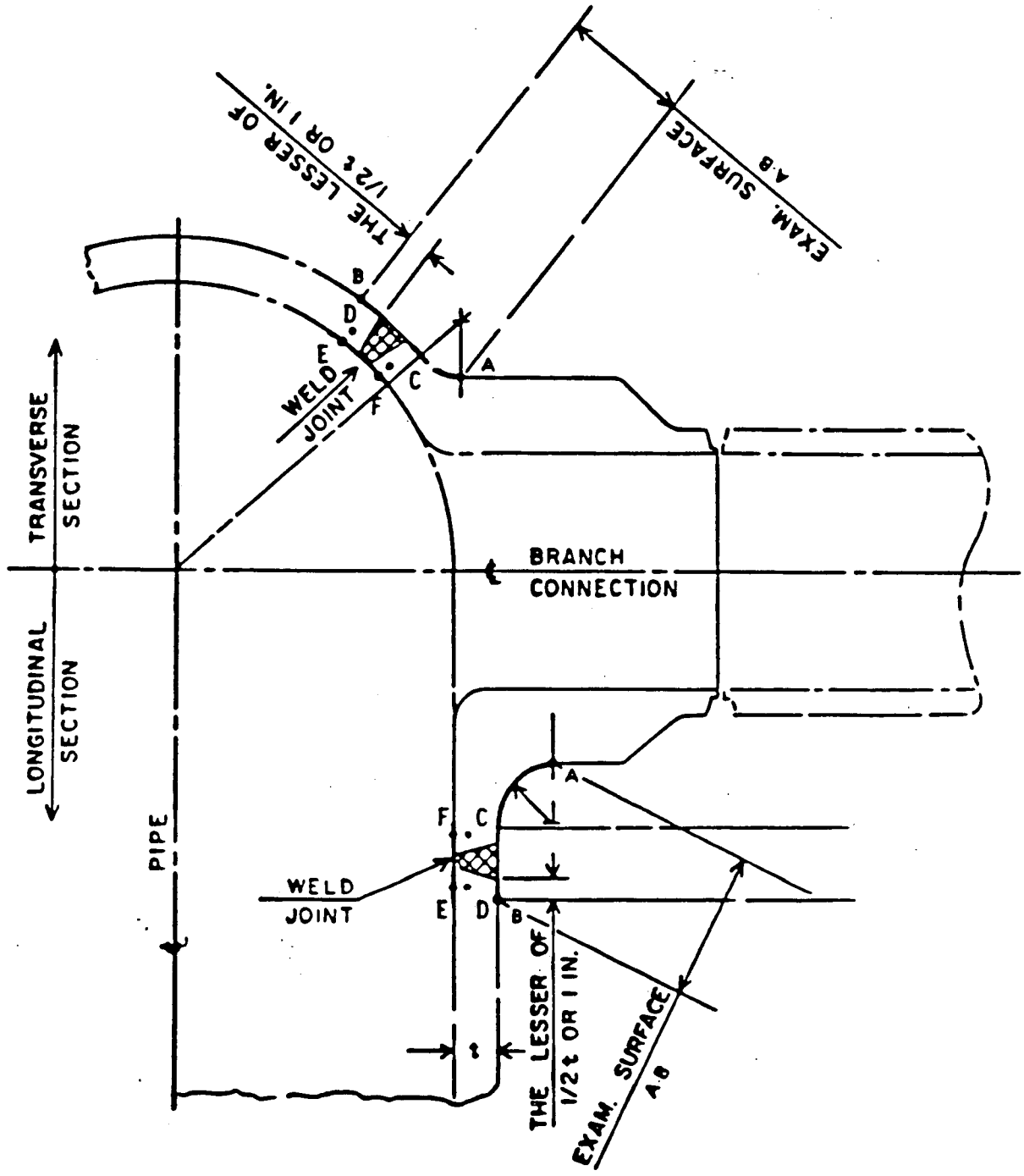


SOCKET WELDED PIPING

ILLUSTRATIVE ONLY

FIGURE B-09

PIPE BRANCH CONNECTION

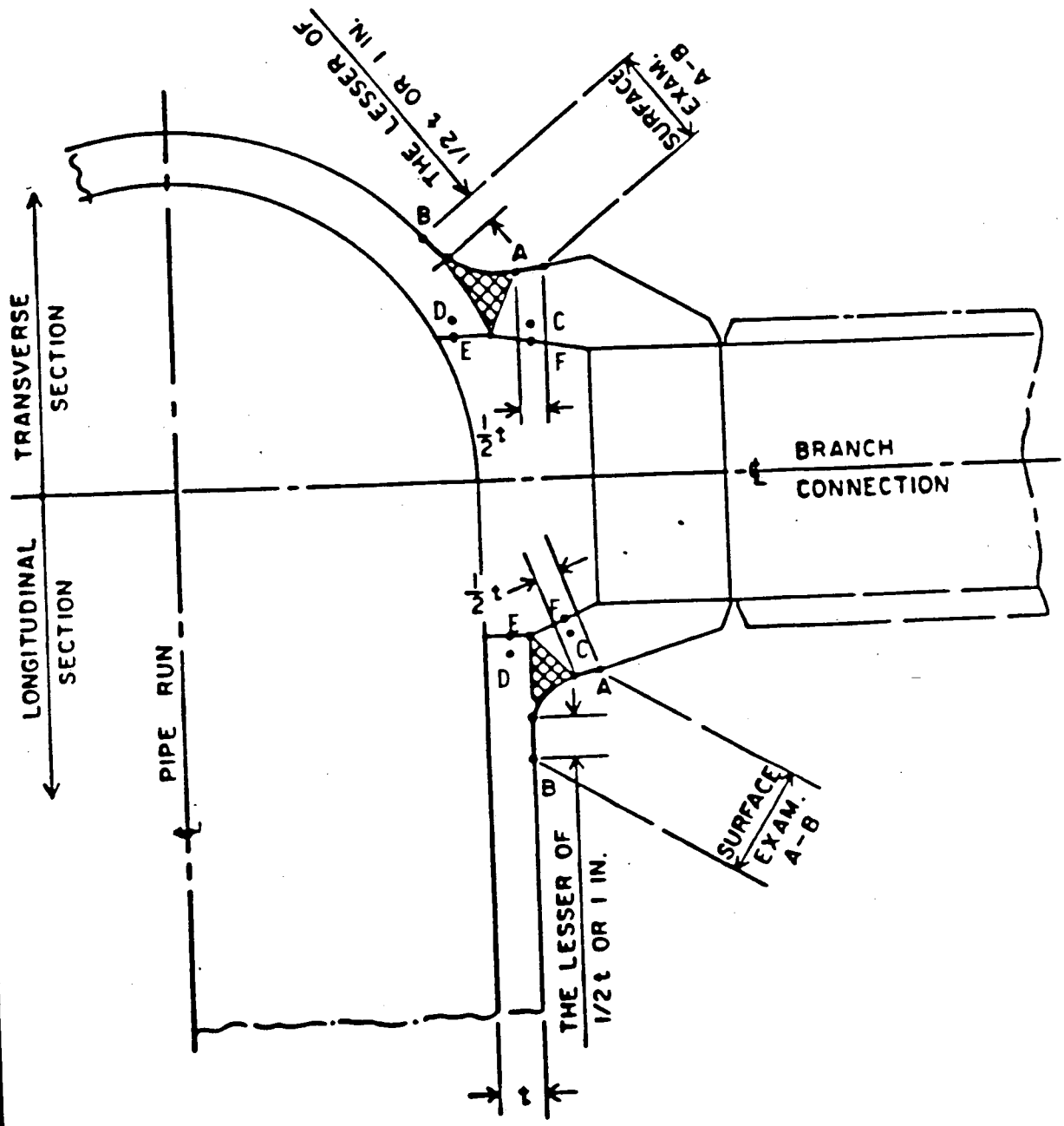


WESTINGHOUSE ELECTRIC CORPORATION

ILLUSTRATIVE ONLY

FIGURE B-10

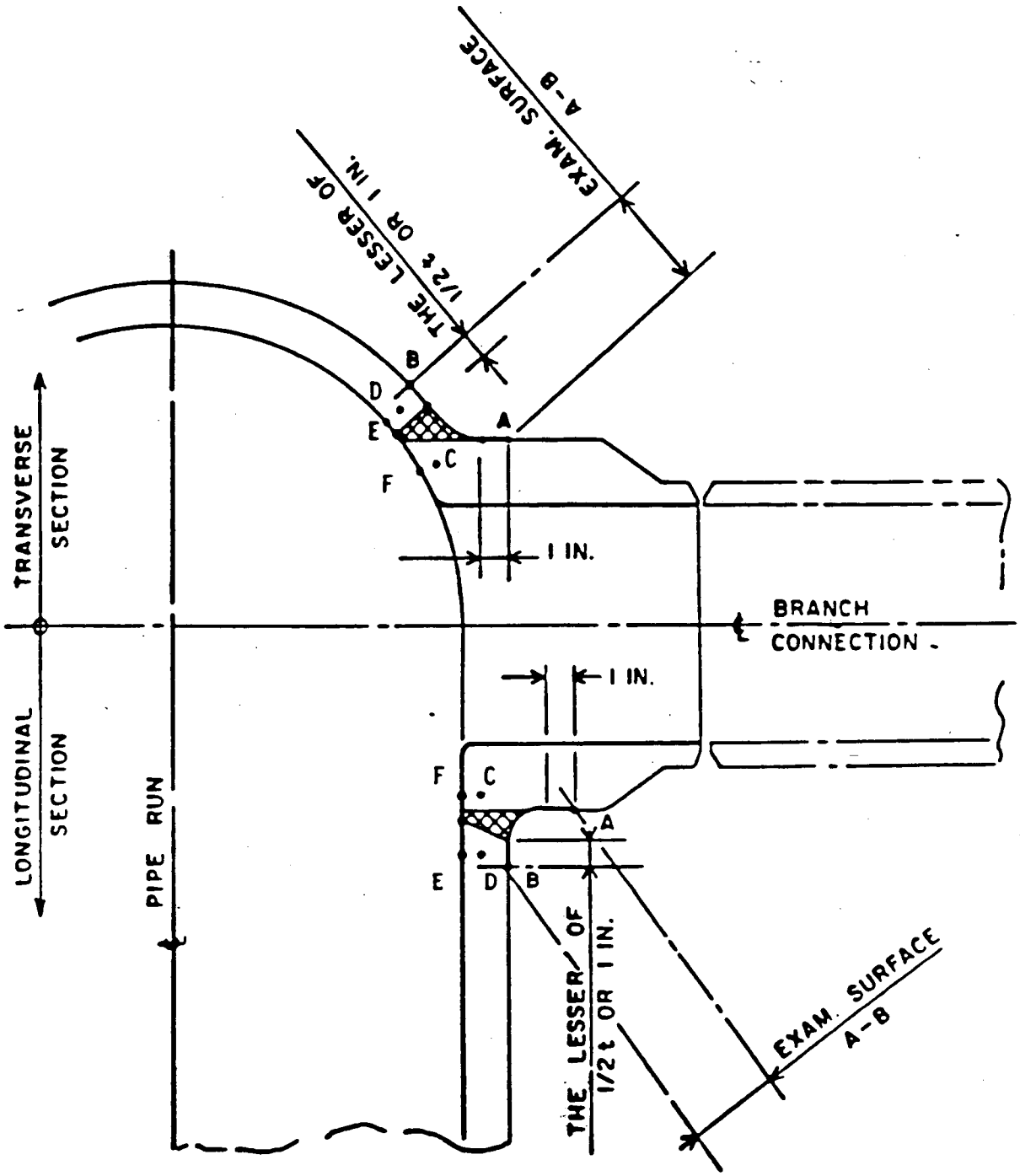
PIPE BRANCH CONNECTION



ILLUSTRATIVE ONLY

FIGURE B-11

PIPE BRANCH CONNECTION

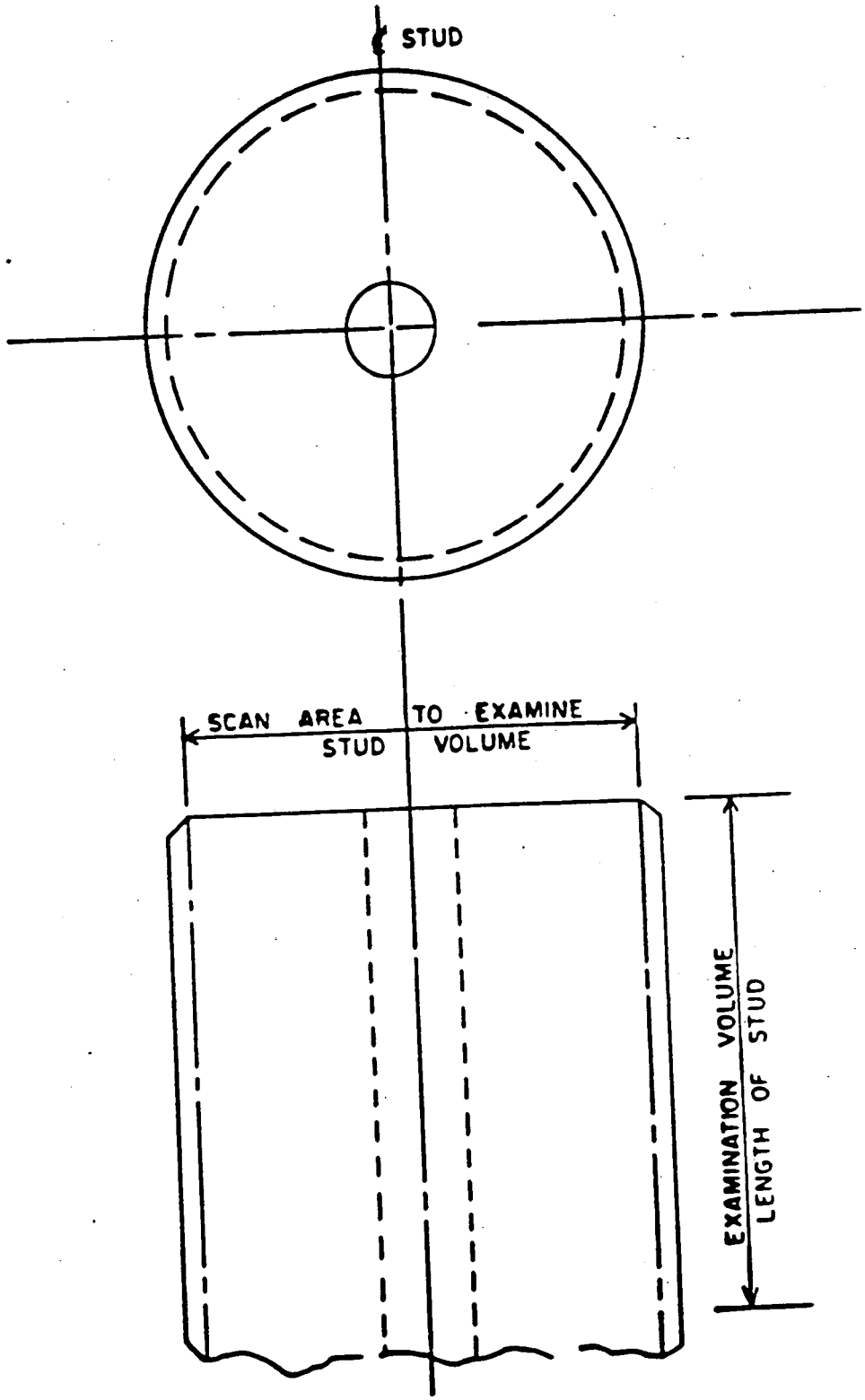


WESTINGHOUSE ELECTRIC CORPORATION

FIGURE B-12

ILLUSTRATIVE ONLY

CLOSURE STUD

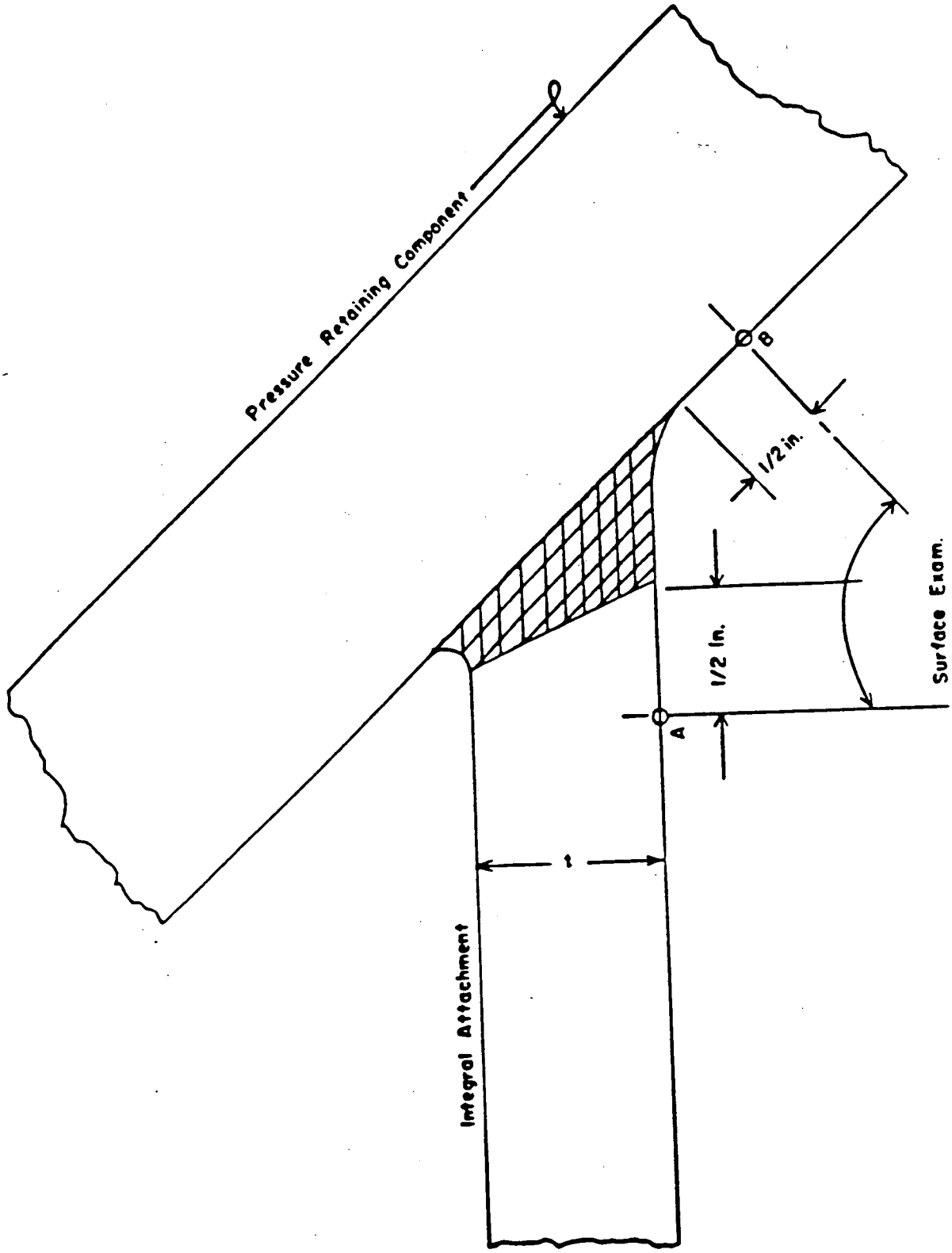


WESTINGHOUSE ELECTRIC CORPORATION

ILLUSTRATIVE ONLY

FIGURE B-13

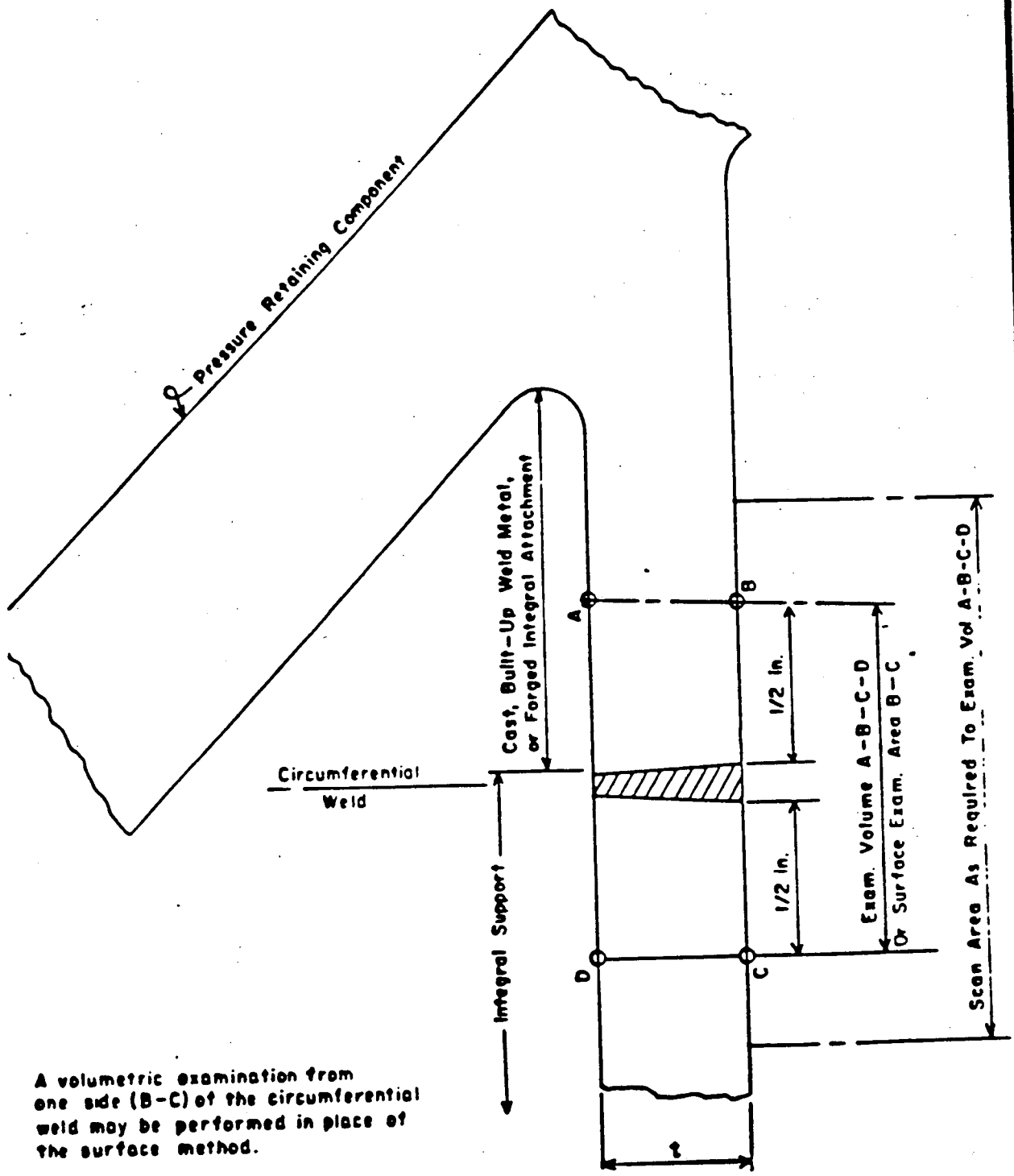
SUPPORT CIRCUMFERENTIAL WELD JOINT



ILLUSTRATIVE ONLY

FIGURE B-14

SUPPORT CIRCUMFERENTIAL WELD JOINT

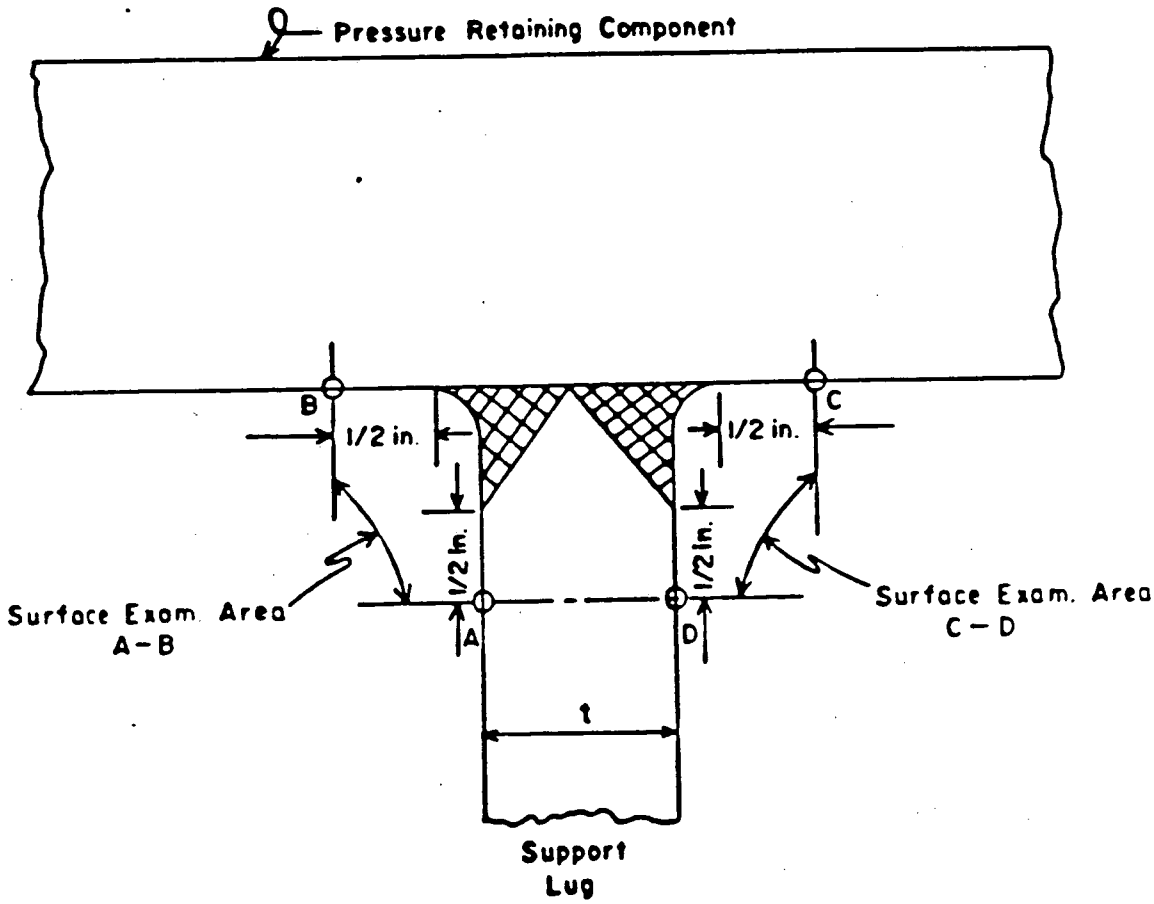


A volumetric examination from one side (B-C) of the circumferential weld may be performed in place of the surface method.

ILLUSTRATIVE ONLY

FIGURE B-15

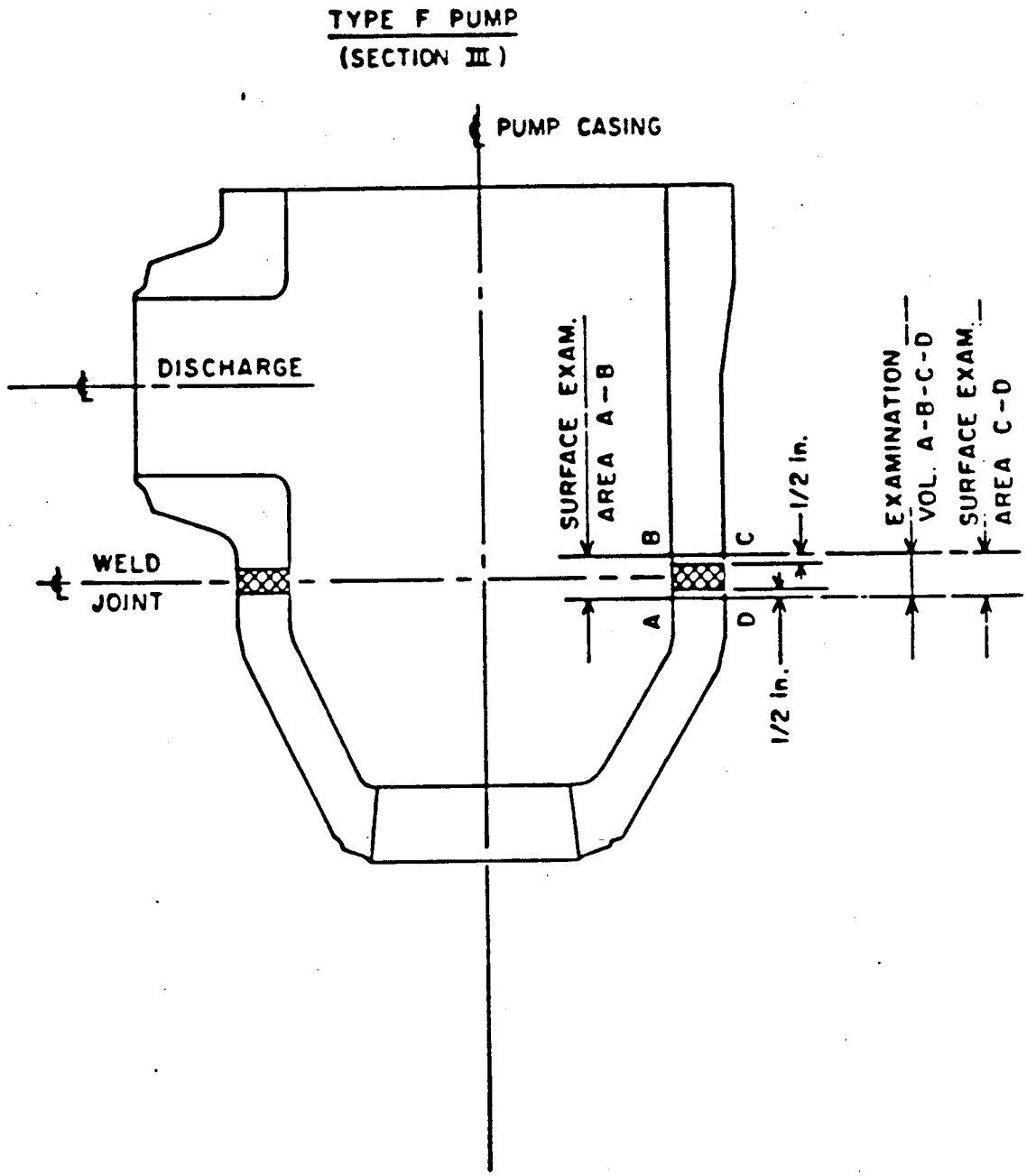
SUPPORT LUG ATTACHMENT



ILLUSTRATIVE ONLY

FIGURE B-16

PUMP CASING WELD

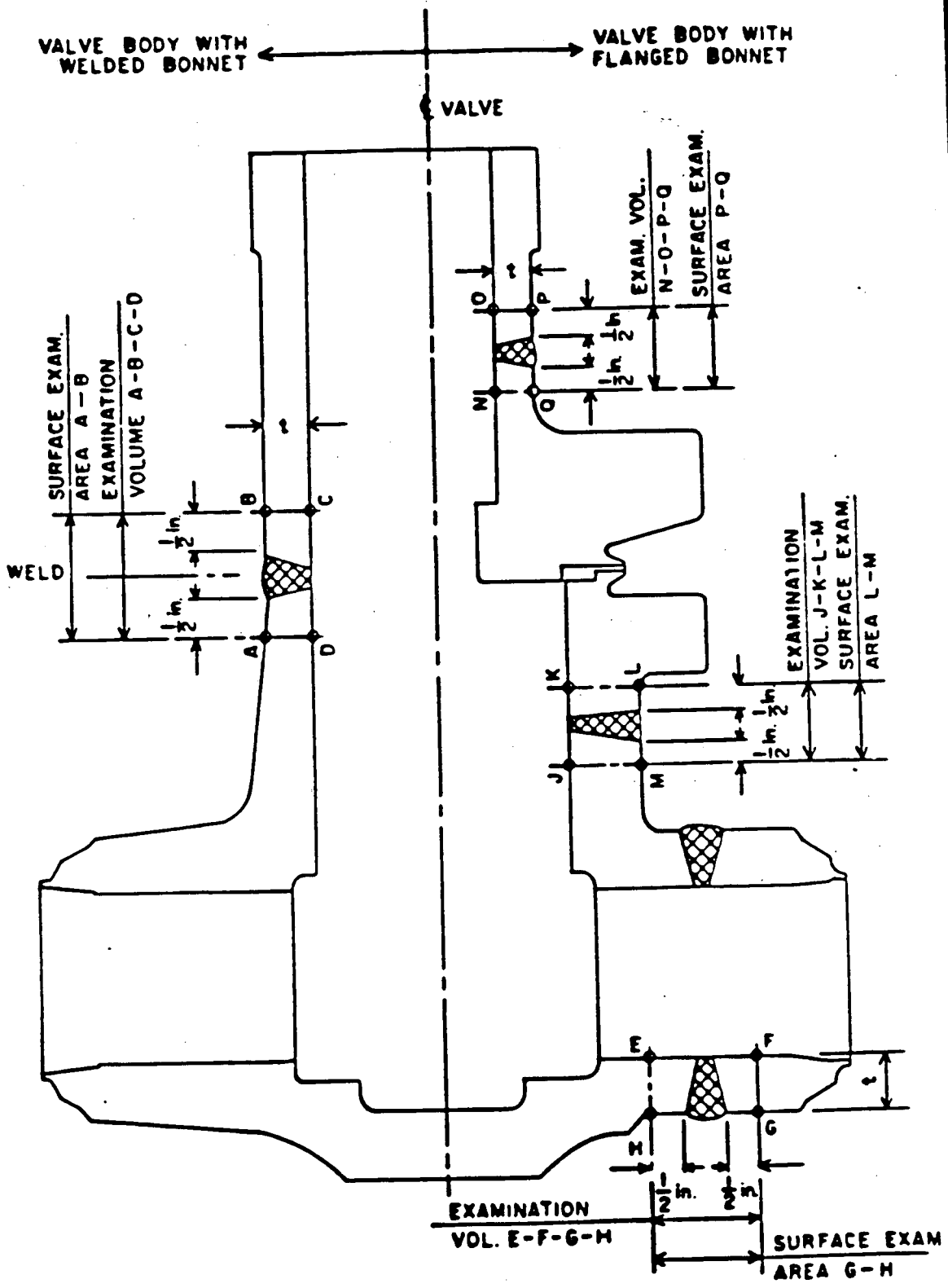


WESTINGHOUSE ELECTRIC CORPORATION

ILLUSTRATIVE ONLY

FIGURE B-17

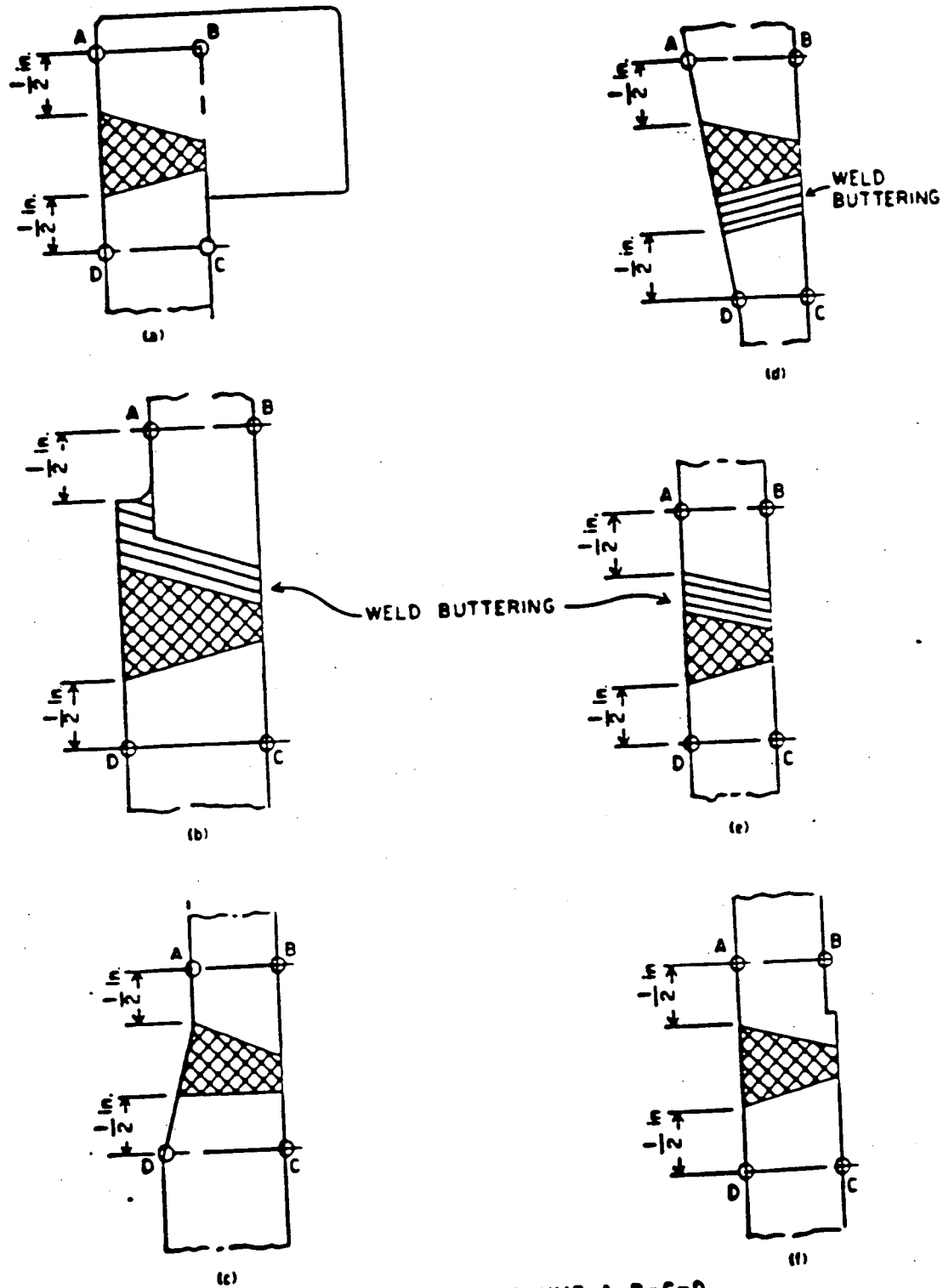
VALVE BODY WELDS



ILLUSTRATIVE ONLY

FIGURE B-18

CONTROL ROD DRIVE HOUSING WELDS

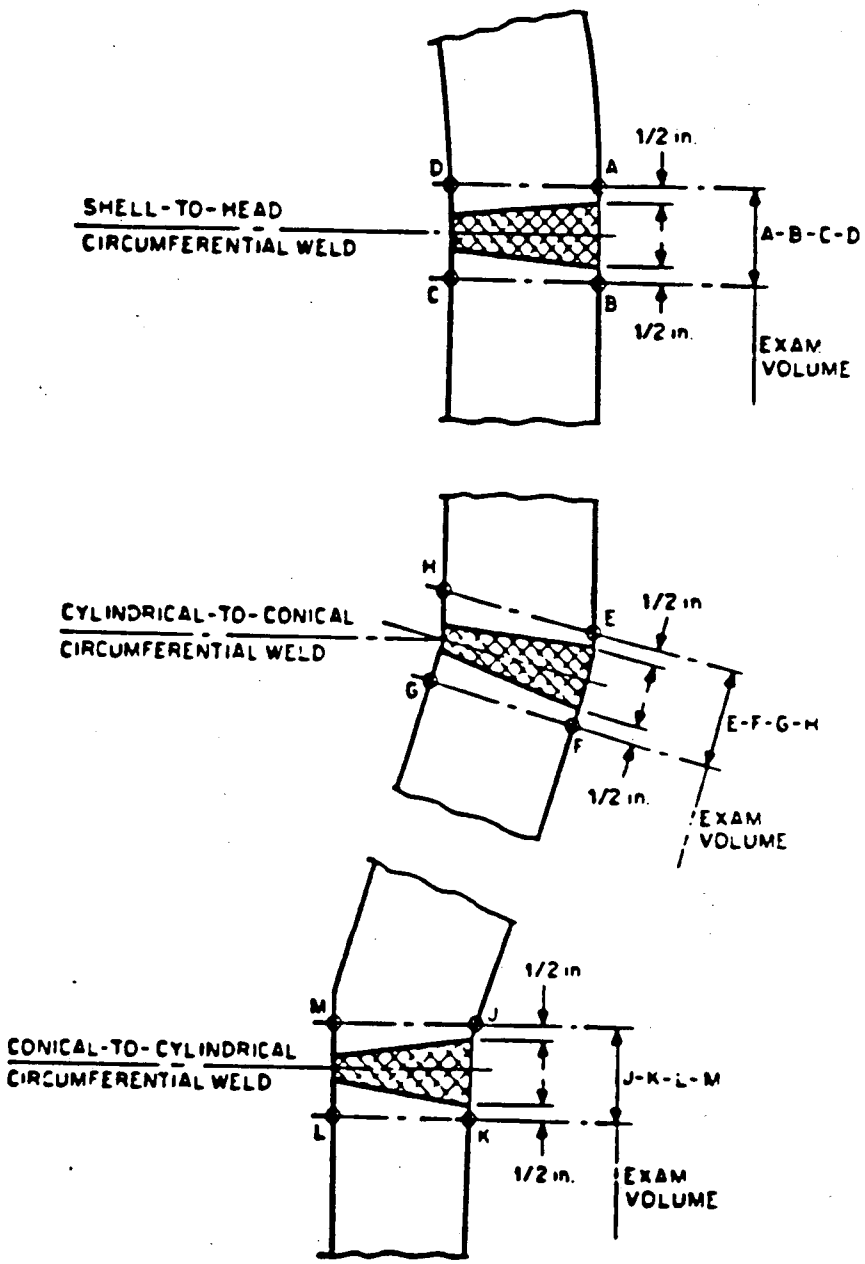


EXAMINATION VOLUME A-B-C-D
SURFACE EXAM. AREA A-D

ILLUSTRATIVE ONLY

FIGURE C-01

VESSEL CIRCUMFERENTIAL WELDS

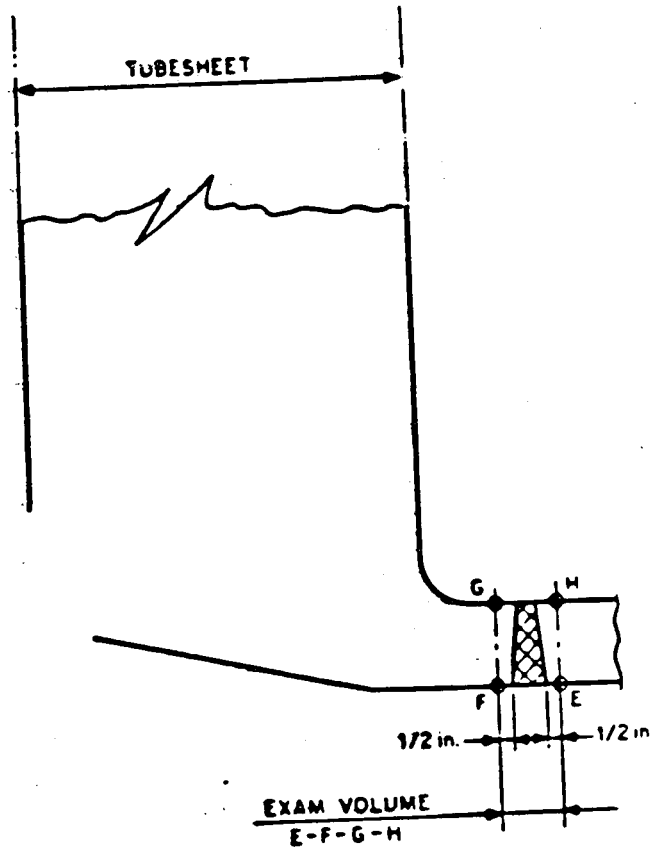


WESTINGHOUSE ELECTRIC CORPORATION

FIGURE C-02

ILLUSTRATIVE ONLY

TYPICAL TUBESHEET-TO-SHELL CIRCUMFERENTIAL WELDS

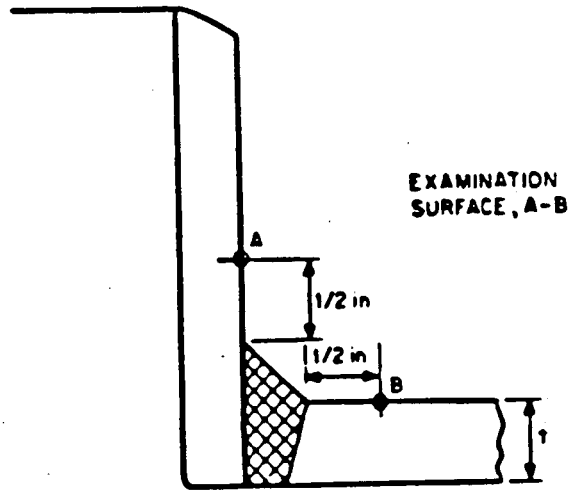


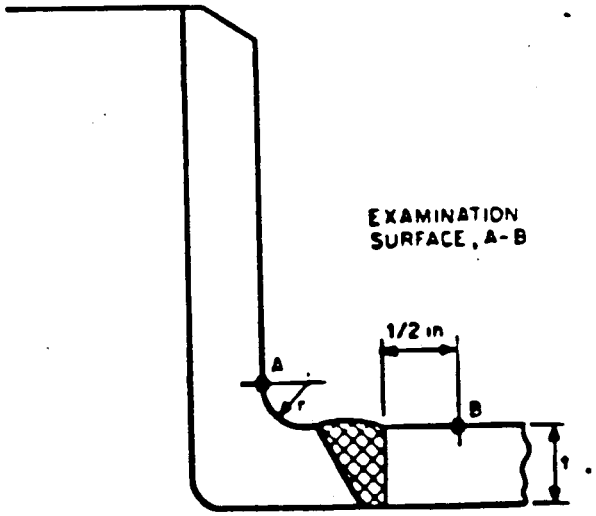
ILLUSTRATIVE ONLY

FIGURE C-03

NOZZLE-TO-VESSEL WELDS

NOZZLE SIZES OVER 4 in. NOM. PIPE SIZE
VESSEL THICKNESS - t = 1/2 in. OR LESS



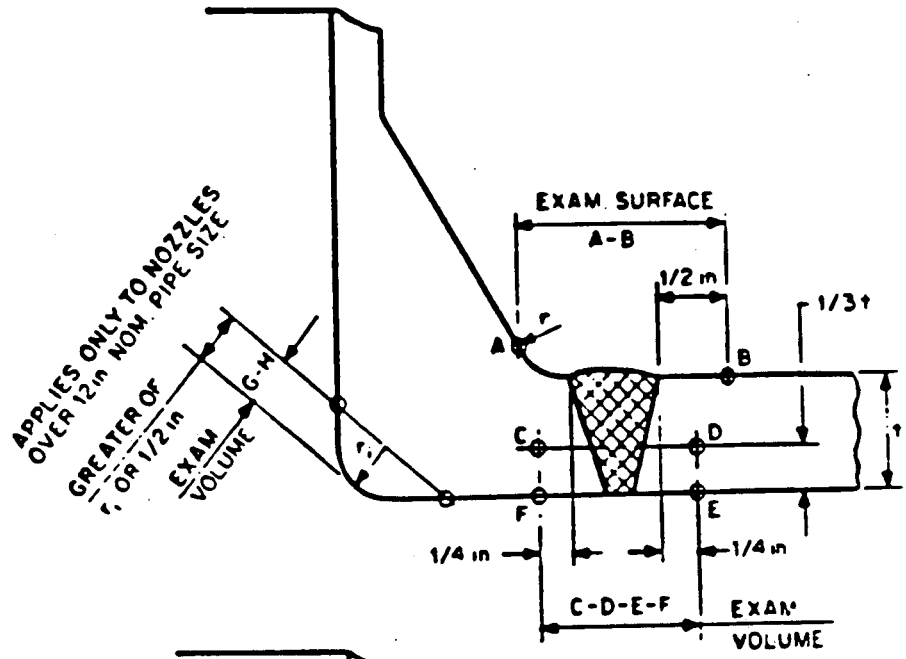


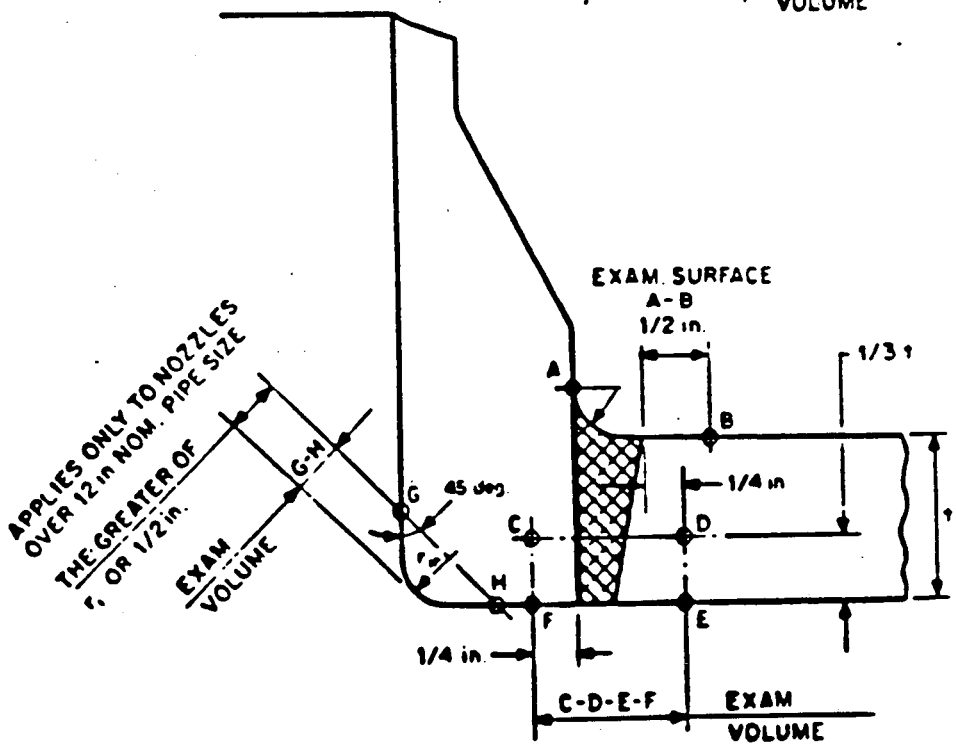
ILLUSTRATIVE ONLY

FIGURE C-04

NOZZLE-TO-VESSEL WELDS

NOZZLE SIZES - OVER 4 in. NOM. PIPE SIZE
VESSEL THICKNESS OVER 1/2 in.



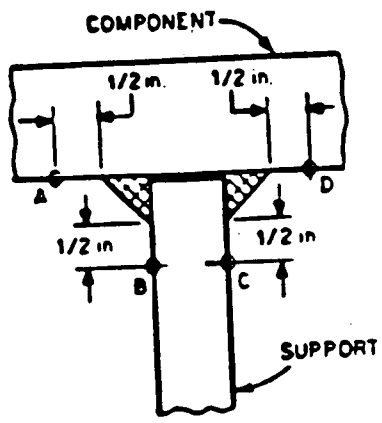


WESTINGHOUSE ELECTRIC CORPORATION

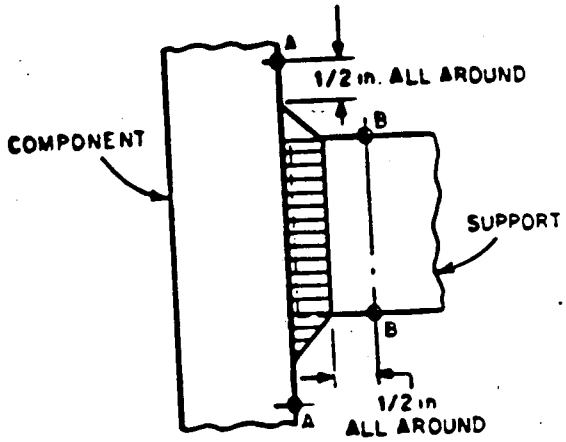
FIGURE C-05

ILLUSTRATIVE ONLY

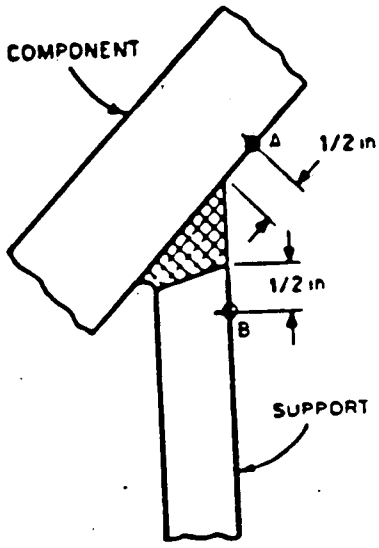
INTEGRALLY WELDED COMPONENT SUPPORTS



EXAM SURFACES
A-B AND C-D

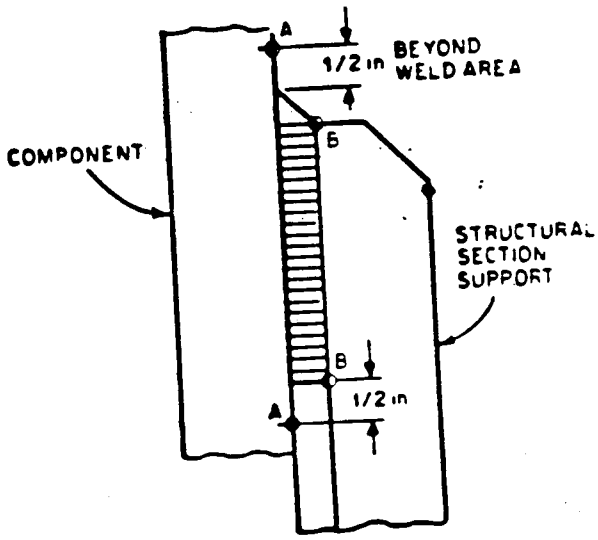


EXAM SURFACES
A-B



EXAM SURFACES
A-B

PLATE AND SHELL TYPE
SUPPORT WELDS



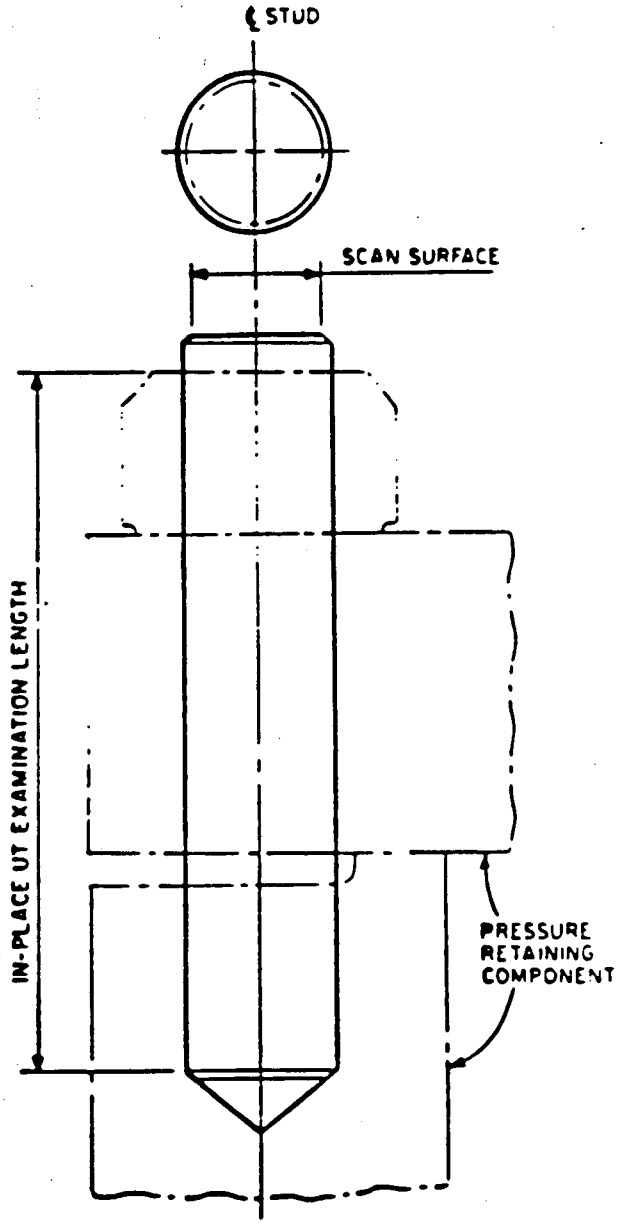
EXAM SURFACES
A-B

LINEAR TYPE
SUPPORT WELDS

ILLUSTRATIVE ONLY

FIGURE C-06

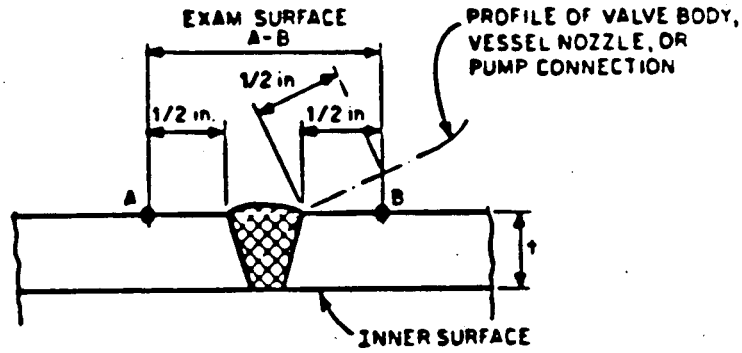
PRESSURE RETAINING BOLTING



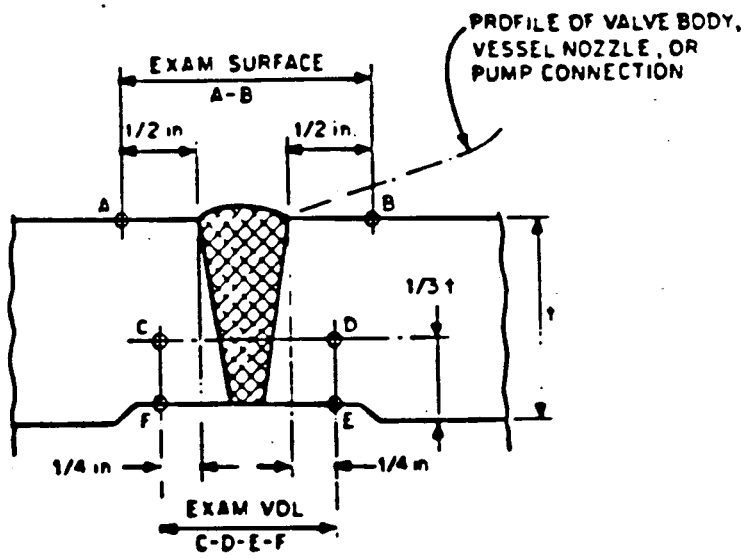
ILLUSTRATIVE ONLY

FIGURE C-07

WELDS IN PIPING



NOM PIPE WALL THICKNESS, t = 1/2 in OR LESS

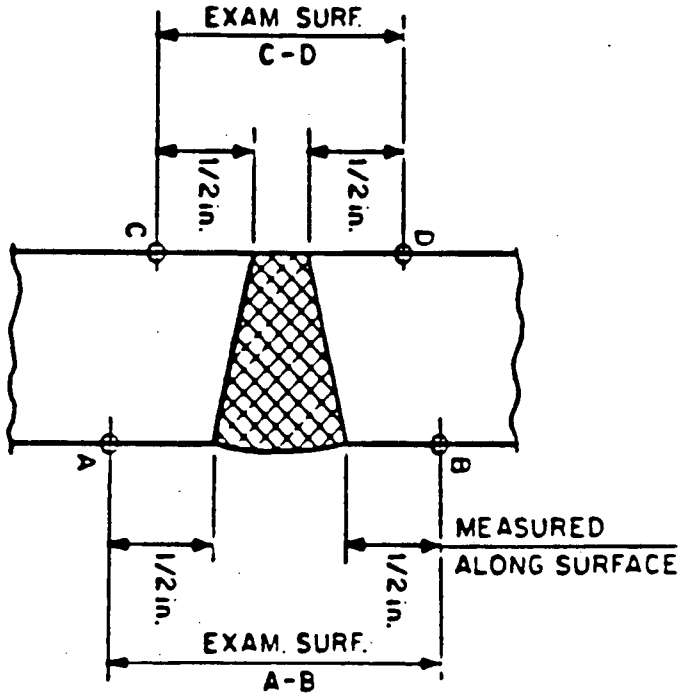


NOM PIPE WALL THICKNESS t OVER 1/2 in.

ILLUSTRATIVE ONLY

FIGURE C-08

WELDS IN PUMP CASING AND VALVE BODIES

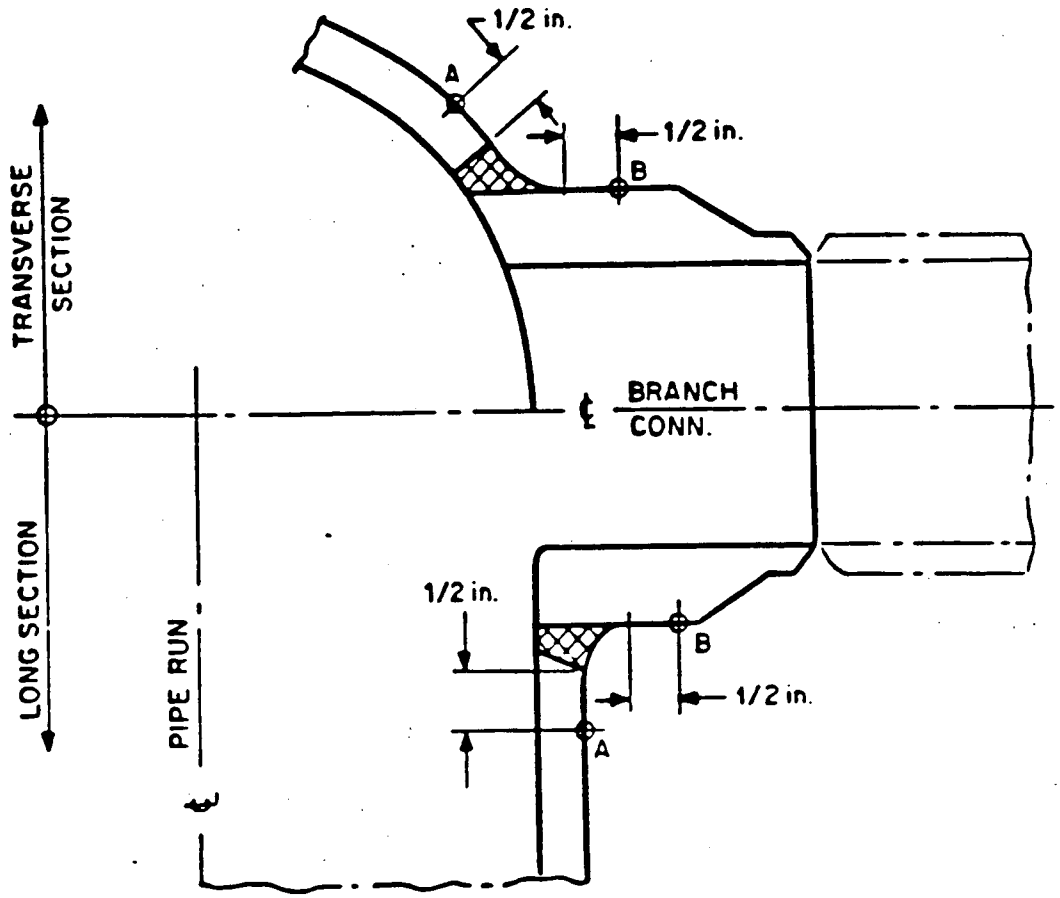


ILLUSTRATIVE ONLY

FIGURE C-09

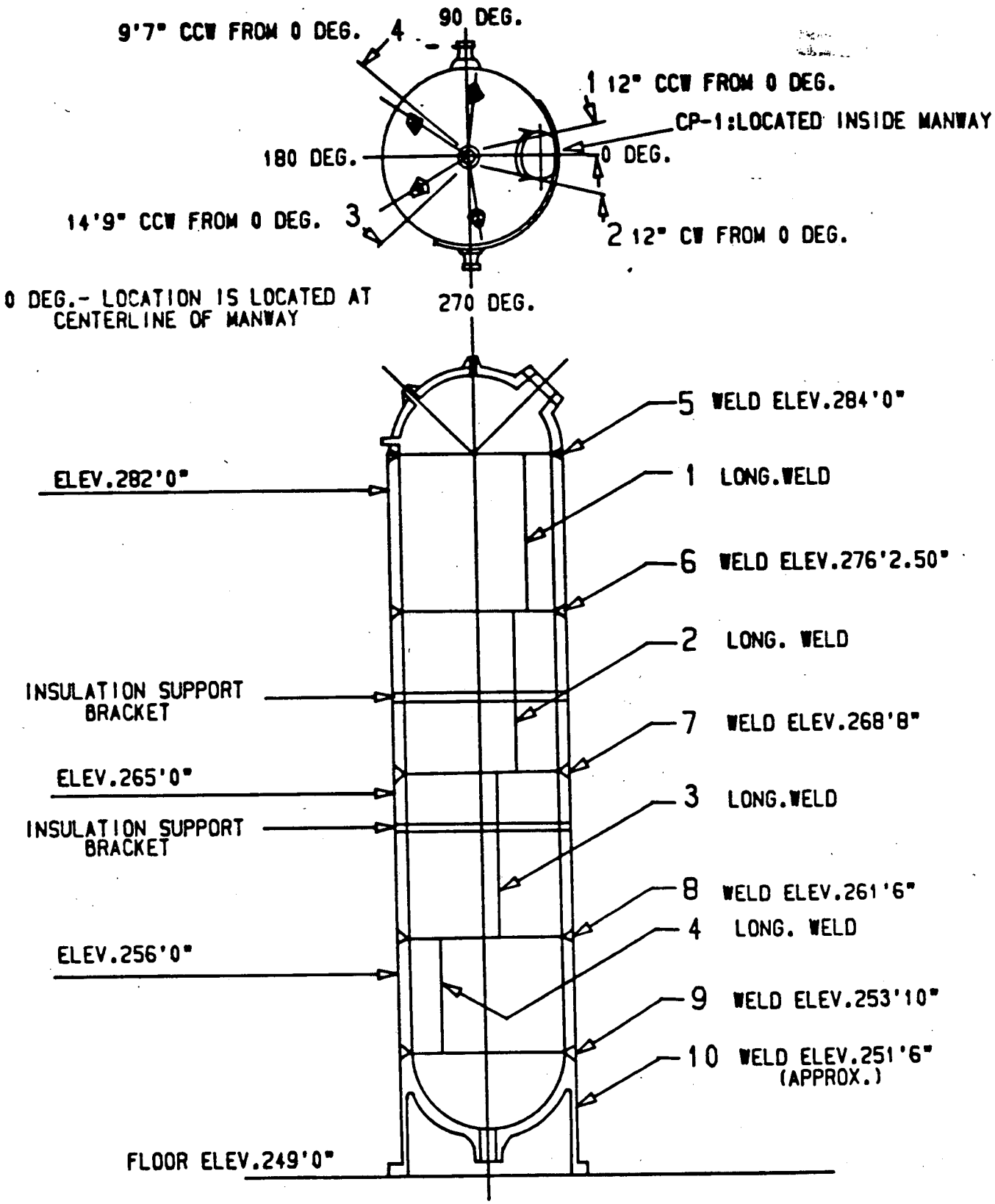
BRANCH CONNECTION WELDS

EXAMINATION SURFACE AROUND
BRANCH CONNECTION-, A-B



RESULTS INDEX

NO EXAMINATIONS THIS OUTAGE



CPL-103 REV 1

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION PRESSURIZER	
LINE NO.	CPL-103 REV. 1

SKETCH CPL-103

002

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
3	11							X						
3	12							X						
3	13							X						
3	14							X						
3	15							X						
3	16							X						

WESTINGHOUSE FORM 46762

003

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-103

SYST/COMP Pressurizer PROCEDURE CPL-ISI-B, Rev. 0

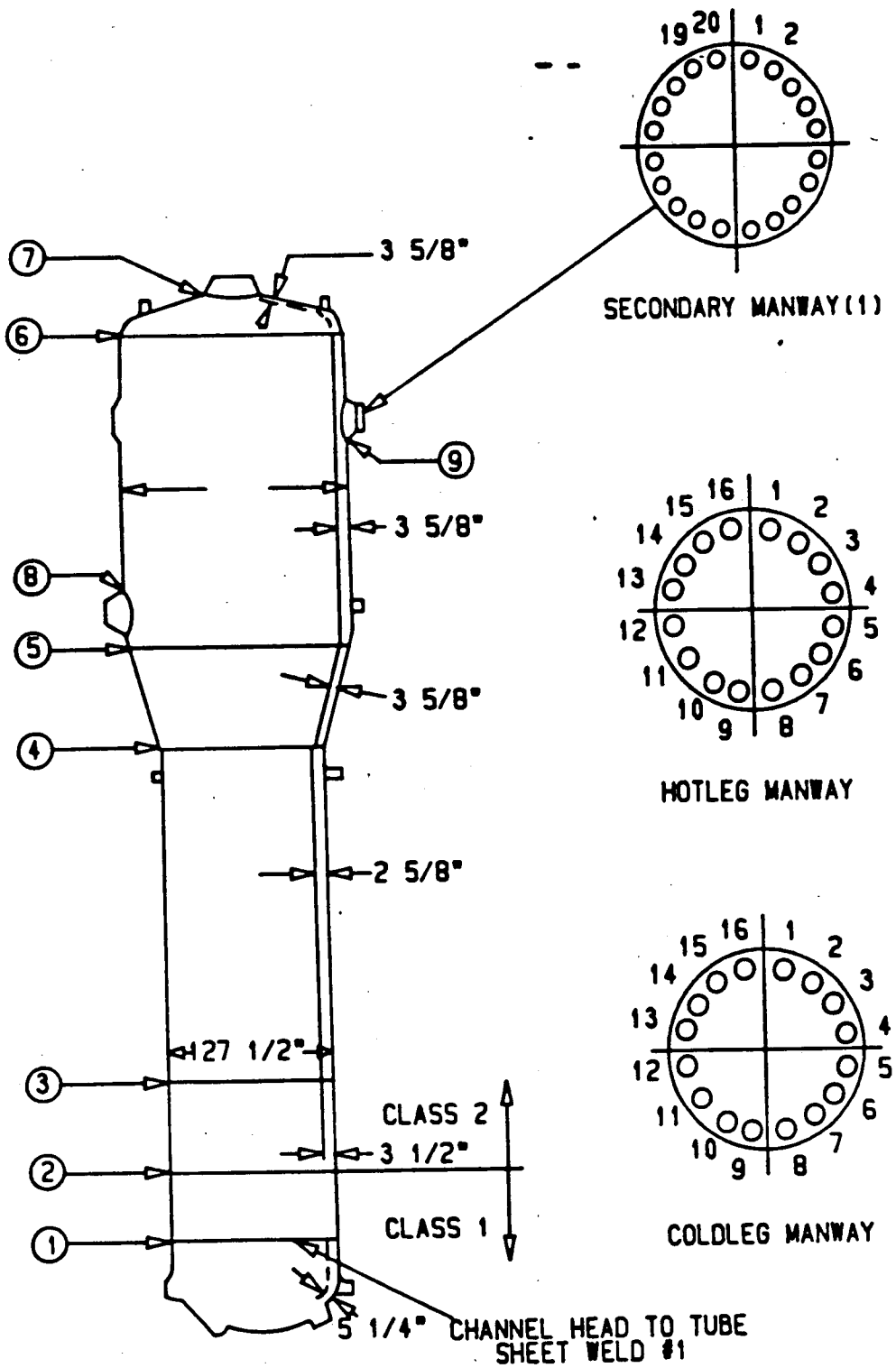
EXAMINER Arnold B. Bilyeu II LEVEL II DATE 12-1-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
Manway Bolts, #11 thru #16	X			Flashlight	Examined in Place VT-1

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/5/88
[signature] 12/3/88

FORM 45934B



NOTES:

1. CLASS 2 PORTION WAS CPL-201

CPL-105 REV. 1

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION STEAM GENERATOR A	
LINE NO.	CPL-105 REV. 1

SKETCH CPL-105

EXAMINATION SUMMARY
FOR

1989

005

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
4	INNER RADIUS HL							X						
4	INNER RADIUS CL							X						

006

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-105

SYST/COMP. STEAM GENERATOR A PROCEDURE CPL ISI-8 REV.0

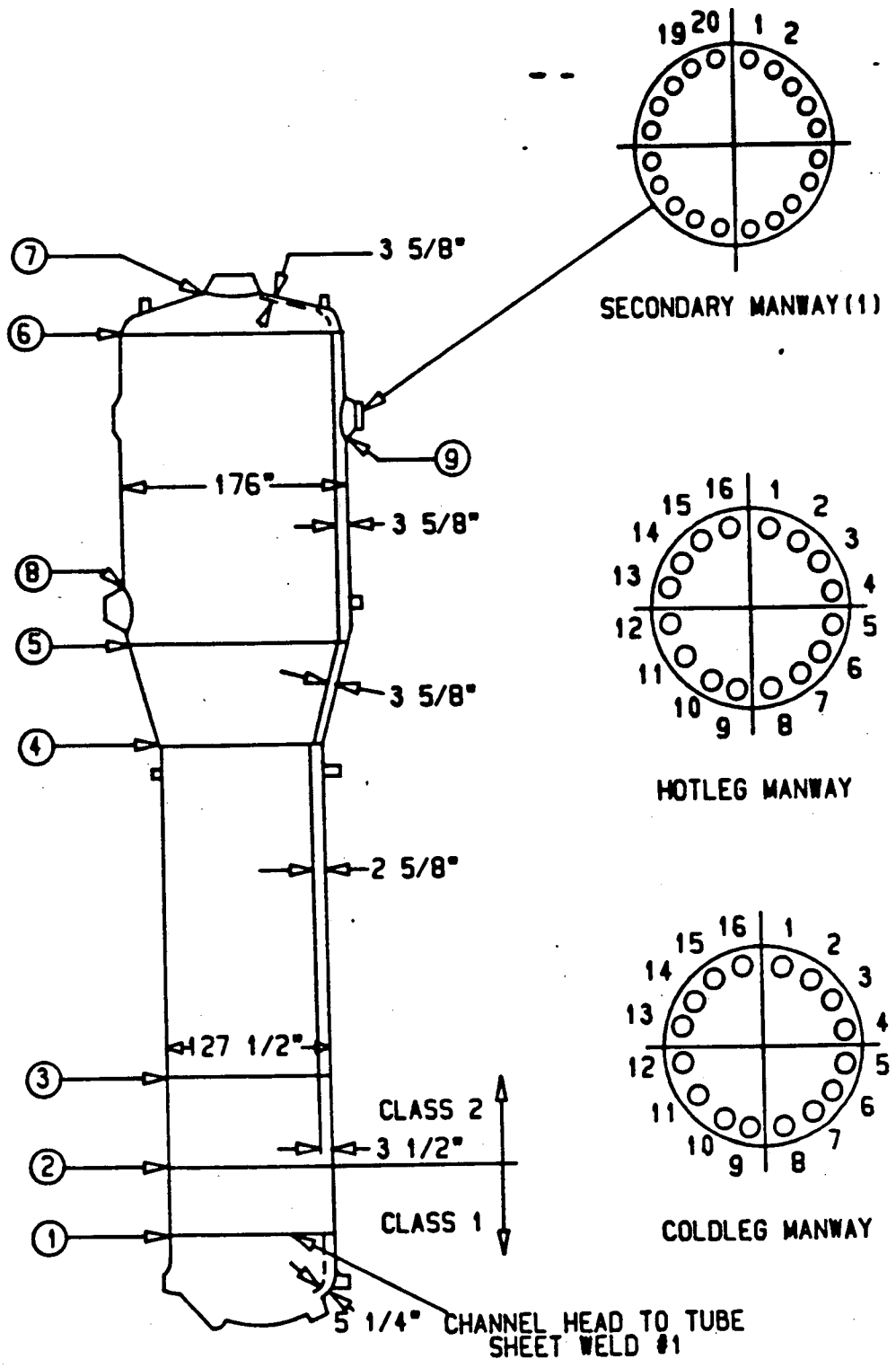
EXAMINER Arnold A. Biffin II, Gerry A. Morris II (LEVEL II) DATE 12-1-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
HOT LEG INNER RADIUS	X			FLASHLIGHT	VT-3
COLD LEG INNER RADIUS	X			FLASHLIGHT	VT-3

ANII REVIEW
ANII [illegible]
DATE 12-4-88

Richard B. Weber 12/3/88
[illegible] 12/3/88

FORM 45934B



NOTES:

1. CLASS 2 PORTION WAS CPL-201

CPL-105A REV. 1

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION STEAM GENERATOR B	
LINE NO.	CPL-105A REV. 1

SKETCH CPL-105A

EXAMINATION SUMMARY
FOR

1989

008

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
5	INNER RADIUS HL							X						
5	INNER RADIUS CL							X						

WESTINGHOUSE FORM 46762

009

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-105A

SYST/COMP Steam Generator B PROCEDURE CPL-ISI-8, Rev. 0

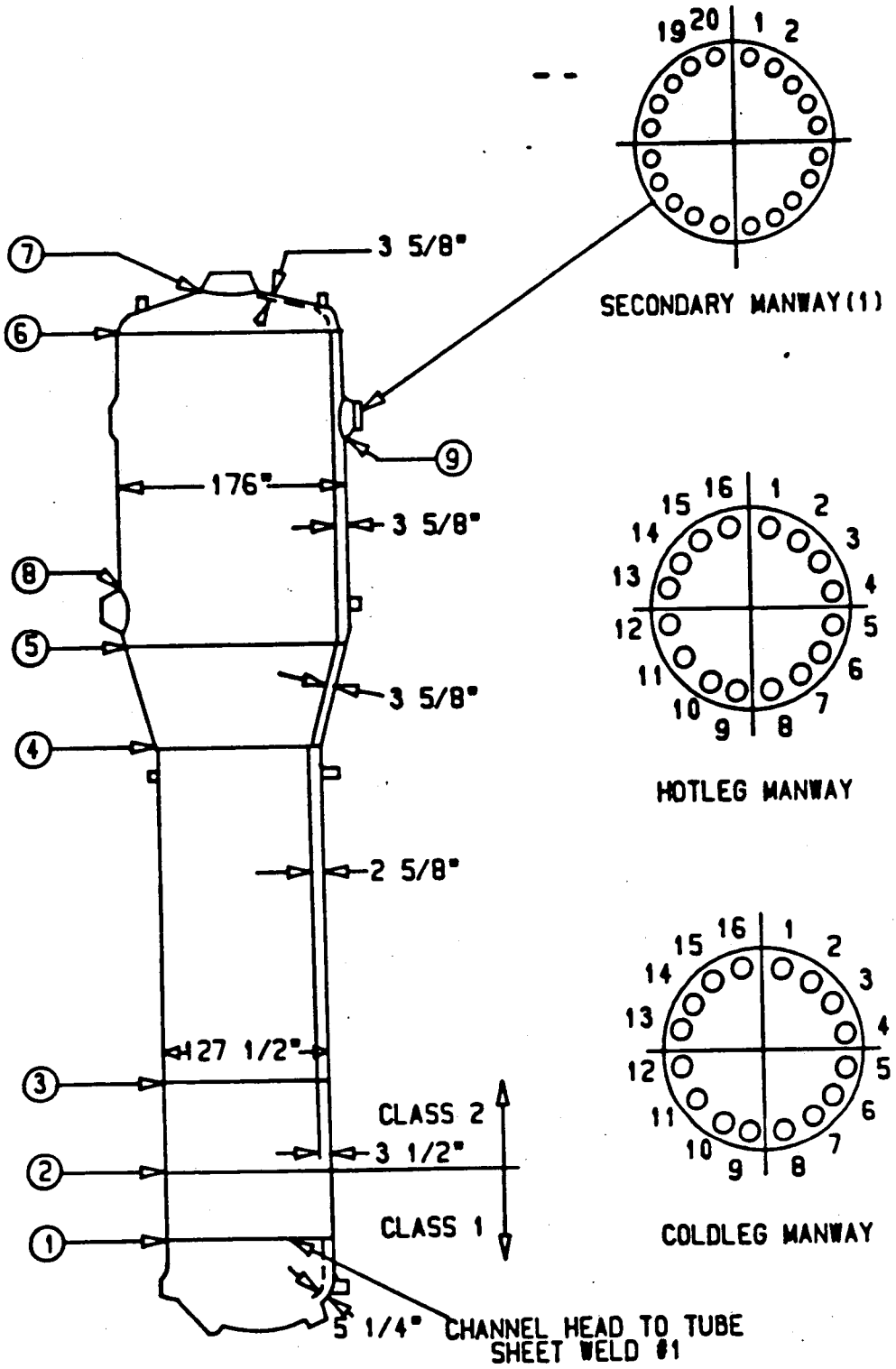
EXAMINER Amel A. Bolyin II LEVEL II DATE 12-4-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
Hot Leg Inner Radius	X			Flashlight	Vt-3
Cold Leg Inner Radius	X			Flashlight	Vt-3

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
J M Hook 12/5/88

FORM 45934B



NOTES:

1. CLASS 2 PORTION WAS CPL-201

CPL-105B REV. 1

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION STEAM GENERATOR C	
LINE NO.	CPL-105B REV. 1

CF&L

SKETCH CPL-105B

EXAMINATION SUMMARY
FOR

1989

011

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
6	INNER RADIUS HL							X						
6	INNER RADIUS CL							X						
8	BOLTS HL 1-16							X						
9	BOLTS CL 1-16							X						

012

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-105B

SYST/COMP STEAM GENERATOR C PROCEDURE CPL ISI-8 REV.0

EXAMINER Henry A Morini II LEVEL II DATE 12-4-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
HOT LEG INNER RADIUS	X			FLASHLIGHT	VT-3
COLD LEG INNER RADIUS	X			FLASHLIGHT	VT-3

ANII REVIEW
ANII HL
DATE 12-6-88

Richard B. Weber 12/6/88
Lin Black 12/6/88

FORM 45934B

013

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-105B

SYST/COMP STEAM GENERATOR "C" PROCEDURE CPL IST-8 REV.0

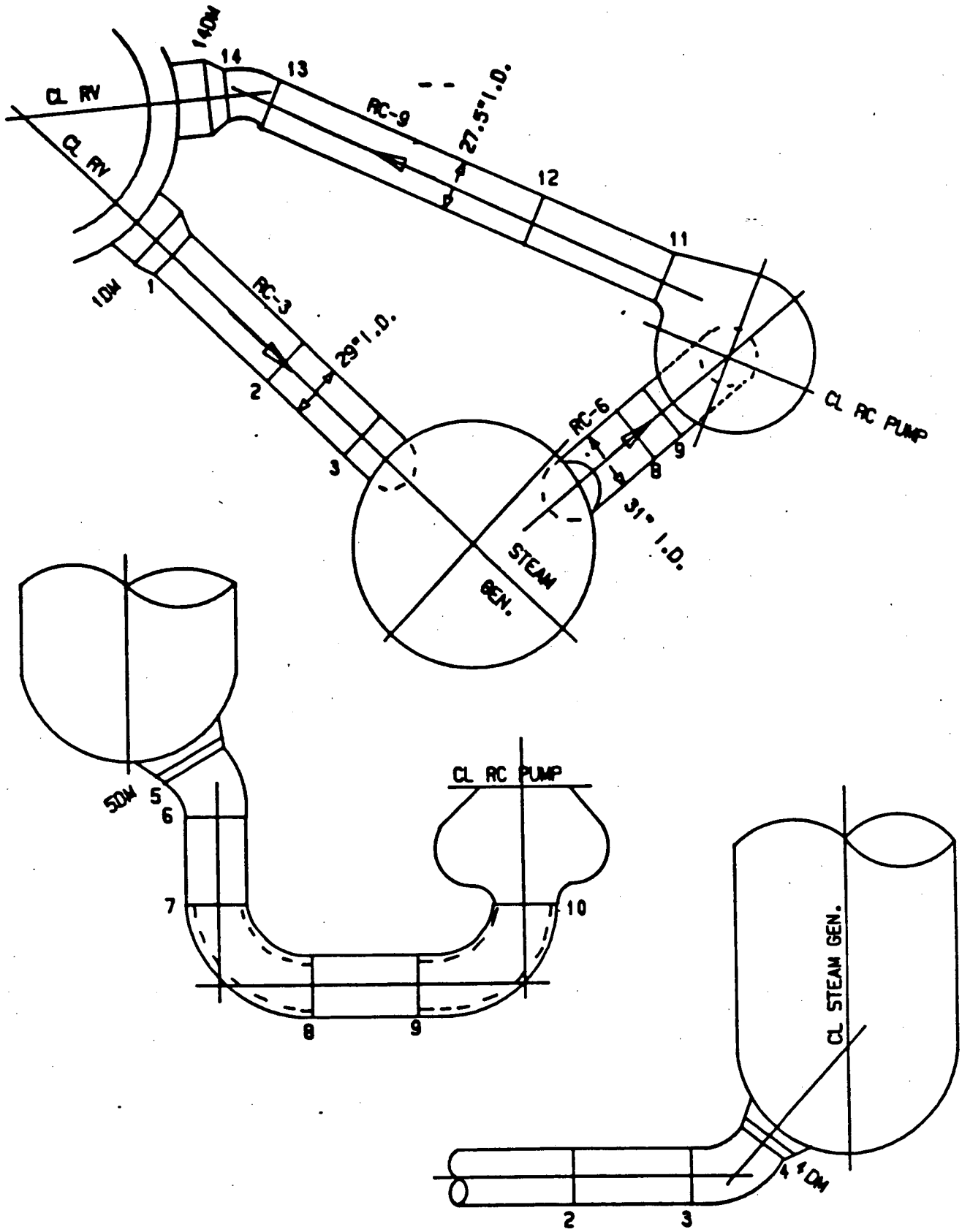
EXAMINER Linda A. Bolyin II LEVEL II DATE 12-7-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
HOTLEG MANWAY	X			FLASHLIGHT	EXAMINED IN PLACE 16 STUDS & NUTS VT-1
COLDLEG MANWAY	X			FLASHLIGHT	EXAMINED IN PLACE 16 STUDS & NUTS VT-1

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/8/88
Ch. Black 12/9/88

FORM 45934B



NOTES:
1. CL=CENTER LINE

CPL-107 REV. 1

H.B. ROBINSON S.E. PLANT			C
UNIT NO. 2			F
DESCRIPTION REACTOR COOLANT SYSTEM A			&
LINE NO.	CPL-107	REV. 1	L

SKETCH CPL-107

EXAMINATION SUMMARY
FOR

1989

015

WESTINGHOUSE FORM 40762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
1	14DM				X									
1	14				X									

016

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-107

SYST/COMP. REACT. COOLANT SYSTEM "A" PROCEDURE CPL ISI-11 REV.0

EXAMINER Paul J. Kovallo II Nancy M. Ackerman II DATE 1-4-89
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	851045
DEVELOPER	MAGNAFLUX	888019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

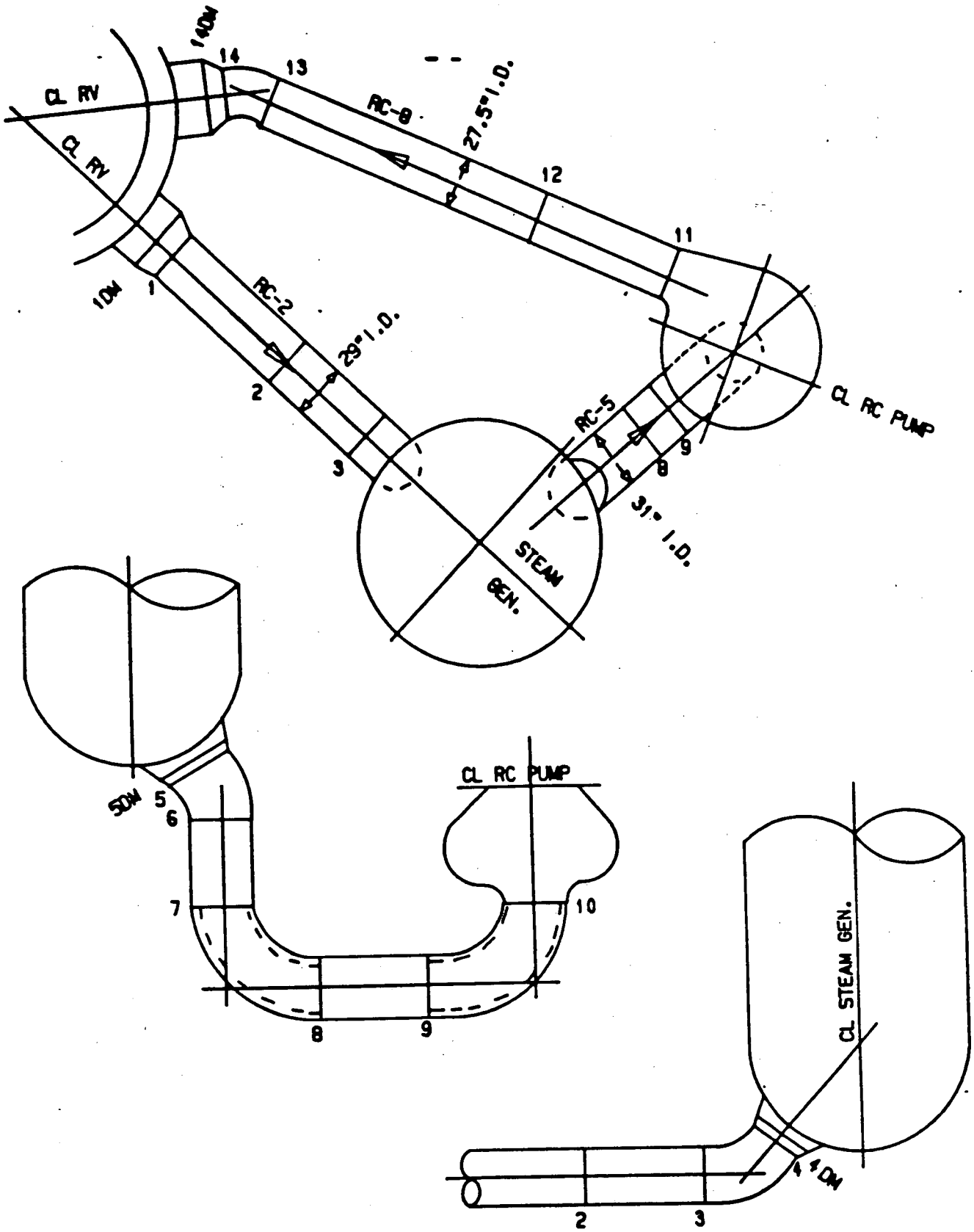
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
14DM	X			NOTE: EXAMINED ACCESSIBLE AREA ON TOP
14	X			OF PIPE TEMP 115°F

ANII REVIEW
ANII
DATE 1-4-89

Richard B. Weber 1/4/89

FORM 45935C



NOTES:
1. CL=CENTER LINE

CPL-107A REV 1

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION REACTOR COOLANT SYSTEM B	
LINE NO.	CPL-107A REV. 1

SKETCH CPL-107A

EXAMINATION SUMMARY
FOR

1989

018

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
1	14DM				X									
1	14				X									

WESTINGHOUSE FORM 30762

019

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-107A

SYST/COMP. REACT-COOLANT SYSTEM "B" PROCEDURE CPL ISI-11 REV.0

EXAMINER Paul J. Kovallo II, Gary M. Johnson II (LEVEL II) DATE 1-4-89

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	856045
DEVELOPER	MAGNAFLUX	888019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

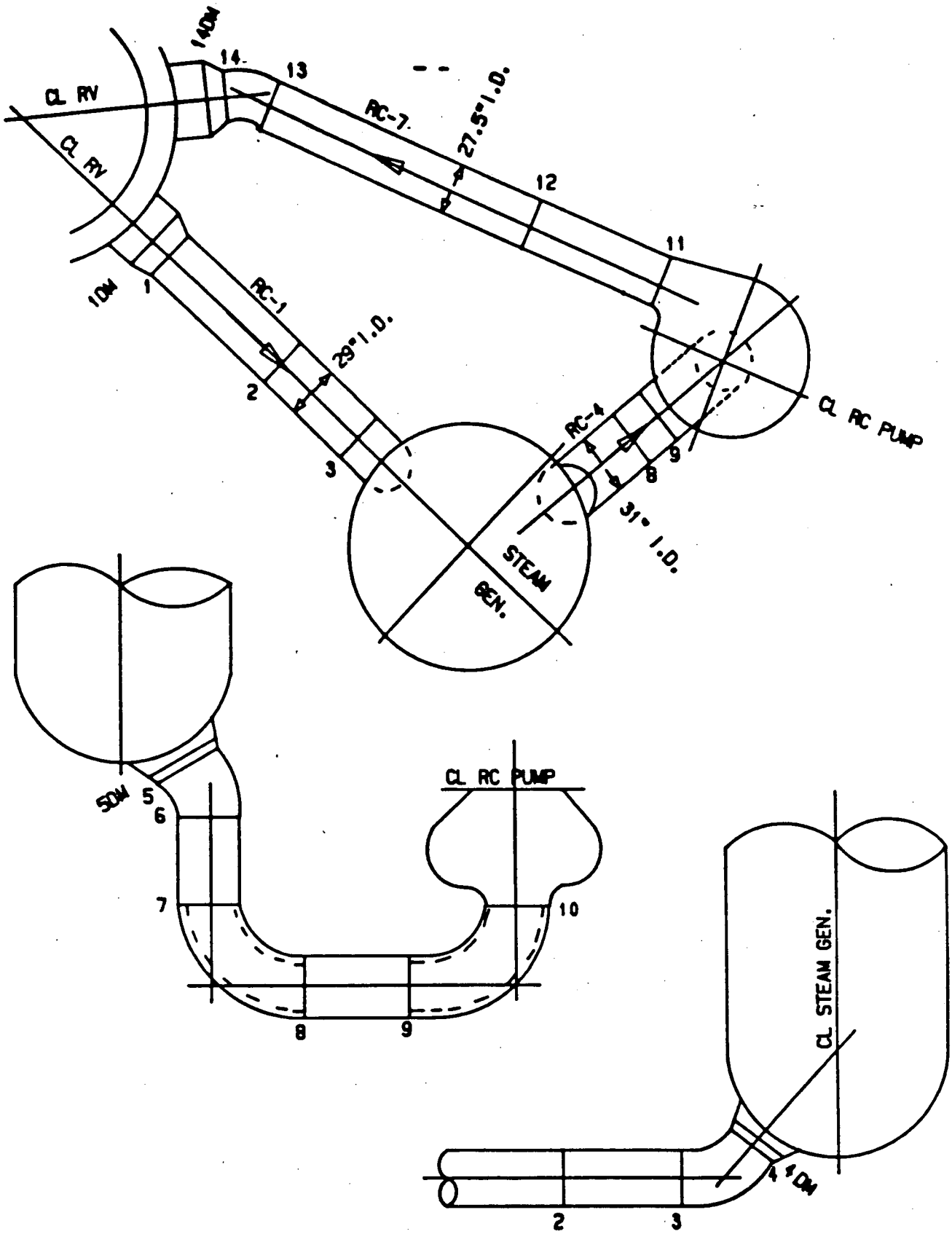
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
14DM	X			NOTE: EXAMINED ACCESSIBLE AREA ON TOP
14	X			OF PIPE. TEMP. 115°F

ANII REVIEW
ANII
DATE 1-4-89

Richard B. Weber 1/4/89

FORM 45935C



NOTES:
1. CL=CENTER LINE

CPL-107B REV. 1

H.B. ROBINSON S.E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION REACTOR COOLANT SYSTEM C	

WESTINGHOUSE FORM 46762

SKETCH CPL-107B

EXAMINATION SUMMARY
FOR

1989

021

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
1	14DM				X									
1	14				X									
7	4 DM	X			X									
7	5DM	X					X							SEE TAB F
10	11	X			X									

022

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-107 B

SYST/COMP. REACT-COOLANT SYSTEM "C" PROCEDURE CPL ISI-11 REV.0

EXAMINER Gary M. Peterman II Paul J. Kovallo-II DATE 1-4-89
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
14 DM	X			NOTE: EXAMINED ACCESSIBLE AREA ON TOP
14	X			OF PIPE. TEMP. 115°F

ANII REVIEW
ANII
DATE 1-4-89

Richard B. Weber 1/4/89

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL - 107 B
SYST/COMP.: REACTOR COOLANT SYSTEM C		PROCEDURE: CPL ISI-206 REV. 0
EXAMINER (LEVEL II): Arnold A. Bilyeu II, Gary M. Jackerman I		DATE: 11-22-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08078E	S/N			G17508					G17508					INITIAL TIME
	SIZE			1.0" DIA					1.0" DIA					0058 11-22-88
	FREQ.			1.0 MHZ					1.0 MHZ					
	ANGLE			41° RL					41° RL					
REP. RATE: IK	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1/4 T			80 %	1.5	0.50"	0.4"	0.6"	80 %	1.5	0.50"	0.4"	0.6"	
DAMPING: MIN	1/2 T			50 %	3.0	0.95"	0.65"	1.15"	50 %	3.0	0.95"	0.65"	1.15"	
FILTER: OFF	3/4 T			40 %	4.5	1.4"	1.1"	1.7"	40 %	4.5	1.4"	1.1"	1.7"	FINAL TIME
LIN. CHECK: SAT														0240 11-22-88
SU CABLE: 12' BNC/BNC														CAL. BLOCK: CPL-10
COUPLANT: SONOTRACE #0 #8767	CAL. GAIN			46 db					46 db.					THICKNESS: 2.60"
														TEMP.: 76°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
4 DM	+19°F	NO	NO	YES	YES	NO	S.G NOZZLE CONFIG. 2 SIDE	SMOOTH	X			*
5 DM	+16°F	NO	YES	NO	YES	NO	S.G. NOZZLE CONFIG 5 SIDE	SMOOTH	X			*

* NOTE: SEE ATTACHED LIMITATION TO EXAM. SHEET.

ANII REVIEW
ANII [illegible]
DATE 11-27-88

Richard B. Weber 11/26/88
J.H. Black 11/26/88

023

FORM 49001

024

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

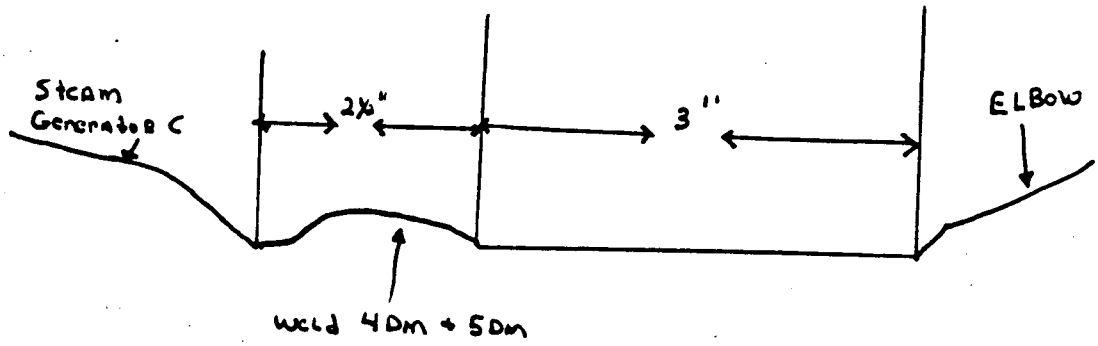
PLANT H.B. Robinson UNIT 2 SKETCH CPL-107B

SYST/COMP Reactor Coolant System C PROCEDURE CPL ISI-206 Rev. 0

EXAMINER Arnold A. Bolyin II, Gerald Morin II LEVEL II DATE 11-22-88

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): 4DM + 5DM

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



This Limitation Applies to Both welds 4DM and 5DM

ANII REVIEW
ANII
DATE 11-27-88

Richard B. Weber 11/26/88
J.M. Black 11/26/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H. B. ROBINSON	2	CPL -107 B

SYST/COMP.	PROCEDURE
REACTOR COOLANT SYSTEM C	CPL ISI-206 REV.0

EXAMINER (LEVEL II)	DATE
Paul J. Kovallo II Henry A Morris II	11-23-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N	S/N			G17508					G17508					INITIAL TIME
SONIC MARK I #08078E	SIZE			1.0" DIA					1.0" DIA					1013 11-23-88
	FREQ.			1.0 MHz					1.0 MHz.					CC
	ANGLE			41° RL					41° RL					1058 11-23-88
REP. RATE 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1/4 T			100%+7db	1.5	0.50"	0.4"	0.6"	100%+7db	1.5	0.50"	0.4"	0.6"	
DAMPING MIN	1/2 T			100%+3db	3.0	0.95"	0.65"	1.15"	100%+3db	3.0	0.95"	0.65"	1.15"	
FILTER OFF	3/4 T			80%	4.5	1.4"	1.1"	1.7"	80%	4.5	1.4"	1.1"	1.7"	FINAL TIME
LIN. CHECK SAT														1140 11-23-88
SU CABLE 12' BNC/BNC														CAL. BLOCK CPL-10
COUPLANT SONOTRACE 40 #8767	CAL. GAIN			54 db					54 db					THICKNESS 2.60"
														TEMP 70° 1013 / 75° 1058

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
4 DM	+17°F	NO	YES	YES	YES	NO	S.G. NOZZLE CONFIG. 2 SIDE	SMOOTH	X			*
5 DM	+10°F	NO	YES	YES	YES	NO	S.G. NOZZLE CONFIG. 5 SIDE	SMOOTH	X			*
							NOTE: SUPPLEMENTAL EXAM. REFERENCE SENSITIVITY SET AT 3/4 T HOLE. (80%)					* NOTE: SEE ATTACHED LIMITATION TO EXAM SHEET. I.D. GEOMETRY NOTED, SEE ATTACHED INDICATION DATA SHEET.

ANII REVIEW
ANII [signature]
DATE 11-27-88

Richard B. Weber 11/26/88
J. Black 11/26/88

025

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT	UNIT	SKETCH
H. B. ROBINSON	2	CPL-107 B

SYST/COMP	PROCEDURE
REACTOR COOLANT SYSTEM C	CPL-151-206, REV. 0

EXAMINER (LEVEL II)	DATE
Paul J. Kovallo-II / George Morin II	11-23-88

LINEARITY AND CAL. CHECK	CAL. BLOCK THICKNESS
SAT.	2.60"

WELD NUMBER	INDICATION LENGTH		MIN. 50%		MIN. 100%		PEAK			MAX. 100%		MAX. 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	DAC AMPL.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	ANGLE	DIR.	SURF. 2	WELD	SURF. 5	
4DM	0°	360°					6.0	.625"	50%					41°RL	2	NA	2.6"	2.5"	*
4DM	0°	360°					5.8	1.2"	50%					41°RL	5	NA	2.6"	2.5"	*
5DM	0°	360°					5.8	.65"	50%					41°RL	5	2.5"	2.6"	NA	*
5DM	0°	360°					6.0	1.2"	60%					41°RL	2	2.5"	2.6"	NA	*
			*	I.D.	GEOMETRY		AMPLITUDE		VARIES		FOR	360°							

ANII REVIEW
ANII [illegible]
DATE 11-27-88

Richard B. Weber 11/26/88
[illegible] 11/26/88

026

FORM 450540

027

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-107 B

SYST/COMP. REACTOR COOLANT SYSTEM C PROCEDURE CPL-151-11, REV. 0

EXAMINER Paul J. Kovalle-II Robert S. Cassat II DATE 11-21-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
4 DM	X			TEMP. 89°F
5 DM			X	TEMP. 89°F. SEE ATTACHED SURFACE INDICATION DATA SHEET

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/23/88
[illegible] 11/26/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

028

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-107 B

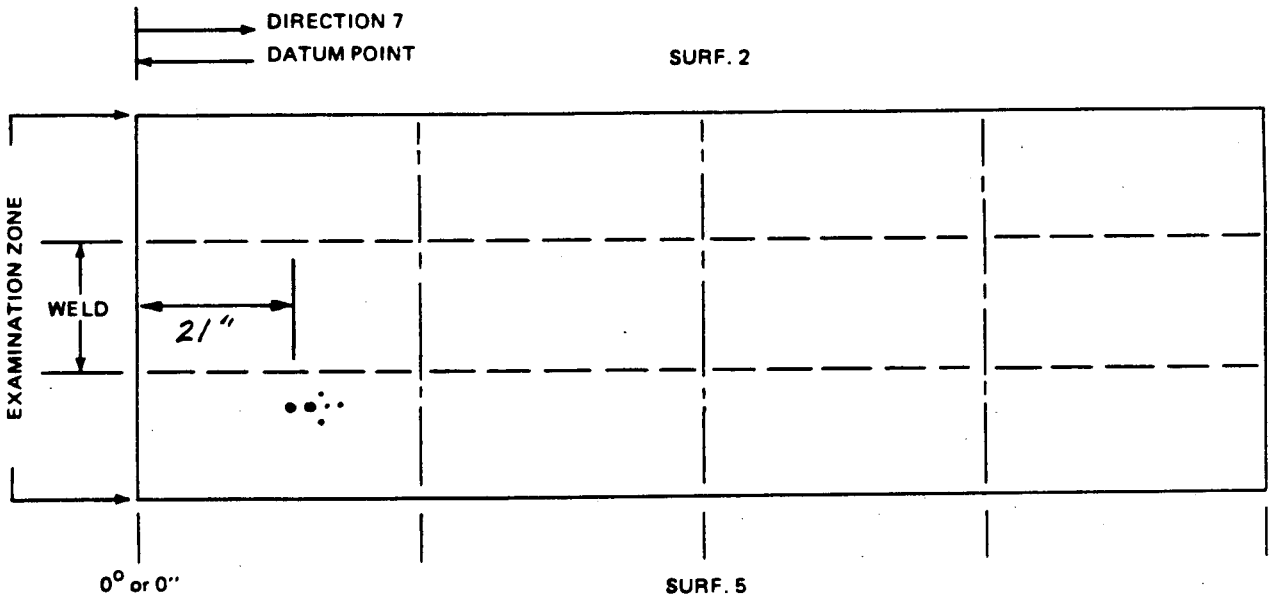
SYST/COMP REACTOR COOLANT SYSTEM "C" PROCEDURE CPL-ISI-11 REV. 0

EXAMINER [signature] LEVEL II DATE 11-21-88

PT X MT WELD NO. 5 DM

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS APPROX. SIX ROUNDED INDICATIONS SEPARATED BY LESS THAN 1/8", CONTAINED WITHIN AN AREA 3/16" BY 1/2". LOCATED 21" FROM 0, 1/2" ABOVE TOE OF WELD ON THE 5 SIDE.



ANII REVIEW
ANII [signature]
DATE 11-26-88

Richard B. Weber 11/26/88
[signature] 11/26/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-107B
SYST/COMP.: REACTOR COOLANT SYSTEM C		PROCEDURE: CPL ISI-206 REV0
EXAMINER (LEVEL II): George A Morini II / Ralph Churchfield I		DATE: 12-8-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK 1 #08078E	S/N			617508					617508					INITIAL TIME: 20:44 12-8-88
	SIZE			1.0"					1.0"					
	FREQ.			1 MHZ					1 MHZ					
	ANGLE			41° RL					41° RL					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1/4 T			80%/80%+3db	1.5	0.5"	0.4"	0.6"	80%/80%+3db	1.5	0.5"	0.4"	0.6"	
DAMPING: MIN	1/2 T			50%/80%+3db	3.0	0.95"	0.65"	1.15"	50%/80%+3db	3.0	0.95"	0.65"	1.15"	
FILTER: OFF	3/4 T			40%/80%	4.5	1.4"	1.1"	1.7"	40%/80%	4.5	1.4"	1.1"	1.7"	FINAL TIME: 21:40 12-8-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC TO BNC														CAL. BLOCK: CPL-10
COUPLANT: SONOTRACE 40 #8967	CAL. GAIN			58db/68db					58db/68db					THICKNESS: 2.6"
														TEMP.: 47°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
11	+16°F	NO	YES	NO	YES	NO	PUMP NOZZEL CONFIG. 5 SIDE. SEE ATTACHED LIMITATION SHEET	ROUNDed	X			SEE ATTACHED INDICATION DATA SHEET FOR GEOM.

ANII REVIEW
ANII [signature]
DATE 12-10-88

Richard B. Weber 12/9/88
[signature] 12/9/88

029

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT: HB ROBINSON
UNIT: 2
SKETCH: CPL-107B
SYST/COMP: REACTOR COOLANT SYSTEM C
PROCEDURE: CPL 151 206 REV. 0
EXAMINER (LEVEL II): George A Morine II / Ralph Churchfield I
DATE: 12-8-88
LINEARITY AND CAL. CHECK: SAT
CAL. BLOCK THICKNESS: 2.6" CPL-10

WELD NUMBER	INDICATION LENGTH		MIN. 50%		MIN. 100%		PEAK			MAX. 100%		MAX. 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	DAC AMPL.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	ANGLE	DIR.	SURF. 2	WELD	SURF. 5	
11	0°	360°					5.2	1.75"	100%					41°	2	2.4"	2.5"	NA	*

* NOTE: I.D. GEOM. FOR 360°

ANI REVIEW
ANI
DATE 12-10-88

Richard B. Weber 12/9/88
J M B Cook 12/9/88

030

031

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

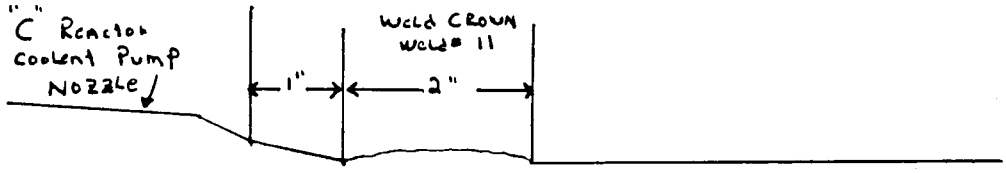
PLANT H. B. Robinson UNIT 2 SKETCH CPL-107B

SYST/COMP Reactor Coolant System C PROCEDURE CPL-ISI-206, Rev. 0

EXAMINER Gerry A Morini II LEVEL II DATE 12-8-88

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): Weld # 11

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



ANII REVIEW
ANII [signature]
DATE 12-10-88

Richard B. Weber 12/9/88
[signature] 12/9/88

F49077

032

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-107 B

SYST/COMP. REACTOR COOLANT SYSTEM C PROCEDURE CPL-151-11, REV. 0

EXAMINER Paul J. Kovallo II Larry M. Ackerman II LEVEL II DATE 12-8-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
11	X			TEMP. 63°F

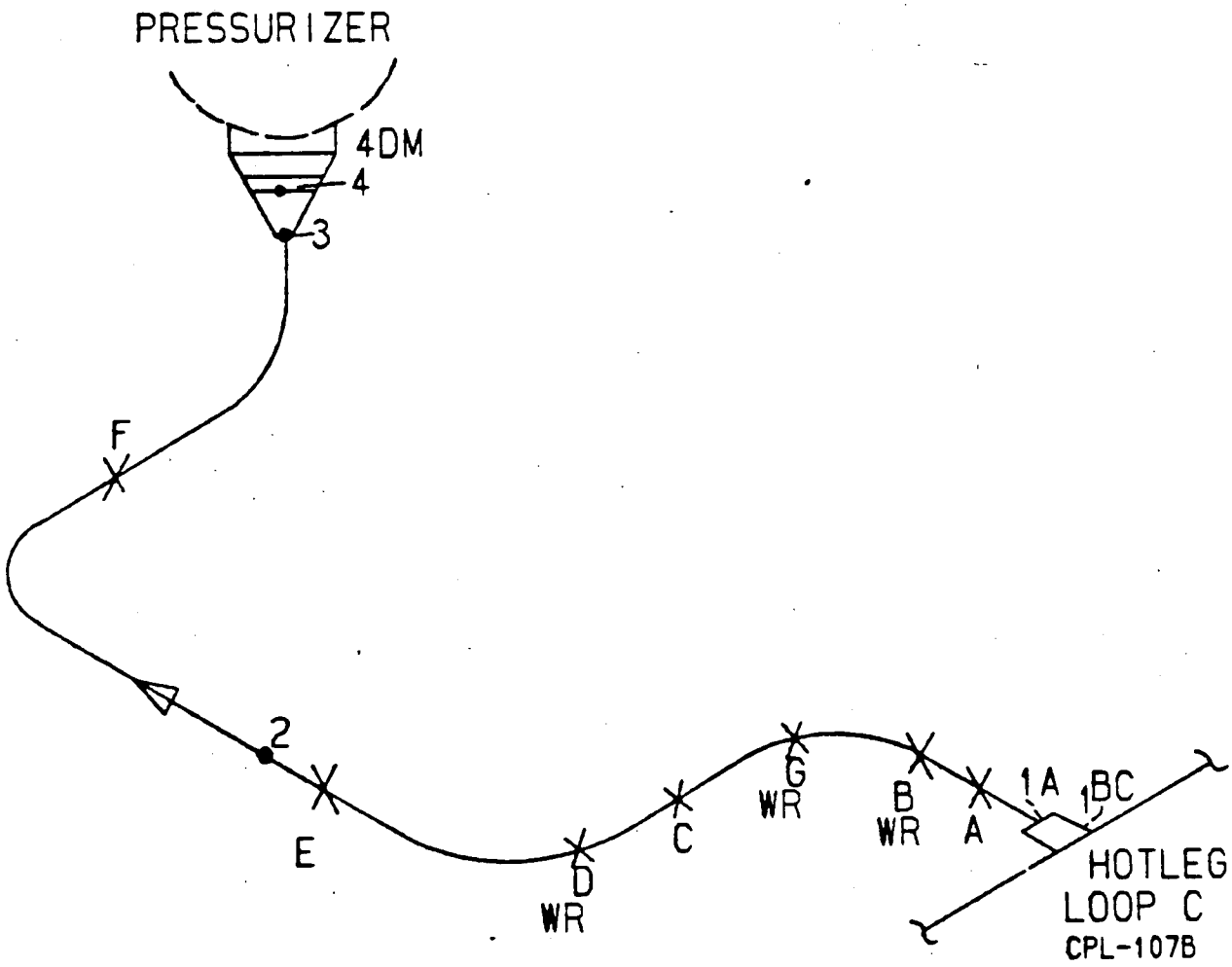
ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
Eric Blanck 12/9/88

FORM 45935C

SPRING HANGERS
A,C,E,F

033



CPL-108 REV 2

H.B. ROBINSON S.E. PLANT		C
UNIT NO. 2		P
DESCRIPTION 14"&12" PRESS. SURGE LINE		&
LINE NO. 12-RC-10	CPL-108 REV. 2	L

SKETCH CPL-108

EXAMINATION SUMMARY
FOR

1989

034

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
77	1BC	X					X							TBA SEE TAB F
78	1A	X			X									TBA
78	2	X			X									TBA
78	3	X			X									TBA
78	4	X			X									TBA
79	4DM	X				X								
80	A									X				SEE TAB F
80	B-WR							X						
80	C									X				SEE TAB F
80	D-WR							X						
80	E							X						
80	F									X				SEE TAB F
80	G							X						
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-108
SYST/COMP.: 12" PRESS. SURGE LINE		PROCEDURE: CPL-151-206, REV.0
EXAMINER (LEVEL II): Mark H. Bynie II Paul J. Kovallo-II		DATE: 11-26-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5						CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8						CALIBRATION CHECK
INST. S/N: SONIC MARK I 08078E	S/N			G17508						G17508						INITIAL TIME
	SIZE			1.0"						1.0"						00 10 ~~11-26-88~~
	FREQ.			1.0 MHZ						1.0 MHZ						11-27-88
	ANGLE			41° RL						41° RL						MAB
REP. RATE: 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE		SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			SIGNAL AMPLITUDE		SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			
REJECT: OFF							PEAK	50% DAC LOCATIONS					PEAK	50% DAC LOCATIONS		
	1/4 T			80%	80+3 dB	1.5	0.50"	0.40"	0.60"	80%	80+3 dB	1.5	0.50"	0.40"	0.60"	
DAMPING: MIN																
	1/2 T			60%	80+3 dB	3.0	0.95"	0.65"	1.15"	60%	80+3 dB	3.0	0.95"	0.65"	1.15"	
FILTER: HI																
	3/4 T			45%	80%	4.5	1.4"	1.1"	1.7"	45%	80%	4.5	1.4"	1.1"	1.7"	FINAL TIME
LIN. CHECK: SAT																00 45 ~~11-26-88~~ MAB 11-27-88
SU CABLE: 12' BNC-BNC																CAL. BLOCK: CPL-10
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			61dB		66dB				61dB		66dB				THICKNESS 2.6"
																TEMP. 66°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1 BC	+14°F	NO	YES	YES	YES	NO	2" NOZZLE 2 SCAN, 5 SCAN PERFORMED ON WELD ONLY.	GROUND	X			SEE ATTACHED ULTRASONIC INDICATION DATA SHEET. ALSO LIMITATION TO EXAMINATION SHEETS 1 AND 2.

ANII REVIEW
ANII [illegible]
DATE 12-2-88

Richard B. [illegible] 4/29/89
[illegible] 11/29/88

035

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT	UNIT	SKETCH
H. B. Robinson	2	CPL-108

SYST/COMP	PROCEDURE
12" Pressurizer Surge Line	CPL-ISI-206, Rev. 0

EXAMINER (LEVEL II)	DATE
Nmel A. Bollyn II Paul J. Kovallo-II	11-26-88

LINEARITY AND CAL. CHECK	CAL. BLOCK THICKNESS
Sat.	2.6"

WELD NUMBER	INDICATION LENGTH		MIN. 50%		MIN. 100%		PEAK			MAX. 100%		MAX. 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	DAC AMPL.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	ANGLE	DIR.	SURF. 2	WELD	SURF. 5	
1BC	7"CW 13"CW	47"CCW 32"CCW	N/A	N/A	N/A	N/A	6.8	1.15"	80%	N/A	N/A	N/A	N/A	41°RL	2	2.85"	2.96"	2.6"	*

*Note: I.D. Geometry, See Attached Limitation to Examination Sketch for Plot of Indication.

ANII REVIEW
ANII [signature]
DATE 12-1-88

Richard B. [signature] 11/29/88
[signature] 11/29/88

035

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

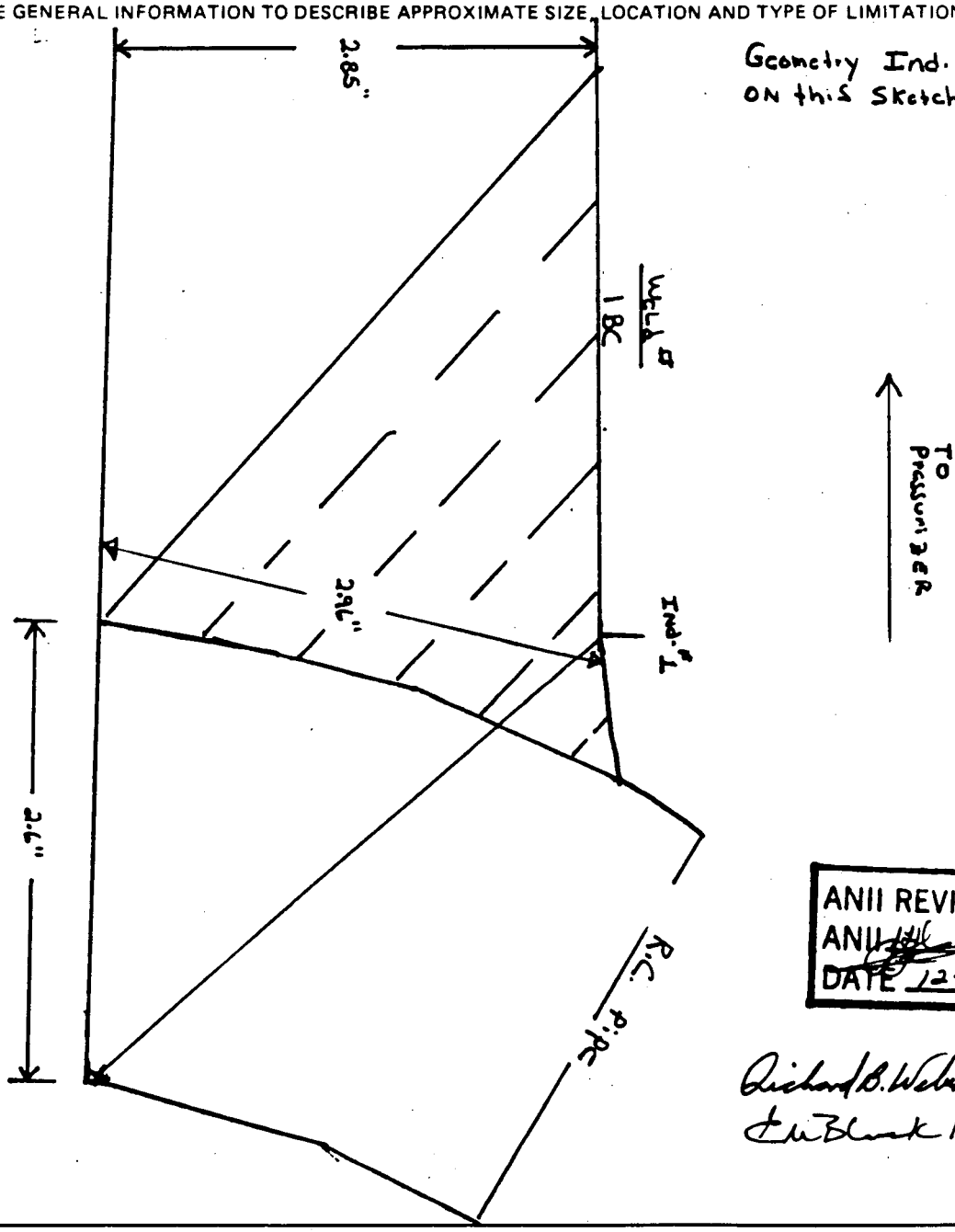
PLANT H.B. Robinson UNIT 2 SKETCH CPL-108

SYST/COMP 12" Pressurizer Surge Line PROCEDURE CPL-IST-206 Rev. 0

EXAMINER Arnold A. Bolyn II Paul J. Kovalko-II LEVEL II DATE 11-26-88

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): Weld 1BC

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



Geometry Ind. plotted on this sketch.

ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/29/88
[illegible] 11/29/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

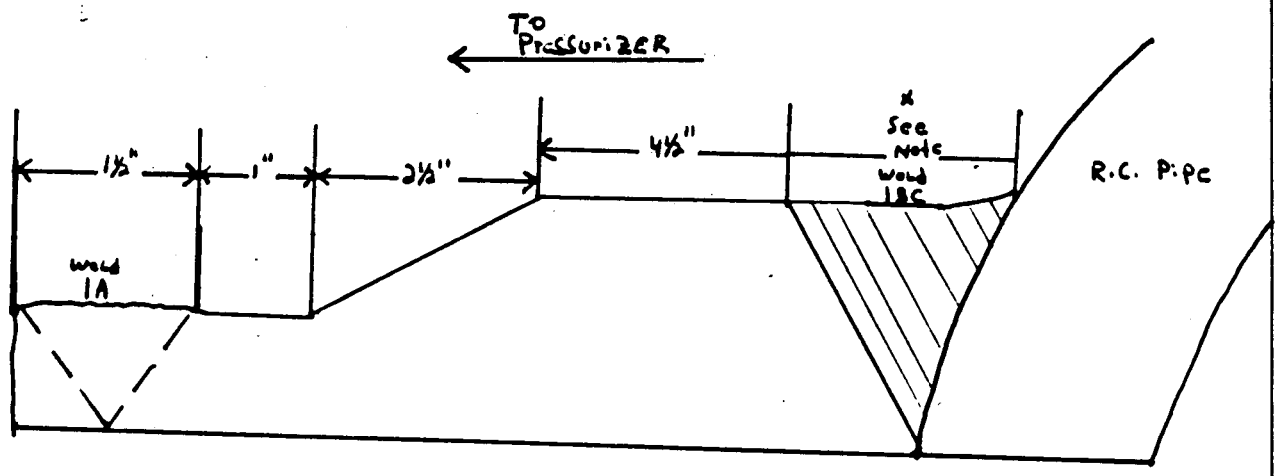
PLANT H.B. Robinson UNIT 2 SKETCH CPL-108

SYST/COMP 12" Pressurizer Surge Line PROCEDURE CPL-ISI-206, Rev. 0

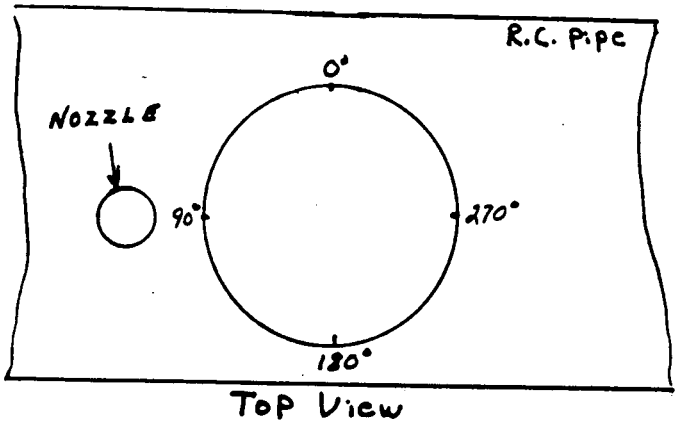
EXAMINER Donald A. Bolhrin II Paul J. Kovalle-II DATE 11-26-88
LEVEL II

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): Weld 1BC

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



* Note: Weld crown at 0° and 360° was 4"
Weld crown at 90° and 270° was 2"



Top View

ANII REVIEW
ANII [signature]
DATE 12-1-88

Richard B. Weber 11/29/88
[signature] 11/29/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-108
SYST/COMP.: 12" PRESS. SURGE. LINE		PROCEDURE: CPL-TSI-206-REV.0
EXAMINER (LEVEL II): Paul J. Kovallo II / Donald B. Bolfin II / Robert A. Grant I		DATE: 11-26-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08018E	S/N			031238					031238					INITIAL TIME: 2142 11-26-88
	SIZE			.375"					.375"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80%	2.0	.7"	.55"	.9"	80%	2.2	1.25"	1.1"	1.4"	
DAMPING: MIN	2 T			20%	4.0	1.5"	1.2"	1.75"	25%	4.6	2.5"	2.25"	2.7"	
FILTER: OFF	3 T			12%	6.0	2.2"	1.95"	2.35"						FINAL TIME: 2353 11-26-88
LIN. CHECK: SAT.														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-34
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			16 db					20 db					THICKNESS: 1.07"
														TEMP.: 65°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1A	+15°F	NO	YES	YES	YES	NO	NOZZLE CONFIGURATION 5 SCAN WELD CROWN 7+8 SCAN	AS WELDED	X			SEE U.T. INDICATION DATA SHEET AND LIMITATION TO EXAMINATION SHEET
2	+15°F	NO	YES	YES	YES	NO	WELD CROWN LIMITS ALL SCANS	ROUNDED	X			

ANII REVIEW
ANII [signature]
DATE 11-29-88

Richard B. Walker 11/29/88
[signature] 11/28/88

039

FORM 40001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-108
SYST/COMP.: 12" PRESS. SURGE LINE		PROCEDURE: CPL-ISI-206 REV0
EXAMINER (LEVEL II): Mm A. Bryn II / Paul J. Kovacs-II / Ralph C. Landfield I		DATE: 11-26-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK1 #08078E	S/N			F28235					F28235					INITIAL TIME: 22:13 11-26-88
	SIZE			0.250"					0.250"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	3.0	1.05"	0.65"	1.30"	80%	3.2	1.20"	1.10"	1.40"	
DAMPING: MIN	2T			10%	6.0	2.10"	1.60"	2.40"	12%	6.3	2.70"	2.55"	2.95"	
FILTER: OFF														FINAL TIME: 00:00 11-26-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-34
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			54db					55db					THICKNESS: 1.07"
														TEMP.: 65°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1A	+15°F	NO	YES	YES	YES	NO	NOZZEL CONFIGURATION 5 SCAN, WELD CROWN 7/8 SCAN	AS WELDED	X			SEE U.T. INDICATION DATA SHEET AND LIMITATION TO EXAMINATION SHEET
2	+15°F	NO	YES	YES	YES	NO	WELD CROWN LIMITS ALL SCANS	ROUNDED	X			

ANII REVIEW
ANII [illegible]
DATE 11-29-88

Richard B. Weber 11/29/88
[illegible] 11/28/88

040

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT	UNIT	SKETCH
H.B. Robinson	2	CPL-108
SYST/COMP: 12" Pressurizer Surge Line		PROCEDURE: CPL-ISI-206, Rev.0
EXAMINER (LEVEL II): Arnold A. Blair II, Paul J. Kovallo II		DATE: 11-26-88
LINEARITY AND CAL. CHECK: Sat		CAL. BLOCK THICKNESS: 1.07"

WELD NUMBER	INDICATION LENGTH		MIN. 50%		MIN. 100%		PEAK			MAX. 100%		MAX. 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	+ DAC AMPL.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	ANGLE	DIR.	SURF. 2	WELD	SURF. 5	
1A	1" cw	8" cw	2.5	1.2"	N/A	N/A	2.8	1.4"	100%	N/A	N/A	3.1	1.5"	60°	2	1.105"	No Back Refl.	No Back Refl	* **

* Note: See Limitation to Examination Sheet for Plot of Indication.

** Note: The Indication is I.D. Geometry. The Signal can be tracked at Lower Levels for 360° Around Weld.

ANII REVIEW
ANII [illegible]
DATE 11-29-88

Richard B. Weber 11/29/88
[illegible] 11/28/88

041

FORM 45984C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-108
SYST/COMP: 12" PRESS. SURGE LINE		PROCEDURE: CPL-151-206, REV. 0
EXAMINER (LEVEL II): Paul J. Kovallo II / Arnold A. Boffi II		DATE: 11-26-88
LINEARITY AND CAL. CHECK: SAT.		CAL. BLOCK THICKNESS: 1.07"

WELD NUMBER	INDICATION LENGTH		MIN. 50%		MIN. 100%		PEAK			MAX. 100%		MAX. 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	DAC AMPL.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	ANGLE	DIR.	SURF. 2	WELD	SURF. 5	
1A	3½" CW	7" CW	BUTTED		N/A	N/A	2.0	1.1"	80%	N/A	N/A	2.2	1.25"	45°	2	1.105"	NO BACK REFL.	NO BACK REFL.	*
																			**

* NOTE: SEE LIMITATION TO EXAMINATION SHEET FOR PLOT OF INDICATION.

** NOTE: THE INDICATION IS I.D. GEOMETRY. THE SIGNAL CAN BE TRACKED AT LOWER LEVELS FOR 360° AROUND WELD.

ANII REVIEW
ANII [signature]
DATE 11-29-88

Richard B. Weber 11/29/88
[signature] 11/28/88

042

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

043

LIMITATION TO EXAMINATION

PLANT H. B. Robinson UNIT 2 SKETCH CPL-108

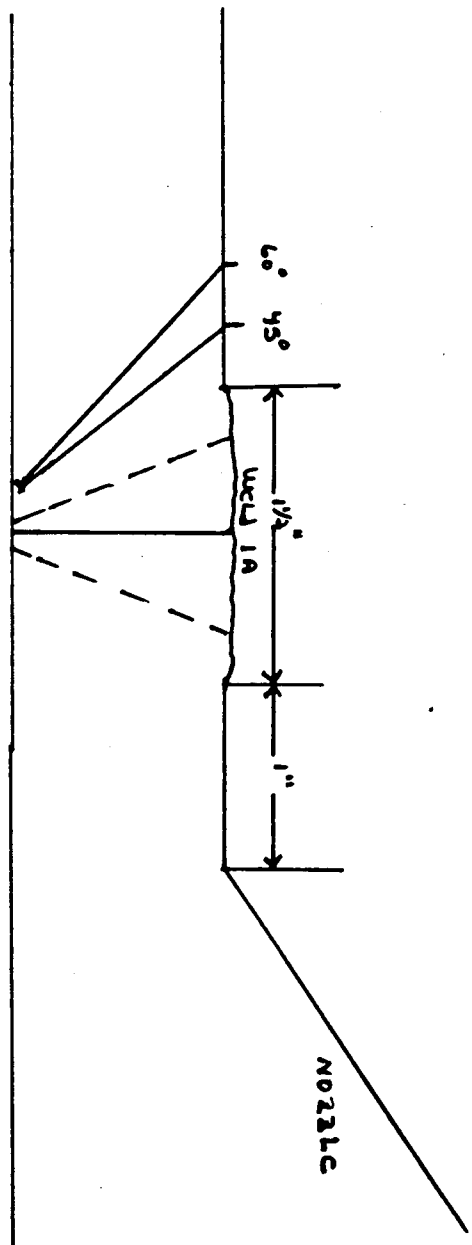
SYST/COMP 12' Pressurizer Surge Line PROCEDURE CPL-TSI-206, Rev. 0

EXAMINER Arnold A. Bilyin II Paul J. Kovallo II LEVEL II DATE 11-26-88

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): 1A

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.

Plot of Indications for 45° and 60° Scans Shown on this Sketch



ANII REVIEW
ANII
DATE 11-29-88

Richard B. Weber 11/29/88
J. Black 11/28/88

F49077

044

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-108

SYST/COMP. 14" + 12" PRESS. SURGE LINE PROCEDURE CPL IST-11 REV.0

EXAMINER Henry A Morin II Nancy M Ackerman II LEVEL II DATE 11-26-88

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX 886017	EQUIPMENT	
PENETRANT	MAGNAFLUX 85L045		
DEVELOPER	MAGNAFLUX 88B019	EXAM. MEDIUM	
REMOVER	MAGNAFLUX 886017	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
1 BC			X	SEE ATTACHED INDICATION DATA SHEET
1 A	X			
2	X			
				TEMP. FOR ABOVE WELDS - 80°F

ANII REVIEW
ANII [signature]
DATE 11-29-88

Richard B. Weber 11/29/88
[signature] 11/28/88

FORM 45935C

045

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-108

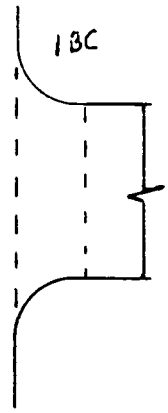
SYST/COMP 14" & 12" PRESS. SURGE LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Gary A Morris II Gary M Schumann II LEVEL II DATE 11-26-88

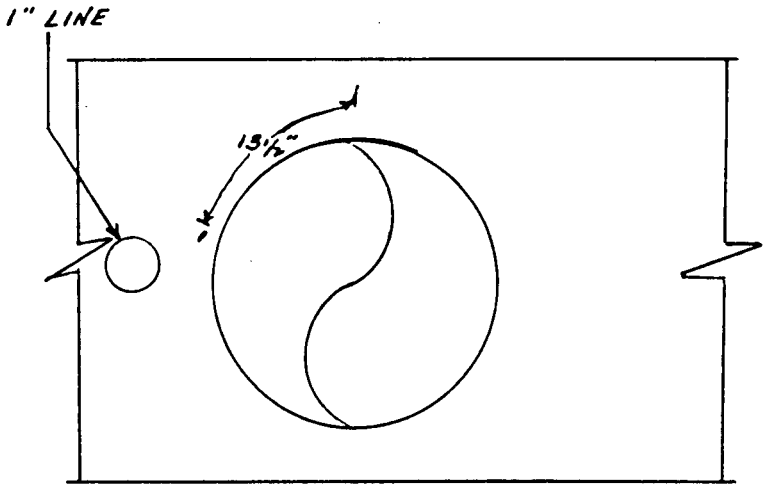
DETECTED BY U/T ____ P/T ✓ M/T ____ V/T ____ IDENT NO. 1 BC

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

SIDE VIEW



FRONT VIEW



ANII REVIEW
ANII HC
DATE 11-29-88

(1) INDICATION LENGTH 5/64", 7/8" FROM NOZZLE WELD ON RC PIPE 13½" FROM 0°.

Richard B. Weber 11/29/88
Lee Black 11/28/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-108
SYST/COMP.: 12" PRESS. SURGE LINE		PROCEDURE: CPL ISI-206 REV.0
EXAMINER (LEVEL II): Gary A Morris II, Gary M. Johnson I		DATE: 11-29-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08018E	S/N			031238					031238					INITIAL TIME: 0210 11-29-88
	SIZE			0.375"					0.375"					
	FREQ.			2.25 MHz					2.25 MHz.					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80 %	2.0	0.7"	0.55"	0.9"	80 %	2.3	1.25"	1.1"	1.4"	
DAMPING: MIN	2 T			20 %	4.0	1.5"	1.2"	1.75"	30 %	4.6	2.5"	2.25"	2.7"	
FILTER: OFF	3 T			11 %	6.0	2.2"	1.95"	2.35"						FINAL TIME: 0244 11-29-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-34
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			14 db					18 db					THICKNESS: 1.07"
														TEMP.: 62°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
3	+18°F	No	YES	YES	YES	No		ROUNDED	X			

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 11/30/88
[signature] 11/30/88

046

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. ROBINSON	2	CPL-108

SYST/COMP.	PROCEDURE
12" PRESS. SURGE LINE	CPL ISI-206 REV.0

EXAMINER (LEVEL II)	DATE
Paul J. Kovallo II Robert J. Cuent I	11-29-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I #08018E	S/N			F28235					F28235					INITIAL TIME
	SIZE			0.250"					0.250"					0451 11-29-88
	FREQ.			2.25 MHz.					2.25 MHz.					
	ANGLE			60°					60°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1 T			80 %	3.0	1.05"	0.65"	1.3"	80 %	3.8	1.2"	1.1"	1.4"	
DAMPING MIN	2 T			10 %	6.0	2.1"	1.6"	2.4"	10 %	6.0	2.7"	2.55"	2.95"	
FILTER OFF														
LIN. CHECK SAT														FINAL TIME 0506 11-29-88
SU CABLE 12' BNC/MCD														CAL. BLOCK CPL-34
COUPLANT Sonotrace #0 #8767	CAL. GAIN			42 db					42 db					THICKNESS 1.07"
														TEMP. 62°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
3	+18°F	No	YES	YES	YES	No		ROUNDED	X			

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 11/30/88
[illegible] Black 11/30/88

047

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. ROBINSON	2	CPL-108

SYST/COMP.	PROCEDURE
14" PRESS. SURGE LINE	CPL-IST-206 REV.0

EXAMINER (LEVEL II)	DATE
Henry A Morin II, Henry M. Jackson II	11-29-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08018E	S/N			031238					031238					INITIAL TIME: 0250 11-29-88
	SIZE			.375"					.375"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80%	2.0	.875"	.312"	1.03"	80%	2.2	.81"	.65"	1.18"	
DAMPING: MIN	2 T			20%	4.0	1.75"	1.5"	1.93"	30%	4.3	2.0"	1.78"	2.18"	
FILTER: OFF	3 T			10%	6.0	2.5"	2.31"	2.62"						FINAL TIME: 0344 11-29-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-36
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			13 db					17 db					THICKNESS: 1.25"
														TEMP. 62°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
4	+18°F	NO	NO	YES	YES	NO	REDUCER LIMITS 2,7+8 SCANS *	ROUNDED	X			
4 DM	+18°F	NO	NO	NO	YES	NO	REDUCER LIMITS 5,7+8 SCANS NOZZLE LIMITS 2 SCAN *	SMOOTH	X			
							* NOTE: SEE ATTACHED LIMITATION SHEET					

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 11/30/88
[signature] 11/30/88

048

FORM 4900

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-108
SYST/COMP.: 14" PRESS. SURGE LINE		PROCEDURE: CPL-ISI-206 REV. 0
EXAMINER (LEVEL II): Paul J. Kovallo-II Gary A Morin II / Ralph Churchfield I		DATE: 11-29-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08018 E	S/N			F28235					F28235					INITIAL TIME: 0408 11-29-88
	SIZE			.250"					.250"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 3 K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80%	3.0	1.0"	.75"	1.25"	80%	3.7	2.03	1.75"	2.375"	
DAMPING: MIN	2 T			20%	6.0	2.03"	1.937"	2.25"	10%	6.1	3.09	2.94"	3.44"	
FILTER: OFF														FINAL TIME: 0427 11-29-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-36
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			48 db					50db					THICKNESS: 1.25"
														TEMP.: 62°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
4	+18°F	NO	NO	YES	YES	NO	REDUCER LIMITS 2,7+8 SCANS *	ROUNDED	X			I.D. GEOMETRY, SEE ATTACHED INDICATION DATA SHEET
4DM	+18°F	NO	NO	NO	YES	NO	REDUCER LIMITS 5,7+8 SCANS NOZZLE LIMITS 2 SCAN *	SMOOTH	X			
							* NOTE: SEE ATTACHED LIMITATION SHEET					

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 11/30/88
[illegible] 11/30/88

049

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT: H.B. ROBINSON
UNIT: 2
SKETCH: CPL-108
SYST/COMP: 14" PRESS. SURGE LINE
PROCEDURE: CPL-151-206, REV. 0
EXAMINER (LEVEL II): Paul J. Koralle-II, Gary A. Morin II
DATE: 11-29-88
LINEARITY AND CAL. CHECK: SAT.
CAL. BLOCK THICKNESS: 1.25"

WELD NUMBER	INDICATION LENGTH		MIN. 50%		MIN. 100%		PEAK			MAX. 100%		MAX. 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	± DAC AMPL.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	ANGLE	DIR.	SURF. 2	WELD	SURF. 5	
4	0°	360°	N/A	N/A	N/A	N/A	3.0	1.187"	65%	N/A	N/A	N/A	N/A	60°	5	N/A	1.35"	1.25"	*

* NOTE: I.D. GEOMETRY NOTED FOR 360°

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 11/30/88
L. M. Black 11/30/88

050

051

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-108

SYST/COMP 14" + 12" PRESS. SURGE LINE PROCEDURE CPL ISI-206 REV. 0

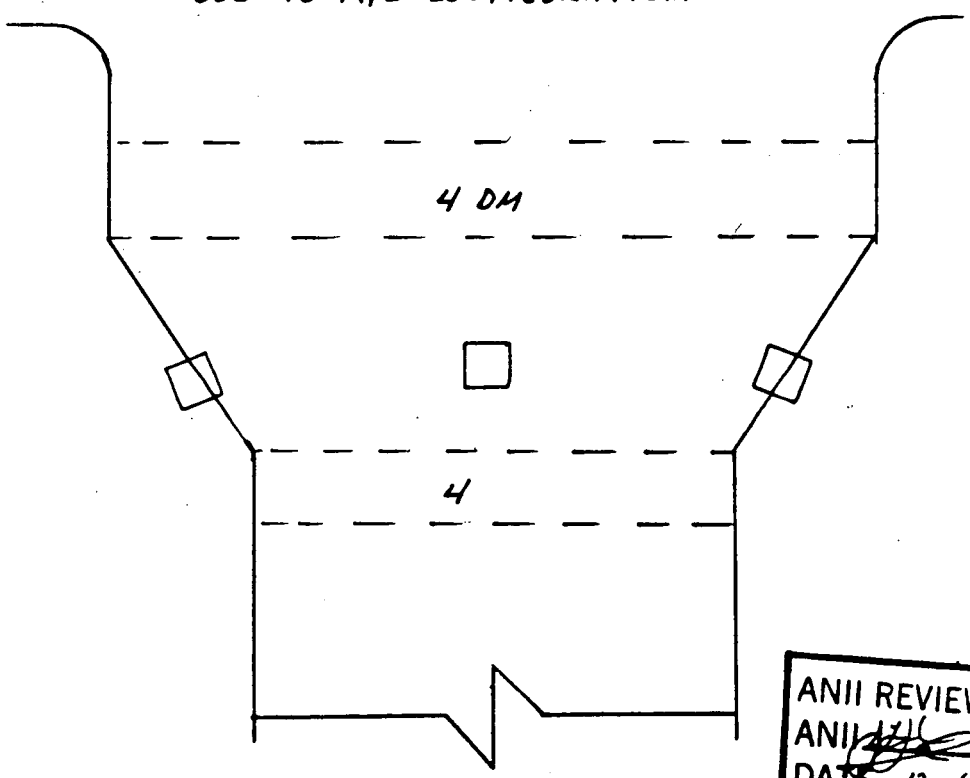
EXAMINER Gerry A Morini II Paul J. Karalle-II DATE 11-29-88
LEVEL II

RELATED TO: U/T ✓ P/T ____ M/T ____ V/T ____ ITEM(S): 4, 4DM

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.

NOZZLE

WELD 4 DM - NO 2 OR 5 SCAN DONE
DUE TO PIPE CONFIGURATION.



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 11/30/88
Lee Black 12/5/88

F49077

052

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-108

SYST/COMP. 14" & 12" PRESS. SURGE LINE PROCEDURE CPL ISI-11 REV.0

EXAMINER Gary M. Jackman II Gary A. Morris II LEVEL II DATE 11-29-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
4 DM		X		SEE ATTACHED SURFACE INDICATION DATA SHEET
4	X			
3	X			
				TEMP. FOR ALL WELDS - 80°F.

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 11/30/88
[illegible] 11/30/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

053

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-108

SYST/COMP 14" & 12" PRESS SURGE PROCEDURE CPL ISI-11 REV. 0

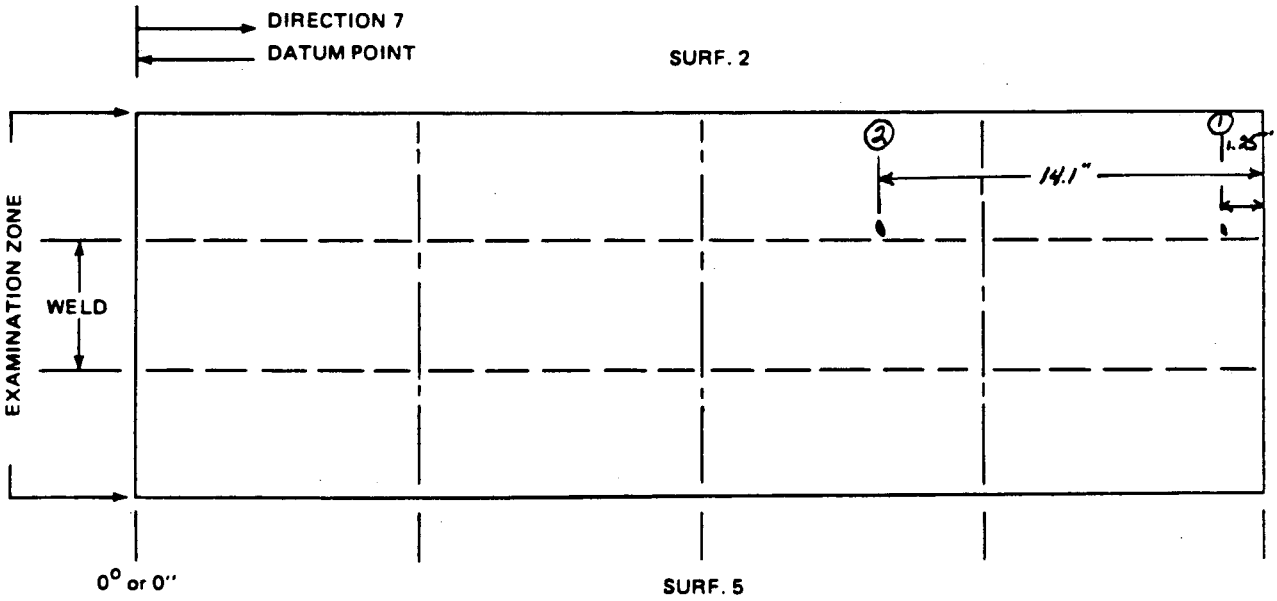
EXAMINER Gary M. Ackerman II Gary A. Morin II LEVEL II DATE 11-29-88

PT ✓ MT WELD NO. 4DH

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS ① INDICATION 0.093" DIA. ROUNDED

② INDICATION 0.1" DIA ROUNDED



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 11/30/88
Jim Black 11/30/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT II SKETCH CPL-108

SYST/COMP PRESSURIZER SURGE LINE PROCEDURE CPL-151-8 REV.0

EXAMINER [signature] III, [signature] I DATE 12-30-88
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A			X	FLASH LIGHT	ROOF CLEVIS NUT NOT FULLY ENGAGED
B - WR	X			FLASH LIGHT	
C			X	FLASH LIGHT	ROOF CLEVIS NUT AND TOP PIPE CLAMP
					NUT NOT FULLY ENGAGED
D - WR	X			FLASH LIGHT	
E	X			FLASH LIGHT	
F			X	FLASH LIGHT	TOP PIPE CLAMP NUT NOT FULLY ENGAGED
G - WR	X			FLASH LIGHT	
					A VT-3 EXAMINATION WAS PERFORMED
					ON THE ENTIRE SURGE LINE. THE
					SURGE LINE WAS INSULATED AT
					THE TIME OF EXAMINATION. ALL
					SUPPORT AND RESTRAINT BOLTING
					WAS EXAMINED. NO EVIDENCE
					OF PIPE MOVEMENT WAS FOUND.
					THE INSULATION HAD TO BE PARTIALLY
					REMOVED WHERE THE SURGE LINE
					CROSSES THE VENTILATION DUCT. THE
					INSULATION IN THESE TWO AREAS
					APPEARS TO BE FABRICATED FOR
					MOVEMENT BUT DOES NOT SHOW ANY
					SIGN OF MOVEMENT. SEE
					LIMITATION SHEET FOR SKETCH
				ANII REVIEW	
				ANII [signature]	[signature] 12/31/88
				DATE 12-31-88	

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

055

LIMITATION TO EXAMINATION

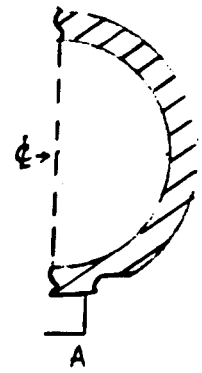
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-108

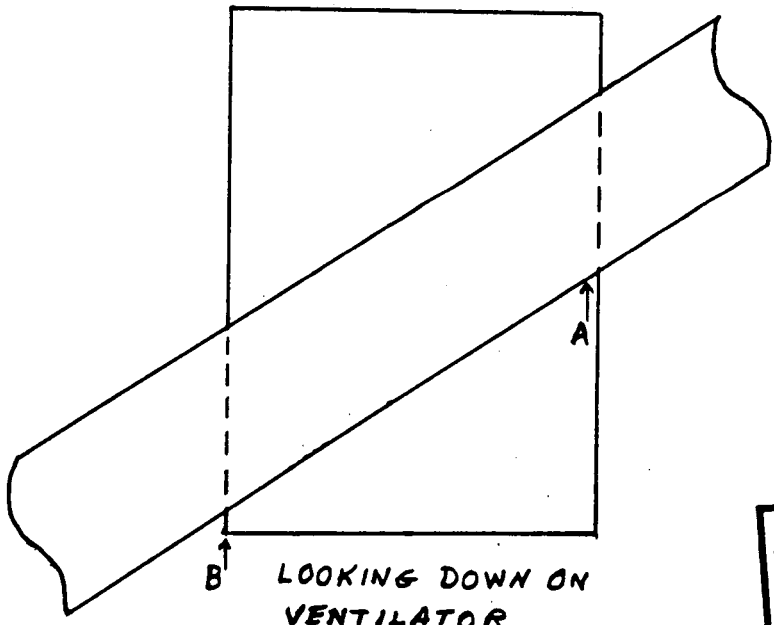
SYST/COMP PRESSURIZER SURGE LINE PROCEDURE CPL ISI-8 REV.0

EXAMINER [signature] LEVEL II DATE 12-30-88

RELATED TO: U/T ____ P/T ____ M/T ____ V/T ✓ ITEM(S) SURGE LINE AT VENT.

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.





LOOKING DOWN ON VENTILATOR

B OPPOSITE OF A

ANII REVIEW
ANII [signature]
DATE 12-31-88

Richard B. Weber 12/31/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-108

SYST/COMP 14"-12" PRESSURIZER SURGE LINE PROCEDURE CPL TBA-100 REV.0

EXAMINER Arnel A. Blanco II / Ralph Churchfield I (LEVEL II) DATE 11-17-88

EXAMINER Rick J. Krolla II / Robert A. Cassat I (LEVEL II) DATE 11-17-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR.	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	800886
S/N	08078E/08079E	G20209	62408	62410	N/A
SIZE	N/A	0.5"	0.25"	0.25"	N/A
FREQ.	N/A	5 MHZ	2.25 MHZ	2.25 MHZ	N/A
ANGLE	N/A	0°	45°	45°	N/A
COUPLANT: SONOTRACE 40 BATCH #8767					

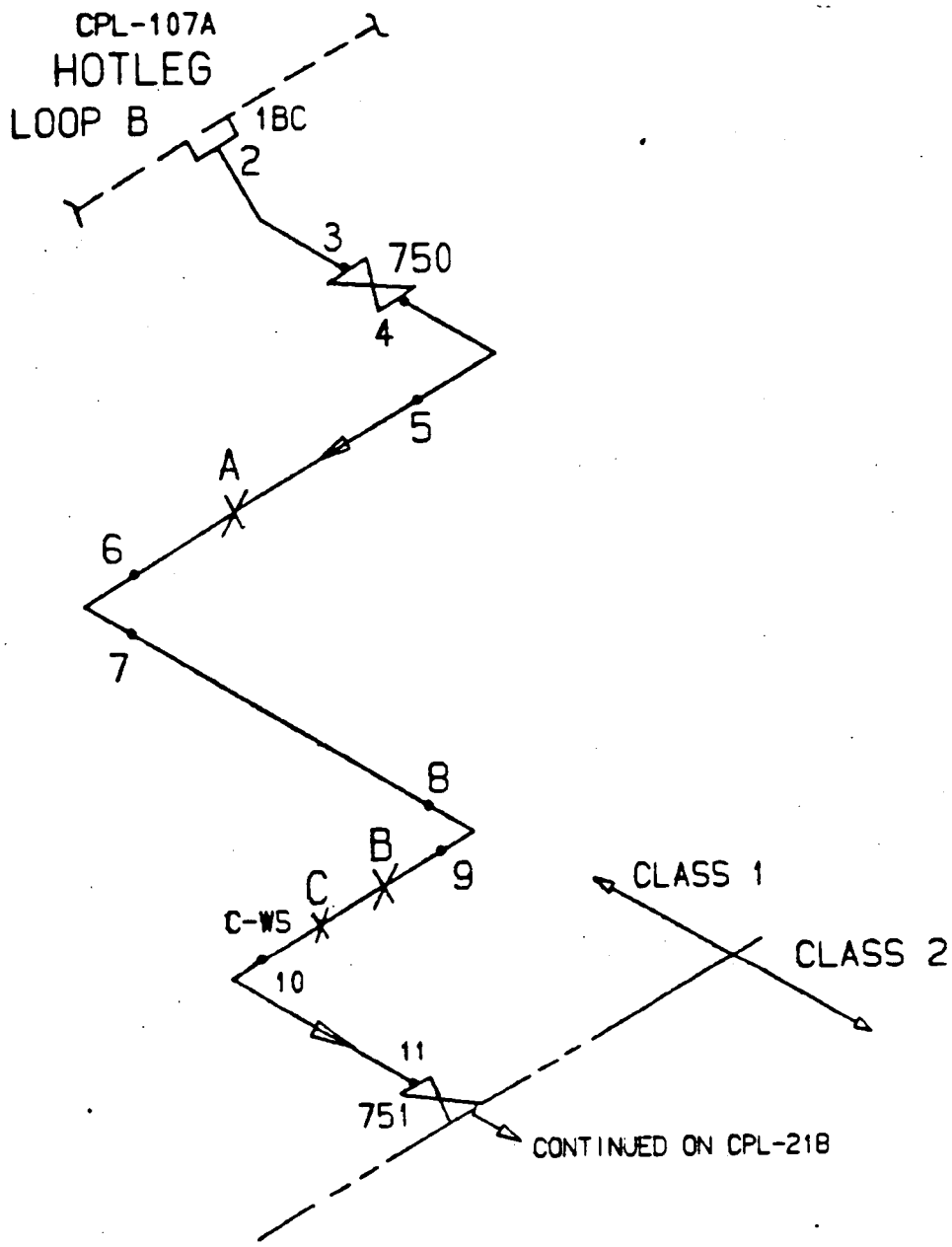
			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM:	SURFACE 2°	SURFACE 5°	DIR. 7° LOCATION	CALCULATED THICKNESS	DIR. 7° LOCATION	CALCULATED THICKNESS	DIR. D	CALCULATED ANGLE	REMARKS
1 (BC)	X	N/A	N/A	N/A	0"	3.1"	N/A	N/A	UNABLE TO OBTAIN ACCURATE THICKNESS AND ANGLE DATA DUE TO NOZZLE CONFIGURATION
1 (A)	X	N/A	35"	1.06"	11"	1.16"	1.8"	38°	
2	N/A	X	23"	1.09"	1"	1.17"	2"	43°	PIPE TO PIPE WELD
2	X	N/A	2"	1.06"	30"	1.17"	1.6"	34°	PIPE TO PIPE WELD
3	N/A	X	2.5"	1.15"	37"	1.20"	2.1"	41°	
4	N/A	X	0"	1.25"	10"	1.28"	2.1"	39°	
4 (DM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	UNABLE TO OBTAIN THICKNESS AND ANGLE VERIFICATION DUE TO NOZZLE CONFIGURATION

Richard B. Weber 11/20/88
[illegible] 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

ANII REVIEW
ANII [illegible]
DATE 11-22-88

SPRING HANGERS
A,B
WELDED SUPPORT
C-WS



CPL-109 REV 2

H.B. ROBINSON S.E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION LOOP B 14" RHR TAKE-OFF		
LINE NO.14-RC-15	CPL-109 · REV. 2	

SKETCH CPL-109

EXAMINATION SUMMARY
FOR

1989

058

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
11	8	X				X								TBA THICKNESS AND BEAM ANGLE
	2													TBA
	3													TBA

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-109
SYST/COMP.: LOOP B 14" RHR TAKEOFF		PROCEDURE: CPL-151-206, REV. 0
EXAMINER (LEVEL II): Arnold A. Bolgrin II, Paul J. Kovallo-II		DATE: 12-6-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08018E	S/N			031238					031238					INITIAL TIME: 2045 12-6-88
	SIZE			.375"					.375"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	.875"	.312"	1.03	80%	2.3	.81"	.65"	1.18"	
DAMPING: MIN	2T			20%	4.0	1.75"	1.5"	1.93"	28%	4.4	2.0"	1.78"	2.18"	
FILTER: OFF	3T			6%	6.0	2.5"	2.31"	2.62"						FINAL TIME: 2205 12-6-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC-MCD														CAL. BLOCK: CPL-36
COUPLANT: SONOTRACE 40 #B767	CAL. GAIN			15dB					18dB					THICKNESS: 1.25"
														TEMP.: 50°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
8	+13°F	NO	YES	YES	YES	NO	WELD CROWN 7+8 SCAN	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 12-11-88

Richard B. Weber 12/9/88
[signature] 12/9/88

059

FORM 35001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. Robinson	2	CPL-109

SYST/COMP.	PROCEDURE
LOOP B 14" RHR TAKE OFF	CPL-ISI-206, Rev. 0

EXAMINER (LEVEL II)	DATE
Arnold A. Boyin II Paul J. Kovallo II	12-6-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N Sonic Mark 1 080786	S/N			21137					21137					INITIAL TIME 2037 12-6-88
	SIZE			0.25"					0.25"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1T			80%	2.0	1.375"	1.0"	1.78"	80%	2.5	2.37"	1.88"	2.65"	
DAMPING MIN.	2T			12%	4.0	3.06"	2.5"	3.56"	10%	4.0	3.62"	3.46"	4.18"	
FILTER OFF														FINAL TIME 2210 12-6-88
LIN. CHECK Sat.														
SU CABLE 12' BNC-MCD														CAL. BLOCK CPL-36
COUPLANT Sonotrace 40 # 8767	CAL. GAIN			55db					54db					THICKNESS 1.25" TEMP. 50°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
8	+13°F	NO	YES	YES	YES	NO	Weld Crown 7+8 Scan	As welded	X			

ANII REVIEW
ANII
DATE 12-11-88

J. Black 12/11/88
Richard A. Weber 12/11/88

060

FORM 49001

061

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-109

SYST/COMP. LOOP "B" 14" RHR TAKE-OFF PROCEDURE CPL-IST-11 REV. 0

EXAMINER Robert Clement II / Ralph Churchfield I (LEVEL II) DATE 11-23-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	851045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
8		X		TEMP. 105°F. SEE ATTACHED SURFACE INDICATION DATA SHEET

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/26/88
John Blenck 11/26/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

062

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-109

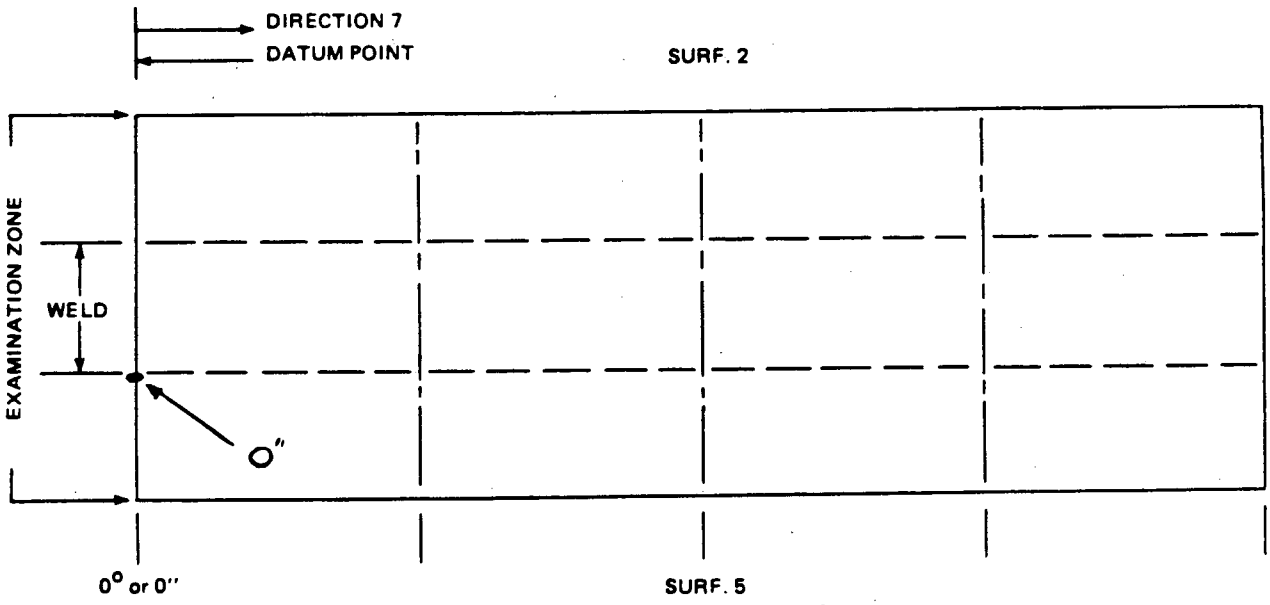
SYST/COMP LOOP "B" 14" RHR TAKE-OFF PROCEDURE CPL-ISI-11 REV. 0

EXAMINER [signature] II DATE 11-23-88
LEVEL II

PT X MT WELD NO. 8

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS ONE 3/32" ROUNDED INDICATION LOCATED ON THE 5 SIDE AT 0". ON TOE OF WELD.



ANII REVIEW
ANII [signature]
DATE 11-26-88

Richard B. Weber 11/26/88
[signature] 11/26/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-109

SYST/COMP LOOP "B" 14" RHR TAKE-OFF LINE PROCEDURE CPL TBA-100 REV.0

EXAMINER Noel A. Bilyeu II / Ralph Chandfield I LEVEL II DATE 11-17-88

EXAMINER Paul J. Kovalko II / Robert S. Conant I LEVEL II DATE 11-17-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	#800886
S/N	08078E/08079E	G20209	62408	62410	N/A
SIZE	N/A	0.5"	0.25"	0.25"	N/A
FREQ.	N/A	5 MHZ	2.25 MHZ	2.25 MHZ	N/A
ANGLE	N/A	0°	45°	45°	N/A
COUPLANT: SONOTRACE 40			BATCH #8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD NUMBER	SURFACE 2°	SURFACE 5°	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. A	CALCULATED ANGLE	REMARKS
8	N/A	X	20"	1.21"	12"	1.245"	1.20"	26°	
									ANII REVIEW ANII DATE 11-22-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 4/20/89
11/21/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-109

SYST/COMP LOOP "B" 14" RHR TAKE-OFF PROCEDURE CPL TBA-100 REV. 0

EXAMINER Arnold B. Grimm II / Ralph Churchfield I LEVEL II DATE 11-18-88

EXAMINER Paul J. Kvallo II / Robert S. Conti I LEVEL II DATE 11-18-88

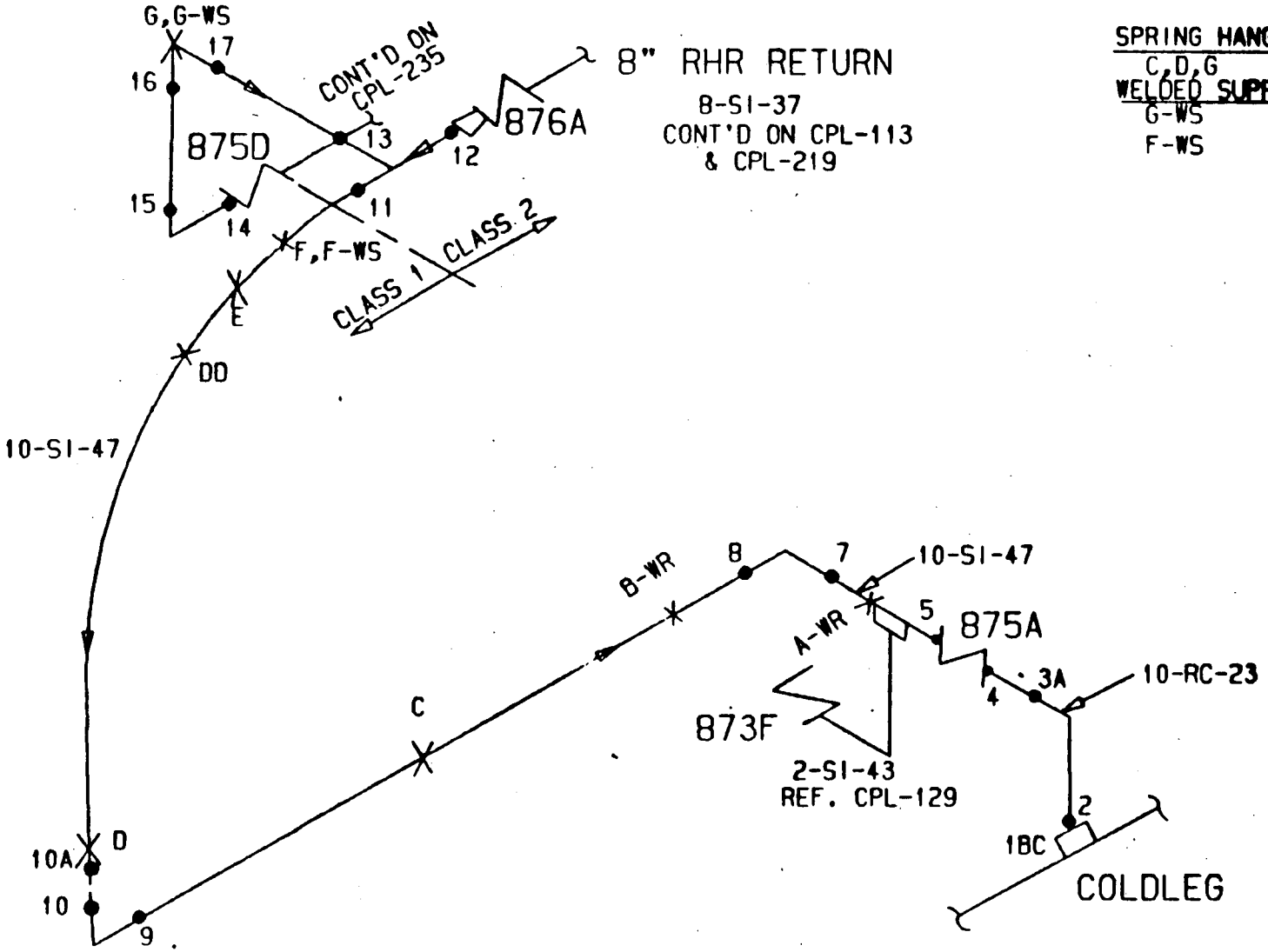
		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	KBA	KBA	# 800886
S/N	08078E/08018E	G20209	80093	80087	N/A
SIZE	N/A	0.5"	0.5"	0.5"	N/A
FREQ.	N/A	5MHZ	5 MHZ	5 MHZ	N/A
ANGLE	N/A	0°	45°	44°	N/A
COUPLANT: SONOTRACE 40 BATCH # 8767					

WELD ITEM	SURFACE 2°	SURFACE 5°	MINIMUM DIR 7° LOCATION	MINIMUM CALCULATED THICKNESS	MINIMUM DIR 7° LOCATION	MINIMUM CALCULATED THICKNESS	ANGLE DIR. D	ANGLE CALCULATED ANGLE	REMARKS
2	X	N/A	18"	1.25"	0"	1.31"	2.6"	45°	
3	N/A	X	18"	1.28"	0"	1.37"	2.6"	43°	

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION



SPRING HANGERS
C,D,G
WELDED SUPPORTS
G-WS
F-WS

065

CPL-110 REV 3

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LOOP A 10" ACCUM. DISCHG. LINE	

WESTINGHOUSE FORM 46762

SKETCH CPL-110

EXAMINATION SUMMARY
FOR

1989

066

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
12	10	X			X									TBA
12	10A	X					X							TBA SEE TAB F
12	16	X					X							TBA SEE TAB F
13	DD							X						
14	F-WS	X			X									
60	V875D (16)							X						
	V875A (16)													
	2													TBA
	3A													TBA
	4													TBA
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. Robinson	2	CPL-110

SYST/COMP.	PROCEDURE
Loop A 10" Accum. Dischg. Line	CPL-ISI-206, Rev. 0

EXAMINER (LEVEL II)	DATE
Noel A. Bulgin II Paul J. Kovallo-II	12-4-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N Sonic Mark 1 #08078E	S/N			21137					21137					INITIAL TIME
	SIZE			0.25"					0.25"					2120 12-4-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1T			80%	2.0	1.5"	1.3"	1.85"	80%	2.4	2.6"	2.3"	2.95"	
DAMPING MIN.	2T			30%	4.0	2.85"	2.65"	3.15"	10%	4.9	4.3"	3.95"	4.65"	
FILTER OFF	3T			18%	6.0	4.5"	4.25"	5.0"						FINAL TIME
LIN. CHECK Sat.														2348 12-4-88
SU CABLE 12' BNC/MCD														CAL. BLOCK CPL-59
COUPLANT Sonotrace 40 # B767	CAL. GAIN			44dB					47db					THICKNESS 1.18"
														TEMP. 44°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
10	+ 19°F	No	YES	YES	YES	No	Weld Crown 7/8 Scan	As welded	X			
10A	+ 19°F	No	YES	YES	YES	NO		Rounded	X			
16	+ 11°F	NO	yes	yes	yes	No		Ground	X			

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/6/88
[illegible] 12/6/88

290

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. Robinson	UNIT: 2	SKETCH: CPL-110
SYST/COMP.: Loop A 10" Accum. Dischg. Line		PROCEDURE: CPL-ISI-206, Rev. 0
EXAMINER (LEVEL II): Neil A. Bolyni-II, Paul J. Kovallo-II		DATE: 12-4-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: Sonic Mark 1 # 080186	S/N			031238					031238					INITIAL TIME
	SIZE			0.375"					0.375"					2135 12-4-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	1.2"	0.95"	1.3"	80%	2.1	1.5"	1.3"	1.8"	
DAMPING: MIN	2T			40%	4.0	2.1"	1.8"	2.25"	35%	4.3	2.8"	2.6"	3.0"	
FILTER: OFF	3T			30%	6.0	3.1"	2.9"	3.3"						FINAL TIME
LIN. CHECK: Sat.														2338 12-4-88
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-59
COUPLANT: Sonotrace 40 # 8767	CAL. GAIN			13 db					17 db					THICKNESS 1.18"
														TEMP. 44°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
10	+19°F	No	YES	YES	YES	No	Weld Crown 7/8 Scan	As Welded	X			
10A	+19°F	No	YES	YES	YES	No		Rounded	X			
16	+19°F	No	YES	YES	YES	No		Ground	X			

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Walker 12/6/88
[illegible] 12/6/88

068

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-110
SYST/COMP.: LOOP A 10" ACCUM. DISCHG. LINE		PROCEDURE: CPL-1S1-206, REV. 0
EXAMINER (LEVEL II): Paul J. Kovallo-II / Ralph Churchfield		DATE: 12-5-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08079E	S/N	B03664												INITIAL TIME: 2155 12-5-88
	SIZE	.50"												
	FREQ.	2.25 MHZ												
	ANGLE	0° PC												
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1/4 T	80%	3.0											
DAMPING: MIN	3/4 T	65%	6.0											
FILTER: HI														FINAL TIME: 2230 12-5-88
LIN. CHECK: SAT														
SU CABLE: 6' BNC-PC														CAL. BLOCK: CPL-59
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN	61 dB												THICKNESS: 1.18"
														TEMP.: 40°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
10 A	+21°F	Y-A	NO	NO	NO	YES		ROUNDED	X			

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/6/88
[signature] 12/6/88

690

EABM 88001

070

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-110

SYST/COMP. LOOP A 10" ACCUM DISCHG LINE PROCEDURE CPL IST-11 REV.0

EXAMINER Larry M. Jakeman II / Ralph Churchfield I (LEVEL II) DATE 12-5-88

P/T	BATCH NOS.	M/T	
CLEANER MAGNAFLUX	88G017	EQUIPMENT	
PENETRANT MAGNAFLUX	85L045		
DEVELOPER MAGNAFLUX	88B019	EXAM. MEDIUM	
REMOVER MAGNAFLUX	88G017	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
10	X			TEMP - 61°F

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/6/88
[signature] 12/6/88

FORM 45935C

071

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-110

SYST/COMP. LOOP A 10" ACCUM. DISCHG. LINE PROCEDURE CPL ISI-11 REV.0

EXAMINER Harry M. Johnson II LEVEL II Paul J. Kovalle - II DATE 12-4-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
10A			X	SEE ATTACHED SURFACE INDICATION DATA SHEET
				TEMP-63°F

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/6/88
[illegible] 12/6/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

072

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-110

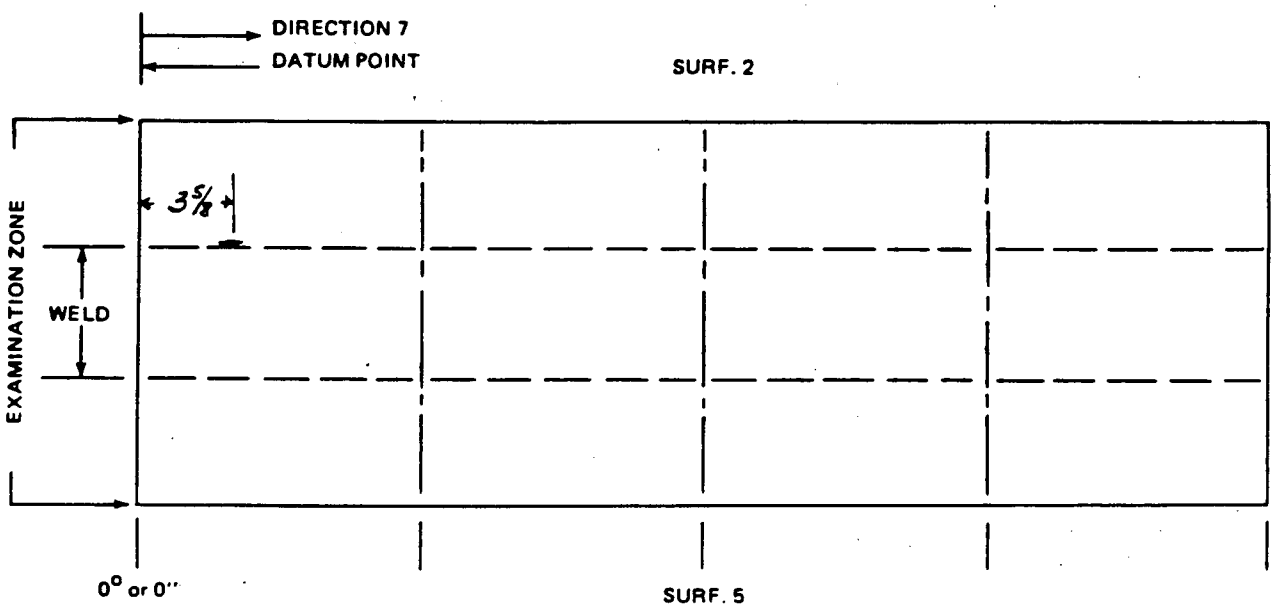
SYST/COMP LOOP A 10" ACCUM DISCHG LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Harry M. Ackerman II Paul J. Rovallo - II DATE 12-4-88
LEVEL II

PT ✓ MT WELD NO. 10A

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS 1/8" LINEAR INDICATION, 11/16" FROM ℄ OF WELD ON TOE OF WELD



ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/6/88
[signature] 12/6/88

FORM 45932B

073

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-110

SYST/COMP LOOP A 10" ACCUM. DISCHG. LINE PROCEDURE CPL IST-8 REV.0

EXAMINER [illegible] II [illegible] LEVEL II DATE 11-16-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
DD	X			FLASHLIGHT	SETTING: 3400 (3/8") VT.3

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard B. Walker 11/20/88
J M Black 11/20/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-110
SYST/COMP.: LOOP A 10" ACCUM. DISCHG. LINE		PROCEDURE: CPL-ISI-206 REV. 0
EXAMINER (LEVEL II): Gary A Marin II, Robert A Caupt II		DATE: 12-6-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: Sonic MK I 08079E	S/N	D10578		031238					031238					INITIAL TIME: 2007 12-6-88
	SIZE	.5"		0.375"					0.375"					
	FREQ.	5.0 MHZ		2.25 MHZ					2.25 MHZ					
	ANGLE	0°		45°					45°					
REP. RATE: 3 k	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T	80%	7.5	80%+40dB	2.0	1.2"	.95"	1.3"	80%+9dB	2.2	1.5"	1.3"	1.8"	
DAMPING: MIN	2T			80%	4.0	2.1"	1.8"	2.25"	80%	4.4	2.8"	2.6"	3.0"	
	3T			60%	6.0	3.1"	2.9"	3.34"	25%	6.7	3.96"	3.43"	4.46"	
FILTER: OFF	4T			30%	8.0	4.2"	3.8"	4.7"						
LIN. CHECK: SAT.														FINAL TIME: 2037 12-6-88
SU CABLE: 12' BNC-MCD														CAL. BLOCK: CPL-59
COUPLANT: SONOTRACE 40 8767	CAL. GAIN	45 dB		43 dB					51 dB					THICKNESS: 1.18"
														TEMP.: 52°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
F-WS	+7°F	Y-B	YES	YES	YES	NO	RESTRAINT SEE LIMITATION SHEET	N A	X			TWO WELDED LUGS. EXAMINED BASE METAL ONLY.

ANII REVIEW
ANII [illegible]
DATE 12-12-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

074

FORM 49001

075

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

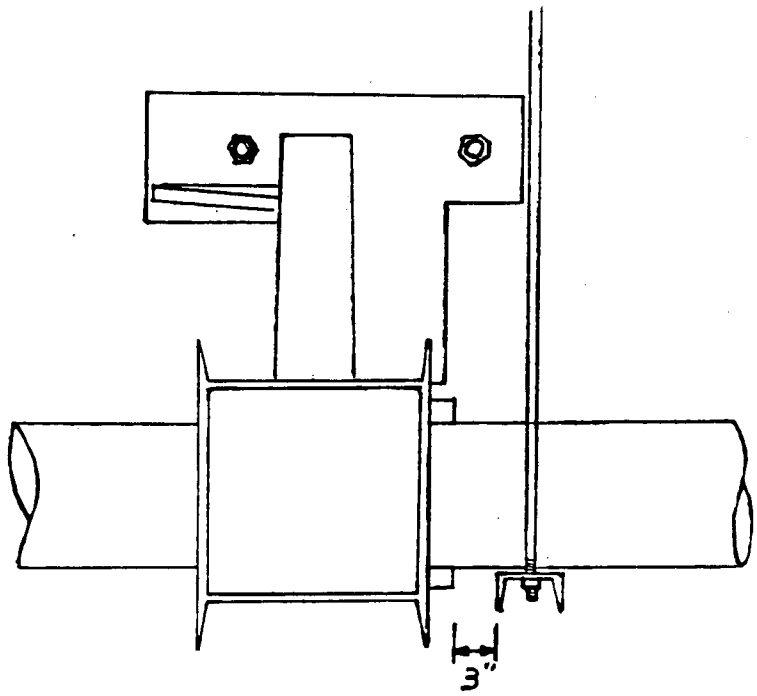
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-110

SYST/COMP LOOP A 10" ACCUM. DISCHG. LINE PROCEDURE CPL-ISI-206 REV. 0 RBW 12/8/88

EXAMINER [signature] LEVEL II DATE 12-6-88

RELATED TO: U/T ✓ P/T ____ M/T ____ V/T ____ ITEM(S): F, F-WS

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



ANII REVIEW
ANII [signature]
DATE 12-12-88

Richard B. Weber 12/8/88
[signature] 12/12/88

F49077

076

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-110

SYST/COMP. LOOP A 10" ACCUM DISCHG. LINE PROCEDURE CPL-ISI-11 REV. 0

EXAMINER Harry M. Jackson II / Ralph Chandfield I DATE 12-7-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	851045
DEVELOPER	MAGNAFLUX	888019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
F-WS	X			62°F
16			X	63°F. SEE ATTACHED INDICATION DATA SHEET.

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
J. L. Blank 12/9/88

FORM 45935C

077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-110

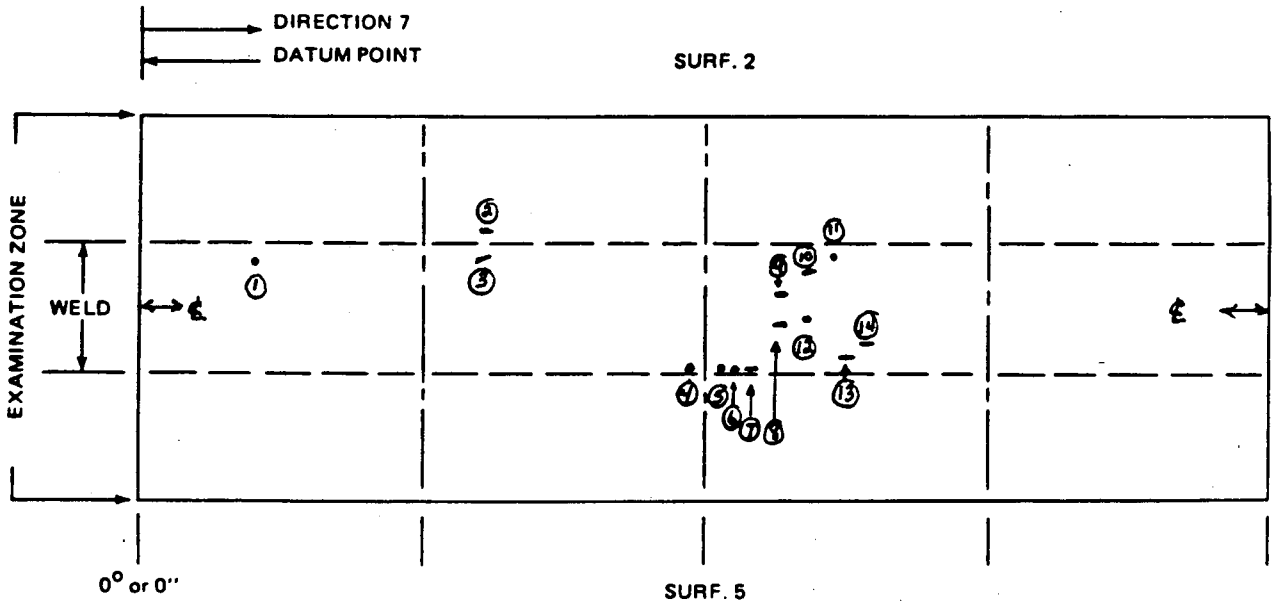
SYST/COMP LOOP A 10" ACCUM. DISCHG. LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Harry M. Jakeman II / Ralph Chandfield I (LEVEL II) DATE 12-7-88

PT ✓ MT WELD NO. 16

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS ① 3/32" ROUNDED, 5" FROM 0°, 1/2" FROM ℄ ② 3/32" LINEAR, 15" FROM 0°, 1 1/4" FROM ℄
③ 1/8" LINEAR, 15" FROM 0°, 3/4" FROM ℄ ④ 1/16" ROUNDED, 22 1/2" FROM 0°, 3/4" FROM ℄
⑤ 1/16" ROUNDED, 22 7/8" FROM 0°, 3/4" FROM ℄ ⑥ 1/16" ROUNDED, 23" FROM 0°, 3/4" FROM ℄
⑦ 3/32" LINEAR, 23 1/8" FROM 0°, 3/4" FROM ℄ ⑧ 5/32" LINEAR, 24" FROM 0°, 1/4" FROM ℄



⑨ 1/8" LINEAR, 24" FROM 0°, 1/2" FROM ℄ ⑩ 1/32" ROUNDED, 24 5/8" FROM 0°, 1/8" FROM ℄
⑪ 5/32" LINEAR, 24 5/8" FROM 0°, 3/8" FROM ℄ ⑫ 1/64" ROUNDED, 25 1/4" FROM 0°, 3/4" FROM ℄
⑬ 5/32" LINEAR, 27 1/4" FROM 0°, 1/2" FROM ℄ ⑭ 3/16" LINEAR, 27 1/2" FROM 0°, 3/8" FROM ℄

ANII REVIEW
ANII [signature]
DATE 12-10-88

Richard B. Weber 12/9/88
[signature] 12/9/88

FORM 45932B

078

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-110

SYST/COMP LOOP A 10" ACCUM. DISCHG LINE PROCEDURE CPL IST-8 REV.0

EXAMINER Benny A Marin II Harry M Johnson I (LEVEL II) DATE 11-16-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
875 D	X			FLASHLIGHT	16 STUDS + NUTS IN PLACE VT.1

ANII REVIEW
ANII
DATE 11-22-88

Richard B. Walker 11/20/88
Jim Black 11/20/88

FORM 45934B

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR#A 88-AHTB1 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-875A	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 1	LOCATION/ISOMETRIC: CPL-110 Rev. 3	
PROCEDURE: NAEP 611 REV: 6	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* Anchor Darling Assembly Dwg. 11542

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: Bill Dillingham LEVEL: II DATE: 12-16-88

2 EXAMINER: John W. Rust LEVEL: II DATE: 12-16-88

SATISFACTORY ☒ UNSATISFACTORY ☐

NO REPORTABLE INDICATIONS ☒ ✓ 12/28/88 REPORTABLE INDICATIONS ☐

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 12/28/88

CP&L

Carolina Power & Light Company

080

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR+A 88-AHGI1 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION | COMPONENT NAME: VALVE SI-875D | COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS

CLASS: CLASS 1 | LOCATION/ISOMETRIC: CPL-110 Rev. 3

PROCEDURE: NDEP 611 REV: 6 | METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐

REPLICATION: YES☐ NO☒ | DIRECT☒ REMOTE☐ | VIDEO RECORDING NO: N/A

EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE.

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: John W. Rum LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY N/A

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS N/A

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 12/28/88

QA NDE 1S1 6 Rev. 0 10/85

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL - 110

SYST/COMP LOOP A 10" ACCUM. DISCH. LINE PROCEDURE CPL TBA-100 REV 0

EXAMINER Noel A. Bellmi II / Ralph Churchfield I LEVEL II DATE 11-16-88

EXAMINER Paul J. Kovalle II / Gary M. Ackerman I LEVEL II DATE 11-16-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	800886
S/N	08078E/08079E	620209	62408	62410	NA
SIZE	NA	0.5"	0.25"	0.25"	NA
FREQ.	NA	5 MHz	2.25 MHz	2.25 MHz	NA
ANGLE	NA	0°	45°	45°	NA

COUPLANT: SONOTRACE 40 BATCH # 8767

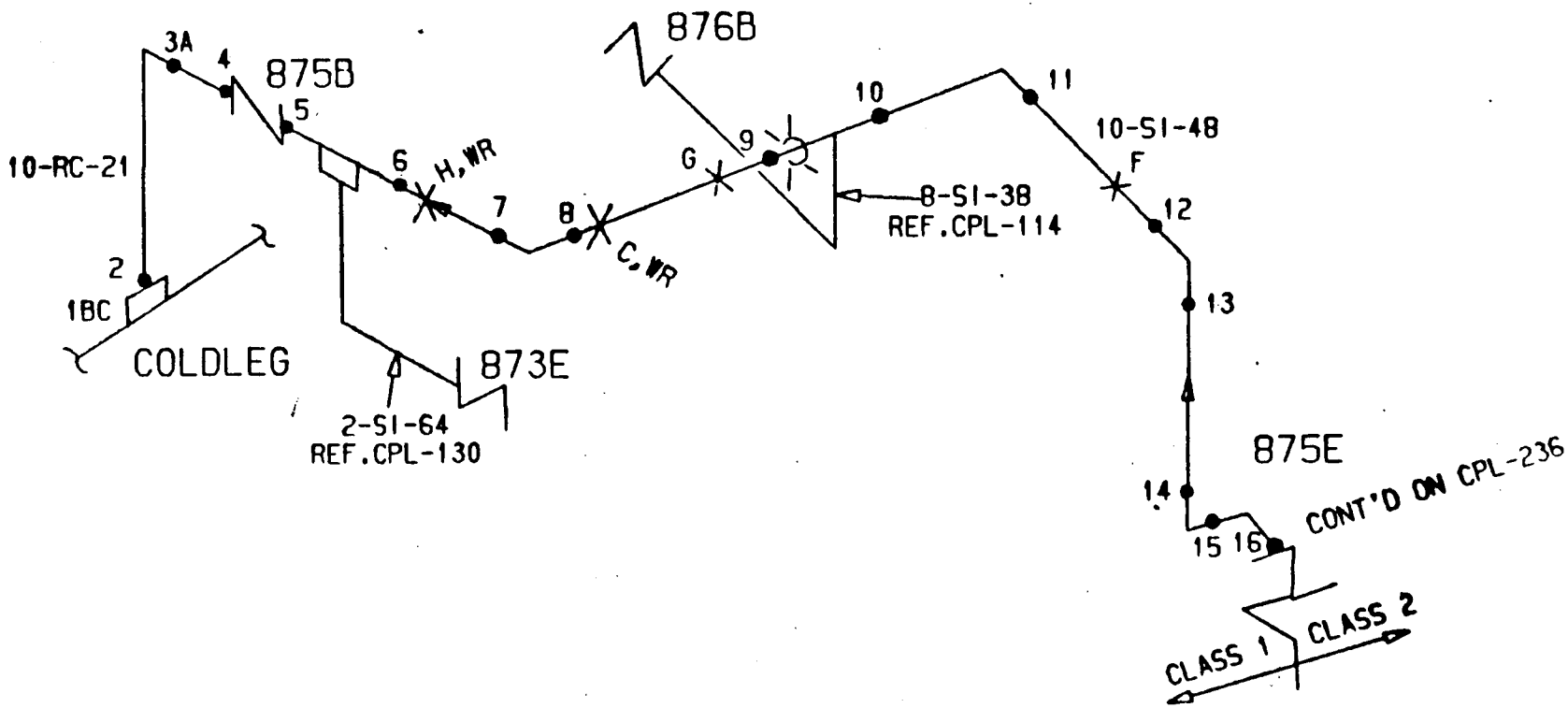
			MINIMUM		MAXIMUM		ANGLE		
WELD NUMBER	SURFACE 2°	SURFACE 5°	DIR 1° LOCATION	CALCULATED THICKNESS	DIR 1° LOCATION	CALCULATED THICKNESS	DIR D	CALCULATED ANGLE	REMARKS
2	NA	X	0"	1.155"	17"	1.245"	2.6"	48°	ANGLE CHECK TAKEN ON OUTERDOSE OF ELBOW
3A	NA	X	0"	1.19"	17"	1.21"	2.2"	43°	
4	X	NA	0"	1.19"	8"	1.22"	2.2"	43°	
10	NA	X	25"	1.125"	10"	1.23"	2.2"	42°	
10A	X	NA	3"	1.18"	25"	1.22"	2.2"	42°	
16	NA	X	0"	1.13"	8"	1.15"	2.4"	46°	

ANII REVIEW
ANII
DATE 11-22-88

Richard B. Weber 11/20/88
L M Blanck 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

SPRING HANGERS
G



082

CPL-111 REV 2

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LOOP B 10" ACCUM. DISCHG. LINE	
LINE NO. 10-SI-48 CPL- 111 REV. 2	

SKETCH CPL-111

EXAMINATION SUMMARY
FOR

1989

083

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
15	14	X					X							TBA SEE TAB F
16	F							X						
61	V875E (16)							X						
	V875B (16)													
	2													TBA
	3A													TBA
	4													TBA
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H. B. ROBINSON	2	CPL - 111
SYST/COMP.		**PROCEDURE**
LOOP "B" 10" ACCUM. DISCHG. LINE		CPL-ISI-206 REV. 0
EXAMINER (LEVEL II)		**DATE**
George A Moini II Robert L Grant II		12-5-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I #08078E	S/N			21137					21137					INITIAL TIME
	SIZE			.250					.250"					2210 12-5-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1 T			80%	2.0	1.5"	1.3"	1.85"	80%	2.2	2.6"	2.3"	2.85"	
DAMPING MIN	2 T			30%	4.0	2.85"	2.65"	3.15"	10%	4.9	4.3"	3.95"	4.65"	
FILTER OFF	3 T			18%	6.0	4.5"	4.25"	5.0"						FINAL TIME
LIN. CHECK SAT														2343 12-5-88
SU CABLE 12' BNC/MCD														CAL. BLOCK CPL-59
COUPLANT SONOTRACE 40 #8767	CAL. GAIN			42 db					47 db					THICKNESS 1.18"
														TEMP. 46°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
14	-3°F	NO	YES	YES	YES	NO	WELD CROWN LIMITS ALL SCANS	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/6/88
[signature] 12/6/88

084

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H. B. ROBINSON	2	CPL-111

SYST/COMP.	PROCEDURE
LOOP B 10" ACCUM. DISCHG LINE	CPL-ISI-206 REV. 0

EXAMINER (LEVEL II)	DATE
George A Morris II Robert L Conant II	12-5-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0	AXIAL SCANS DIRECTIONS 2 & 5	CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8	CALIBRATION CHECK
INST. S/N SONIC MK I 08018 E	S/N		031238	031238	INITIAL TIME
	SIZE		.375"	.375"	2203 12-5-88
	FREQ.		2.25 MHZ	2.25 MHZ	
	ANGLE		45°	45°	

REP. RATE	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
3 k														
REJECT OFF	1 T			80%	2.0	1.2"	.95"	1.3"	80%	2.1	1.5"	1.3"	1.8"	
DAMPING MIN	2 T			40%	4.0	2.1"	1.8"	2.75"	35%	4.3	2.8"	2.6"	3.0"	
FILTER OFF	3 T			30%	6.0	3.1"	2.9"	3.3"						FINAL TIME
LIN. CHECK SAT.														2315 12-5-88
SU CABLE 12' BNC-MCD														CAL. BLOCK CPL-59
COUPLANT SONOTRACE 40 8767	CAL. GAIN			12 dB					17 dB					THICKNESS 1.18"
														TEMP. 46°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
14	-3°F	NO	YES	YES	YES	NO	WELD CROWN ALL SCANS	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Walker 12/6/88
J M Black 12/6/88

085

FORM 49001

086

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-111

SYST/COMP. LOOP B 10" ACCUM. DISCHG. LINE PROCEDURE CPL IST-11 REV 0

EXAMINER Gary M. Johnson II Paul J. Kovalle-II DATE 12-12-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
14			X	TEMP. 70°F - SEE ATTACHED SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII
DATE 12-14-88

Richard B. Weber 12/12/88
[illegible] 12/13/88

FORM 45935C

087

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-111

SYST/COMP LOOP B 10" ACCUM. DISCHG. LINE PROCEDURE CPL IST-11 REV.0

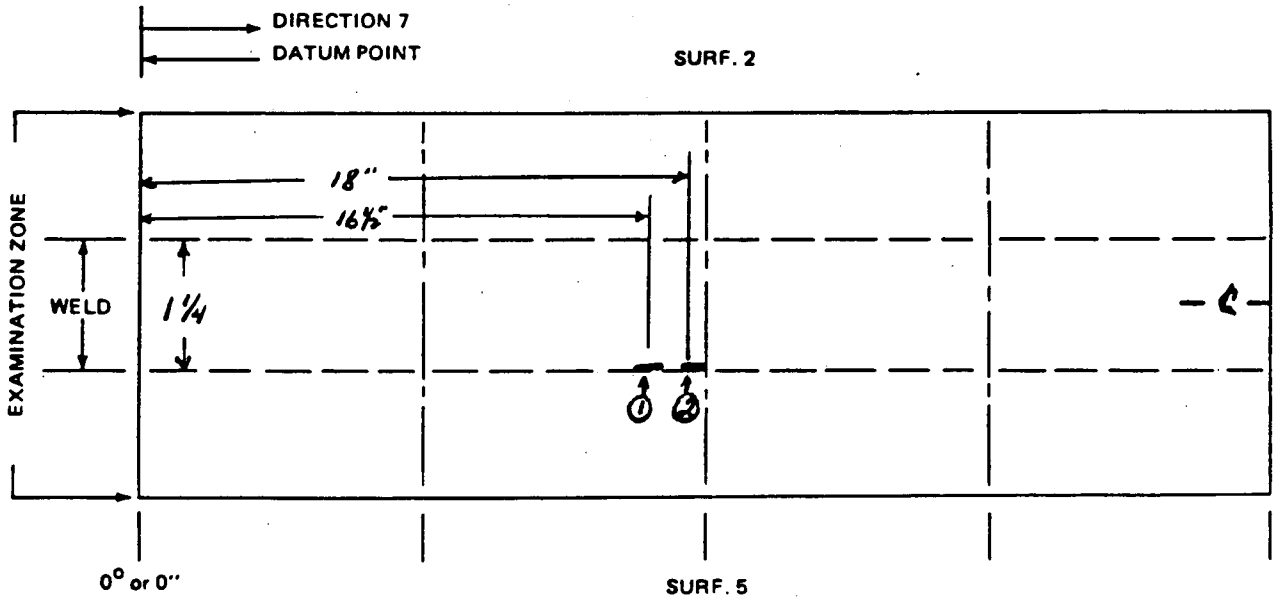
EXAMINER Henry M. Ackerman II / Paul J. Knollo II (LEVEL II) DATE 12-12-88

PT ✓ MT WELD NO. 14

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS ① 1/8" LINEAR, 5/8" FROM ℄, 16½" FROM 0°

② 1/8" LINEAR, 5/8" FROM ℄, 18" FROM 0°



ANII REVIEW
ANII
DATE 12-14-88

Richard B. Weber 12/12/88
J. M. Black 12/13/88

FORM 45932B

088

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-111

SYST/COMP LOOP "B" 10" ACCUM. DISCHG LINE PROCEDURE CPL ISI-8 REV.0

EXAMINER Gary A Morin II LEVEL II DATE 12-4-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
F	X			FLASHLIGHT	VT-3
875 E	X			FLASHLIGHT	VT-1 EXAMINED IN PLACE 16 STUDS + NUTS

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/5/88

FORM 45934B

CP&L

Carolina Power & Light Company

089

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR&R 88-ALES1 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-875B	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 1	LOCATION/ISOMETRIC: CPL-111 Rev. 2	
PROCEDURE: NDEP 611 REV: 6	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY N/A

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS N/A

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 12/28/88

QA NDE ISI 6 Rev. 0 10/85

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR&A 88-ALF01 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-875 E	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 1	LOCATION/ISOMETRIC: CPL-111 REV. 2	
PROCEDURE: NDEP 611 REV: 6	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [signature]
DATE 12-28-88

1 EXAMINER: Bill Tullock LEVEL: II DATE: 12-16-88

2 EXAMINER: John W. Ryan LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY N/A

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS N/A

REVIEWED BY: [signature] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard C. Weber 12/28/88

QA NDE 1S1 6 Rev. 0 10/85

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-111

SYST/COMP LOOP B 10" ACCUM. DISCHG. LINE PROCEDURE CPL-TBA-100 REV. 0

EXAMINER [illegible] II / Ralph Churchfield I DATE 11-16-88
LEVEL II

EXAMINER [illegible] II / Larry M Lehrman I DATE 11-16-88
LEVEL II

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR .	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	# 800886
S/N	08078E/08079E	G20209	62408	62410	N/A
SIZE	N/A	0.5"	0.25"	0.25"	N/A
FREQ.	N/A	5MHZ	2.25 MHZ	2.25 MHZ	N/A
ANGLE	N/A	0°	45°	45°	N/A
COUPLANT: SONOTRACE 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM:	SURFACE 2°	SURFACE 4°	DIR 1° LOCATION	CALCULATED THICKNESS	DIR 1° LOCATION	CALCULATED THICKNESS	DIR. D	CALCULATED ANGLE	REMARKS
14	N/A	X	7"	1.140"	28"	1.200"	2.6"	47°	
									ANII REVIEW ANII DATE 11-22-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 11/20/88
[illegible] 11/21/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-111

SYST/COMP LOOP "B" 10" ACCUM. DISCHG. PROCEDURE CPL TBA-100 REV.0

EXAMINER Arnold A. Bolinski Ralph C. Churchfield I LEVEL II DATE 11-18-88

EXAMINER Paul J. Kovallo II Robert S. Grant I LEVEL II DATE 11-18-88

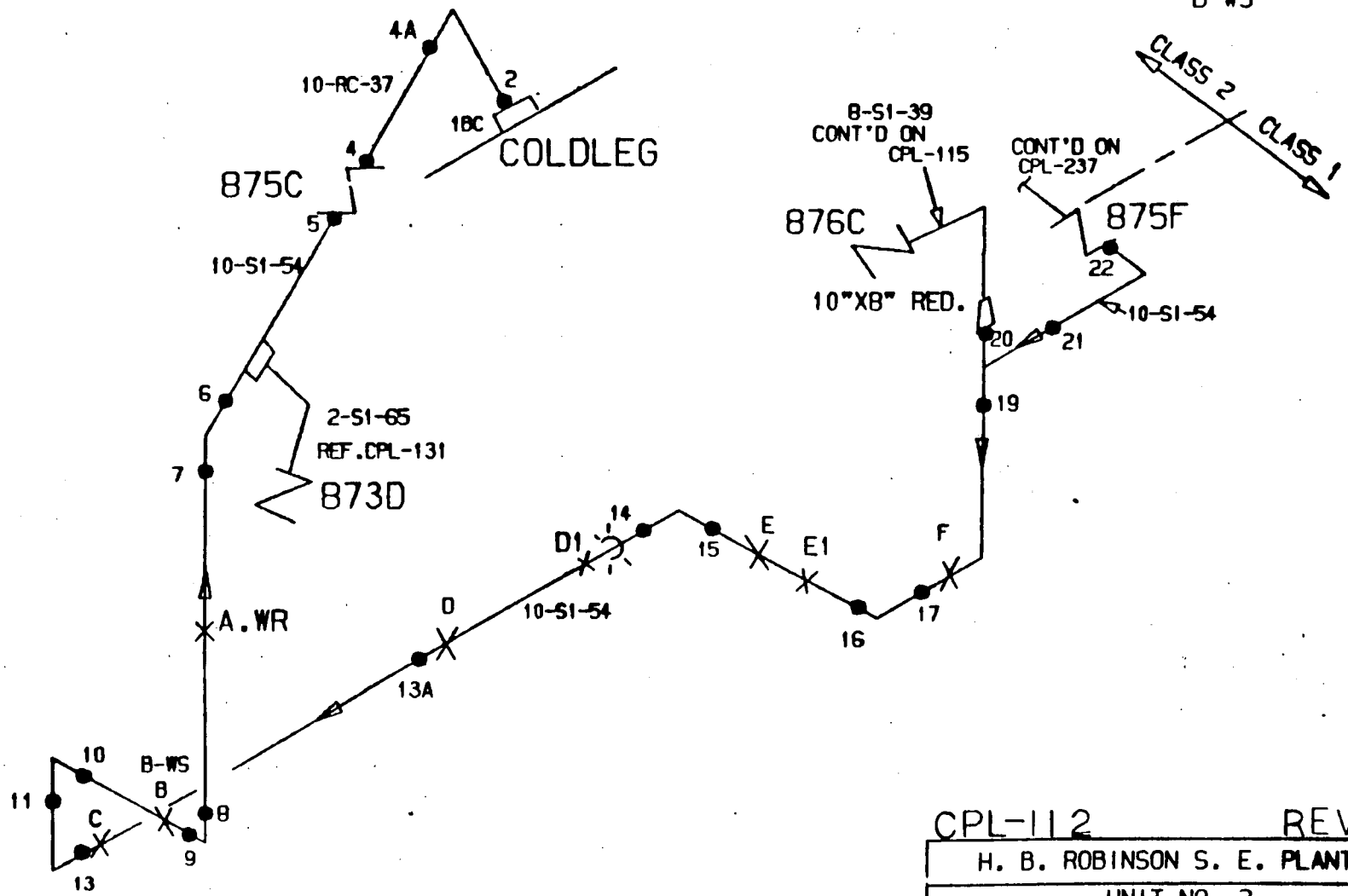
		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR .	CAL. BLOCK
MAKE	SONIC	KBA	KBA	KBA	# 800886
S/N	08078E/08018E	G20209	80093	80087	N/A
SIZE	N/A	0.5"	0.5"	0.5"	N/A
FREQ.	N/A	5 MHZ	5 MHZ	5 MHZ	N/A
ANGLE	N/A	0°	45°	44°	N/A
COUPLANT: SONOTRACE 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM	SURFACE 2°	SURFACE 6°	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. B	CALCULATED ANGLE	REMARKS
2	N/A	X	0"	1.10"	18.0"	1.245"	2.6"	50°	ANGLE CHECK TAKEN ON EXTRADOS OF ELBOW
3A	N/A	X	30"	1.16"	10"	1.220"	2.1"	41°	
4	X	N/A	30"	1.16"	10"	1.220"	2.1"	41°	

ANII REVIEW
ANII [signature]
DATE 11-22-88

Richard B. Weber 11/20/88
L. Black 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION



CPL-112 REV 3

093

H. B. ROBINSON S. E. PLANT	
UNIT NO. 2	
DESCRIPTION: LOOP C 10" ACCUM. DISCHG. LINE	

CP&L

WESTINGHOUSE FORM 46762

SKETCH CPL-112

EXAMINATION SUMMARY
FOR

1989

094

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
17	13A	X			X									TBA
17	19	X					X							TBA SEE TAB F
18	D1							X						
18	E1								X					
81	2	X												TBA
	4													TBA
81	4A	X												TBA
	V875C (16)													
	V875F (16)													
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-112
SYST/COMP.: LOOP C 10" ACCUM. DISCHG.-LINE		PROCEDURE: CPL-ISI-206 REV 0
EXAMINER (LEVEL II): Neal A. Bolyn II / Ralph Churchfield I		DATE: 11-25-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08078E	S/N			F28235					F28235					INITIAL TIME: 23:51 11-25-88
	SIZE			0.250"					0.250"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	1.55"	1.45"	1.80"	80%	2.5	2.4"	1.85"	2.90"	
DAMPING: MIN.	2T			30%	4.0	2.85"	2.50"	3.40"	10%	5.0	4.25"	3.50"	5.20"	
FILTER: OFF	3T			15%	6.0	4.20"	4.00"	4.80"						FINAL TIME 11-26-88 00:56 ~~11-25-88~~ RLC11
LIN. CHECK: SAT.														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-59
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			46db					49db					THICKNESS 1.18" TEMP. 78°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
13A	0°	NO	YES	YES	YES	NO	WELD CROWN	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 11-30-88

Richard B. Weber 11/27/88
[signature] 11/30/88

095

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. ROBINSON	2	CPL-112
SYST/COMP.		PROCEDURE
LOOP C 10" ACCUM. DISCHG. LINE		CPL ISI-206 REV.0
EXAMINER (LEVEL II)		DATE
Paul J. Kovalko II Harry M Ackerman I		11-25-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I #08018E	S/N			031238					031238					INITIAL TIME 0114 ~~11-25-88~~ HHA 11-26-88
	SIZE			0.375"					0.375"					
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			45°					45°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1T			80 %	2.0	1.2"	0.95"	1.3"	80 %	2.1"	1.5"	1.3"	1.8"	
DAMPING MIN	2T			40 %	4.0	2.1"	1.8"	2.25"	35 %	4.3"	2.8"	2.6"	3.0"	
FILTER OFF	3T			30 %	6.0	3.1"	2.9"	3.3"						FINAL TIME 0150 ~~11-25-88~~ HHA 11-26-88
LIN. CHECK SAT														
SU CABLE 12' BNC/MCD														CAL. BLOCK CPL-59
COUPLANT SONOTRACE #0 #8767	CAL. GAIN			13 db					18 db					THICKNESS 1.18" TEMP. 78°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
13A	70°F	NO	YES	YES	YES	NO	WELD CROWN	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 11-30-88

Richard B. Weber 4/27/88
[signature] 11/30/88

960

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. ROBINSON	2	CPL-112

SYST/COMP.	PROCEDURE
LOOP "C" 10" ACCUM. DISCHG. LINE	CPL-ISI-206 REV.0

EXAMINER (LEVEL II)	DATE
Henry A. Morini II Robert L. Cassat, I	12-5-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I #08018E	S/N			031238					031238					INITIAL TIME
	SIZE			.375"					.375"					2203 12-5-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1 T			80%	2.0	1.2"	.95"	1.3"	80%	2.1"	1.5"	1.3"	1.8"	
DAMPING MIN	2 T			40%	4.0	2.1"	1.8"	2.25"	35%	4.3"	2.8"	2.6"	3.0"	
FILTER OFF	3 T			30%	6.0	3.1"	2.9"	3.3"						FINAL TIME
LIN. CHECK SAT														2315 12-5-88
SU CABLE 12' BNC/MCD														CAL. BLOCK CPL-59
COUPLANT SONOTRACE 40 #8767	CAL. GAIN			12 db					17 db					THICKNESS 1.18"
														TEMP. 46°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
19	+9°F	NO	YES	YES	YES	NO	ELBOW LIMITS 2 SCAN, TEE LIMITS 5, 7&8 SCANS. WELD CROWN LIMITS ALL SCANS	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/6/88
[signature] 12/6/88

097

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-112
SYST/COMP: LOOP "C" 10" ACCUM. DISCHG. LINE		PROCEDURE: CPL-ISI-206 REV. 0
EXAMINER (LEVEL II): George A Morris II, Robert L Cassat I		DATE: 12-5-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08078E	S/N			21137					21137					INITIAL TIME
	SIZE			.250"					.250"					2210 12-5-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 3 K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80 %	2.0	1.5"	1.3"	1.85"	80%	2.2	2.6"	2.3"	2.95"	
DAMPING: MIN	2 T			30 %	4.0	2.85"	2.65"	3.15"	10%	4.9	4.3"	3.95"	4.65"	
FILTER: OFF	3 T			18 %	6.0	4.5"	4.25"	5.0"						FINAL TIME
LIN. CHECK: SAT														2343 12-5-88
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-59
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			42db					47db					THICKNESS 1.18"
														TEMP. 46°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
19	+9°F	NO	YES	YES	YES	NO	ELBOW LIMITS 2 SCAN, TEE LIMITS 5,7+8 SCANS, WELD CROWN LIMITS ALL SCANS	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 12-6-88

[signature] 12/6/88
[signature] 12/6/88

860

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-112

SYST/COMP. LOOP C 10" ACCUM. DISCHG. LINE PROCEDURE CPL-ISI-11, REV. 0

EXAMINER [illegible] II, [illegible] II LEVEL II DATE 11-21-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
13 A	X			AS WELDED CONDITION TEMP. 94°F
19			X	AS WELDED CONDITION, SEE ATTACHED SURFACE INDICATION DATA SHEET. TEMP. 89°F

ANII REVIEW
ANII [illegible]
DATE 11-25-88

Richard B. Walter 11/23/88
[illegible] 11/23/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-112

SYST/COMP Loop C 10" Accum. Discharge Line PROCEDURE CPL-1S1-11, Rev. 0

EXAMINER [illegible] II [illegible] I DATE 11-21-88
LEVEL II

PT X MT WELD NO. 19

VISUAL AIDS Flashlight, Mirror

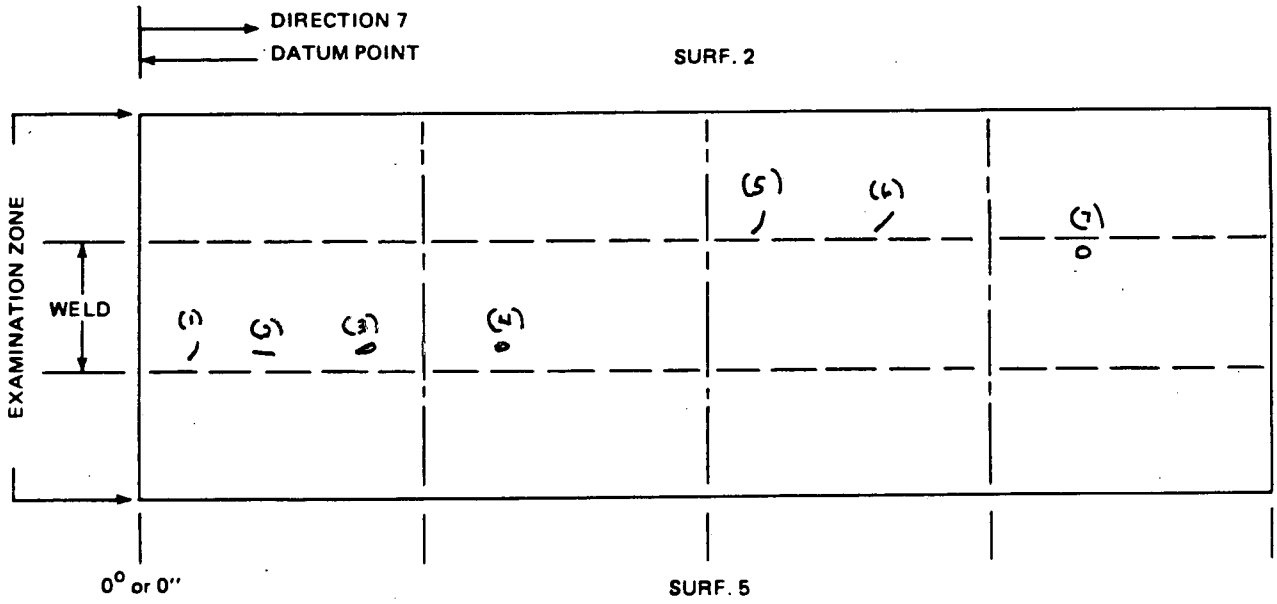
REMARKS (1.) 3/32" Linear, 3/4" From C/L weld, Located 7 3/4" CW From 0" Datum

(2) 9/64" Linear, 3/4" From C/L weld, Located 9 1/2" CW From 0" Datum

(3) 1/16" Rounded, 1" From C/L weld, Located 13 1/2" CW From 0" Datum

(4) 3/32" Rounded, 3/4" From C/L weld, Located 14" CW From 0" Datum

(5) 1/8" Linear, 3/4" From C/L weld, Located 21 1/2" CW From 0" Datum



(6) 3/32" Linear, 3/4" From C/L weld, Located 24" CW From 0" Datum

(7) 2/32" Rounded, 1/2" From C/L weld, Located 27 1/8" From 0" Datum

ANII REVIEW
ANII [illegible]
DATE 11-25-88

Richard B Weber 11/23/88
[illegible] 11/23/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-112

SYST/COMP LOOP C 10" ACCUM. DISCHG. LINE PROCEDURE CPL-ISI-8 REV0

EXAMINER Arnold A. Byrn II LEVEL II DATE 11-21-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
D1	X			MIRROR, FLASHLIGHT	VT-3
E1		X		MIRROR, FLASHLIGHT	VT-3, WHITE RESIDUE ON BASE PLATE AND WALL SUPPORT MEMBER

ANII REVIEW
ANII [signature]
DATE 11-25-88

Richard B. Weber 11/23/88
[signature] 11/23/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-112
SYST/COMP.: LOOP C 10" ACCUM. DISCHG LINE		PROCEDURE: CPL ISI 206, REV.0
EXAMINER (LEVEL II): Henry A Morris II, Paul J. Kovallo-II		DATE: 12-8-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08018E	S/N			031238					031238					INITIAL TIME: 0023 12-8-88
	SIZE			0.375"					0.375"					
	FREQ.			2.25 MHZ.					2.25 MHZ.					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80 %	2.0	1.2"	0.95"	1.3"	80 %	2.1	1.5"	1.3"	1.8"	
DAMPING: MIN	2 T			32 %	4.0	2.1"	1.8"	2.25"	20 %	4.1	2.8"	2.6"	3.0"	
FILTER: OFF	3 T			28 %	6.0	3.1"	2.9"	3.3"						FINAL TIME: 0120 12-8-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-59
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			19 db					26 db					THICKNESS: 1.18"
														TEMP.: 52°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
2	+16°F	NO	NO	YES	YES	NO	NOZZLE, BRANCH CONNECTION	ROUNDED	X			
4A	+16°F	NO	YES	YES	YES	NO	WELD CROWN 7 & 8 SCAN	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 12-11-88

Richard B. Weber 12/11/88
[signature] 12/11/88

102

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. ROBINSON	2	CPL-112

SYST/COMP.	PROCEDURE
LOOP C 10" ACCUM. DISCHARGE LINE	CPL IST-206, REV.0

EXAMINER (LEVEL II)	DATE
Gary A. Morris II Paul J. Kovallo II	12-8-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I #08078E	S/N			21137					21137					INITIAL TIME
	SIZE			0.25"					0.25"					0030 12-8-88
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			60°					60°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			
						PEAK	50% DAC LOCATIONS				PEAK	50% DAC LOCATIONS		
REJECT OFF	1 T			80 %	2.0	1.5"	1.3"	1.85"	80 %	2.2	2.6"	2.3"	2.95"	
DAMPING MIN	2 T			20 %	4.0	2.85"	2.65"	3.15"	12 %	4.8	4.3"	3.95"	4.65"	
FILTER OFF	3 T			15 %	6.0	4.5"	4.25"	5.0"						FINAL TIME
LIN. CHECK SAT														0125 12-8-88
SU CABLE 12' BNC/MCD														CAL. BLOCK CPL-59
COUPLANT SONOTRACE 40 #8767	CAL. GAIN			44 db					48 db					THICKNESS 1.18"
														TEMP. 52°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
2	+16°F	NO	NO	YES	YES	NO	NOZZLE, BRANCH CONNECTION	ROUNDED	X			
4A	+16°F	NO	YES	YES	YES	NO	WELD CROWN 7 & 8 SCAN	AS WELDED	X			

ANII REVIEW
ANII [illegible]
DATE 12-11-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

103

FORM 49001

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR&A 88-ALFA1 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION | COMPONENT NAME: VALVE SI-875C | COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS

CLASS: CLASS 1 | LOCATION/ISOMETRIC: CPL-112 Rev. 3

PROCEDURE: NDEP611 REV: 6 | METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐

REPLICATION: YES☐ NO☒ | DIRECT☒ REMOTE☐ | VIDEO RECORDING NO: N/A

EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY N/A

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS N/A

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 12/28/88

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. 88-AAXL 2(WRCA) UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION | COMPONENT NAME: VALVE ST-875F | COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS

CLASS: CLASS 1 | LOCATION/ISOMETRIC: CPL-112 Rev. 3

PROCEDURE: NDEP 611 REV: 6 | METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐

REPLICATION: YES☐ NO☒ | DIRECT☒ REMOTE☐ | VIDEO RECORDING NO: N/A

EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY ☐

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS ☐

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 12/28/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-112

SYST/COMP LOOP "C" 10" ACCUM. DISCHG. PROCEDURE CPL TBA-100 REV.0

EXAMINER [illegible] II / Ralph Churchfield I DATE 11-17-88
LEVEL II

EXAMINER [illegible] II / [illegible] I DATE 11-17-88
LEVEL II

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR.	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	# 800886
S/N	080786/080796	620209	62408	62410	N/A
SIZE	N/A	0.5"	0.25"	0.25"	N/A
FREQ.	N/A	5MHZ	2.25 MHZ	2.25 MHZ	N/A
ANGLE	N/A	0°	45°	45°	N/A
COUPLANT: SONOTRACE 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM:	SURFACE 2°	SURFACE 5°	DIR 7° LOCATION	CALCULATED THICKNESS	DIR 7° LOCATION	CALCULATED THICKNESS	DIR. 0	CALCULATED ANGLE	REMARKS
13A	N/A	X	7"	1.14"	26"	1.195"	2.15"	42°	PIPE TO PIPE WELD
13A	X	N/A	7"	1.11"	26"	1.18"	2.20"	43°	PIPE TO PIPE WELD

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-112

SYST/COMP LOOP C 10" ACCUM. DISCHG LINE PROCEDURE CPL TBA-100 REV.0

EXAMINER [signature] LEVEL II DATE 11-16-88

EXAMINER [signature] LEVEL II DATE 11-16-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	# 800886
S/N	08078E/08079E	620209	62408	62410	NA
SIZE	NA	0.5"	0.25"	0.25"	NA
FREQ.	NA	5 MHz	2.25 MHz	2.25 MHz	NA
ANGLE	NA	0°	45°	45°	NA
COUPLANT: SONOTRACE 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM	SURFACE 2°	SURFACE 5°	DIR 5° LOCATION	CALCULATED THICKNESS	DIR 5° LOCATION	CALCULATED THICKNESS	DIR. D	CALCULATED ANGLE	REMARKS
19	X	NA	0"	1.112"	17"	1.305"	2.5"	48°	ANGLE CHECK TAKEN ON OUTERDOSE OF ELBOW

ANII REVIEW
ANII [signature]
DATE 11-22-88

[signature] 11/20/88
[signature] 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL - 112

SYST/COMP LOOP "C" ACCUM. DISCHG LINE PROCEDURE CPL TBA-100 REV.0

EXAMINER Arnold A. Bolyard II / Ralph Churchfield I DATE 11-18-88
LEVEL II

EXAMINER Paul J. Knoll II / Robert L. Court I DATE 11-18-88
LEVEL II

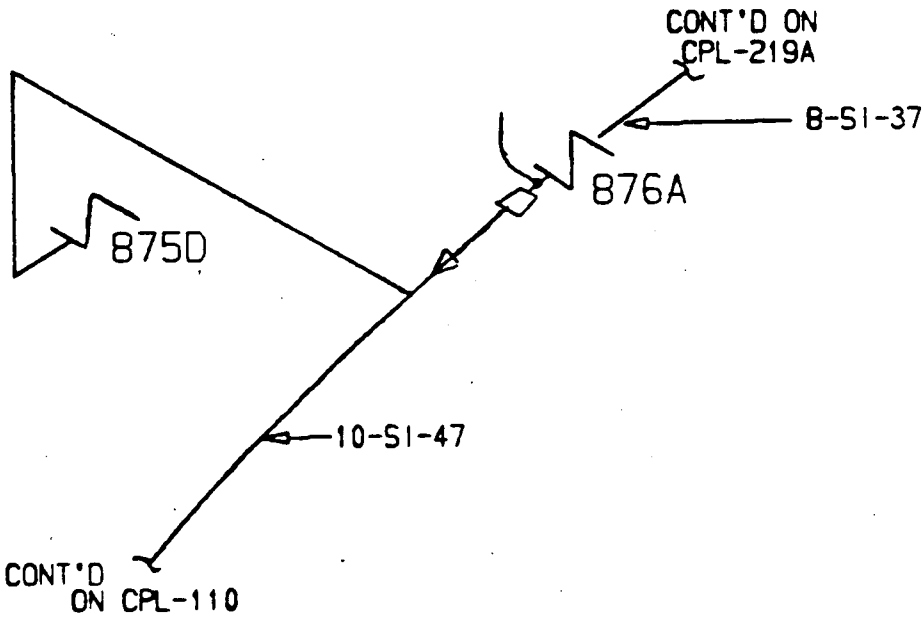
		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	KBA	KBA	#800886
S/N	08078E/08018E	G20209	80093	80087	N/A
SIZE	N/A	0.5"	0.5"	0.5"	N/A
FREQ.	N/A	5MHZ	5 MHZ	5 MHZ	N/A
ANGLE	N/A	0°	45°	44°	N/A
COUPLANT: SONOTRACE 40 BATCH #8767					

			MINIMUM		MAXIMUM		ANGLE		
WELD NUMBER	SURFACE 2°	SURFACE 5°	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. A	CALCULATED ANGLE	REMARKS
2	N/A	X	0"	1.15"	18"	1.24"	2.5"	47°	ANGLE CHECK TAKEN ON EXTRADOS
4	X	N/A	30"	1.14"	10"	1.165"	2.1"	42°	
4A	N/A	X	30"	1.14"	10"	1.165"	2.1"	42°	

ANII REVIEW
ANII
DATE 11-22-88

Richard B. Weber 11/20/88
Ch Black 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION



CPL-113 REV 2

H.B. ROBINSON S.E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION -LOOP A-8" RHR RETURN	
LINE NO. 8-SI-37	CPL- 113 REV. 2

SKETCH CPL-113

110

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	RT NI	RT NRI	RT RI	REMARKS
19	1		X			X						X		TBA
62	V876A(16)												X	SEE TAB F
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-113
SYST/COMP.: LOOP A 8" RHR RETURN		PROCEDURE: CPL ISI-206 REV.0
EXAMINER (LEVEL II): Mark A. Byrne II, Paul J. Kovallo-II		DATE: 11-19-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08018E	S/N			031238					031238					INITIAL TIME: 0325 11-19-88
	SIZE			0.375"					0.375"					
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	0.8"	0.7"	0.9"	80%	2.1	1.05"	0.8"	1.2"	
DAMPING: MIN	2T			40%	4.0	1.6"	1.5"	1.8"	45%	4.1	2.0"	1.75"	2.2"	
FILTER: OFF	3T			30%	6.0	2.5"	2.3"	2.65"						FINAL TIME: 0450 11-19-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-58
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			46 db					51 db					THICKNESS: 0.890"
														TEMP.: 80°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1	+15°F	No	Yes	No	Yes	No	VALVE BODY CONFIGURATION, 5 SIDE. REDUCER CONFIGURATION, 2 SIDE. WELD CROWN, 7+8 SCANS.	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 12-11-88

Richard B. Weber 11/20/88
[signature] 12/11/88

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-113
SYST/COMP.: LOOP "A" 8" RHR RETURN		PROCEDURE: CPL-ISI-206 REV.0
EXAMINER (LEVEL II): [illegible] II / Ralph Churchfield I		DATE: 11-19-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08078E	S/N			F28235					F28235					INITIAL TIME: 0358 11-19-88
	SIZE			.250"					.250"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80%	2.0	1.1"	.9"	1.3"	80%	2.4	1.75"	1.5"	2.2"	
DAMPING: MIN	2 T			28%	4.0	2.1"	1.85"	2.3"	10%	5.0	3.15"	2.8"	3.5"	
FILTER: OFF	3 T			18%	6.0	3.2"	2.85"	3.5"						FINAL TIME: 0500 11-19-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC TO MED														CAL. BLOCK: CPL-58
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			36 db					41 db					THICKNESS: .890"
														TEMP.: 80°

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1	+15°F	NO	YES	NO	YES	NO	VALVE BODY CONFIGURATION, 5 SIDE REDUCER CONFIGURATION, 2 SIDE WELD CROWN, 7+8 SCAN	AS WELDED		X		SEE ATTACHED INDICATION DATA SHEET

ANII REVIEW
ANII [illegible]
DATE 12-11-88

Richard B. Weber 11/20/88
[illegible] 12/11/88

112

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT	UNIT	SKETCH
H.B. ROBINSON	2	CPL-113

SYST/COMP	PROCEDURE
LOOP "A" 8" RHR RETURN	CPL-ISI-206 REV.0

EXAMINER (LEVEL II)	DATE
Donald A. Bohm / Ralph Schuelfield I	11-19-88

LINEARITY AND CAL. CHECK	CAL. BLOCK THICKNESS
SAT	.890"

WELD NUMBER	INDICATION LENGTH		MIN. 50%		MIN. 100%		PEAK			MAX. 100%		MAX. 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	+ DAC AMPL.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	ANGLE	DIR.	SURF. 2	WELD	SURF. 5	
1	0°	360°	N/A	N/A	N/A	N/A	2.0	1.1"	20%	N/A	N/A	N/A	N/A	60°	2	N/A	N/A	N/A	

ANII REVIEW
ANII
DATE 12-11-88

Richard B. Weber 12/8/88
John Blanch 12/1/88

113

FORM 45954C

FORM NO. 80494
REV. 5/5/81

QA-RT-1
REV. 2

CP&L
Carolina Power & Light Company

RADIOGRAPHIC NDE REPORT

PAGE 1 OF 1

PROJECT HBR JOB NO. UNIT 1 ☐ 2 ☑ 3 ☐ 4 ☐ DATE 12/8/88

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
CPL-113 R-2	RHR	8-SI-37	WELD # 1

DESIGN CLASS/CATEGORY: I
ACCEPTANCE STANDARD: ☑ ASME III ☐ VIII ☐ B31.1 ☐ AWSD1.1 ☐ OTHER ____ 77 EDITION

MTL TYPE: 316 S/S | MTL THICKNESS: .800" | O.D./LENGTH: 8" | SURFACE FINISH: ☑ AS-WELDED ☐ GROUND ☐ OTHER ____ | NDE PROCEDURE NO. 101 REV. 11

STAGE OF MFG.: ☑ INFO ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☑ FINAL
JOINT DESIGN: ☐ BRN ☐ BKS ☐ INS ☑ OPN. BT ☐ SOCKET ☐ OTHER ____ ☐ N/A

X-RAY	ISOTOPE	LEAD SCREENS
MAKE: N/A	IRIDIUM 192 ☑ COBALT 60 ☐	FRONT .005 ☐ .010 ☑ CENTER N/A BACK .005 ☐ .010 ☑
KVP: ____ MA: ____	SIZE DIA. .107 LENGTH .091	
FOCAL SPOT SIZE: N/A	CURIES 15 Ci	RT STANDARD SET-UP (CHECK ONE)
FILM MFG. EKC MIN DET ☐ ASTM CLASS 1 ☑ 2 ☑	LOADED 1 ☐ 2 ☐ OTHER 4 ☑	
FFD: 9"	EXPOSURE TIME MIN. 10 SEC. ____	
PENETRAMETER SIZE 15 MTL S/S ASTM ☐ ASME ☑		
PENETRAMETER SOURCE SIDE ☐ FILM SIDE ☑		
SHIM MTL S/S THICK 1/8"	COLLIMATION YES ☑ NO ☐	
RADIOGRAPHER KLACK	CERT. LEVEL II	RT COMPANY CP&L
VIEWING SINGLE ☑ COMPOSITE ☐	FILM PROCESSING ☐ AUTOMATIC ☑ MANUAL	TEMPERATURE 68°F

A ☐ B ☐ C ☑ D ☐ E ☐ OTHER (ATTACH SKETCH)

LOCATION MARKERS	DENSITY: SENSITIVITY	WELD	PENETRAMETER	ACCEPT	REJECT	DISCONTINUITIES: POROSITY	SLAG INCL.	CRACK	INCOMPLETE PENET.	INCOMPLETE FUSION	UNDERCUT	ROOT UNDERCUT	BURN-THRU	CRATER PIT/CRACK	ROOT CONVEXITY	ROOT CONCAVITY	ROOT CREASE	TUNGSTEN	UNCOM. INSERT	SURFACE DEFECTS	ARTIFACTS	REMARKS
0-1-2-3-4-5-6				✓										✓				✓			✓	STATE "N.A.D." IF NO APPARENT DISCONTINUITIES

LOCATION MARKERS:
'0' PLACED TOP DEAD CENTER OF PIPE
'1' PLACED 5.6" AWAY FM '0' IN DIRECTION 8

NOTE: THIS WELD RADIOGRAPHED TO VERIFY THAT THE UT INDICATION NOTED DURING EXAM DATED 11-19-88 WAS GEOMETRY RELATED - DUE TO ROOT CONVEXITY [signature] 12/10/88

INTERPRETER [signature] CERTIFICATION LEVEL II FILM EVALUATION DATE 12/8/88

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER ____ TITLE ____
FILM REVIEW DATE ____ COMMENTS ____
IF APPLICABLE CP&L QA REVIEW [signature] DATE 12/8/88 LEVEL III
IF APPLICABLE A.N.I. [signature] DATE 12/11/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

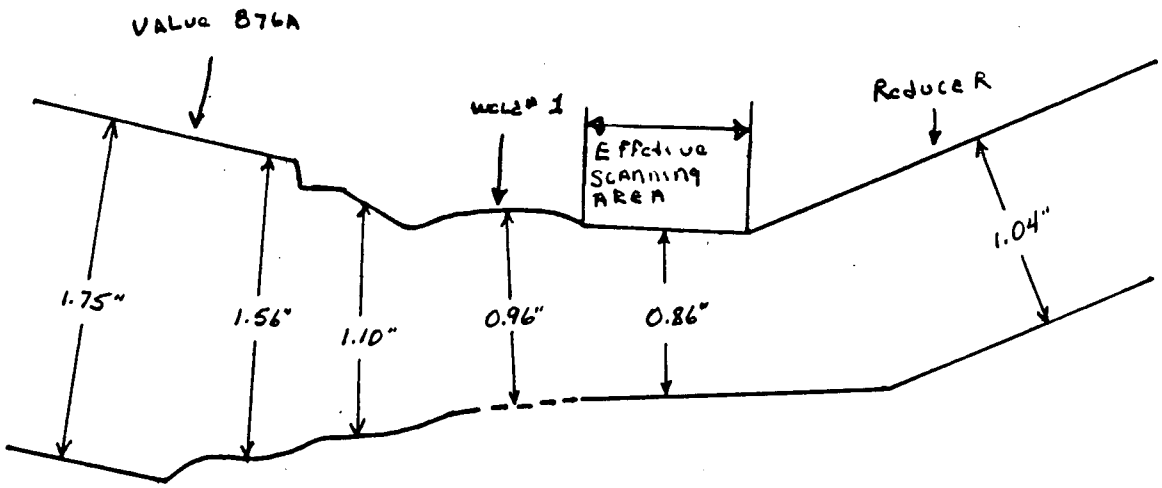
PLANT H.B. Robinson UNIT 2 SKETCH CPL-113

SYST/COMP Loop A 8" RHR Return PROCEDURE CPL 1S1-206, Rev. 0

EXAMINER Arnold A. Bolyn II Paul J. Kovallo II LEVEL II DATE 11-19-88

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): 1

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



ANII REVIEW
ANII
DATE 12-11-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-113

SYST/COMP. LOOP "A" 8" RHR RETURN PROCEDURE CPL-IST-11 REV. 0

EXAMINER Robert S Cannt II / Ralph Churchfield I (LEVEL II) DATE 11-19-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
1		X		AS WELDED CONDITION. TEMP. 95°F
				SEE ATTACHED SURFACE INDICATION DATA SHEET

ANII REVIEW
ANII [illegible]
DATE 11-26-88

Richard B. Walter 11/20/88
J M Block 11/24/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-113

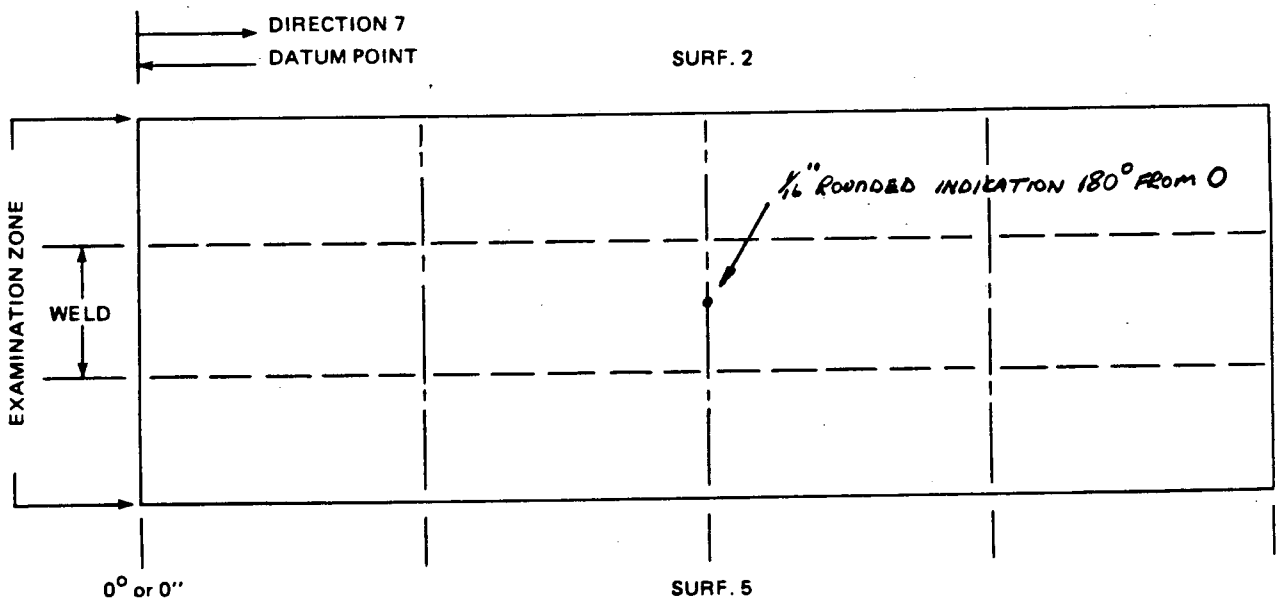
SYST/COMP LOOP "A" 8" RHR RETURN PROCEDURE CPL-TST-11 REV. 0

EXAMINER Robert L Cassat II LEVEL II DATE 11-19-88

PT X MT WELD NO. 1

VISUAL AIDS FLASHLIGHT, SIX INCH RULE, MIRROR

REMARKS 1/16" ROUNDED INDICATION ON CENTERLINE OF WELD, 180° FROM O DATUM



ANII REVIEW
ANII [illegible]
DATE 11-26-88

Richard B. Weber 11/20/88
[illegible] Black 11/24/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-113

SYST/COMP LOOP A-8 RHR RETURN PROCEDURE CPL-151-8 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 12-9-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
V876 A			X	FLASHLIGHT	NO NUTS STUDS CUT OFF AT
					VALVE BONNET VT-1

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/8/88
J. A. Black 12/9/88

FORM 45934B

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR4A 88-AHTC2 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-876A	COMPONENT ID NO.: BONNET STUDS, NUTS + WASHERS
CLASS: CLASS 2	LOCATION/ISOMETRIC: CPL-113 Rev. 2	
PROCEDURE: NDEP 611 REV: 6	METHOD VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS YES	CRACKS NO	CORROSION YES	CORROSION NO	THREAD DAMAGE YES	THREAD DAMAGE NO	MISALIGNMENT YES	MISALIGNMENT NO	WEAR YES	WEAR NO	OTHER YES	OTHER NO	*COMMENTS BELOW SAT.	*COMMENTS BELOW UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible]	LEVEL: II	DATE: 12-16-88	
2 EXAMINER: John W. Rum	LEVEL: II	DATE: 12-16-88	
SATISFACTORY ☑		UNSATISFACTORY ☐	
NO REPORTABLE INDICATIONS ☑		REPORTABLE INDICATIONS ☐	
REVIEWED BY: [illegible]	LEVEL: N/A	DATE: 12/28/88	

REVIEWER COMMENTS/NOTES:

Richard B. Wilson 12/28/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-113

SYST/COMP LOOPA-8" RHR RETURN PROCEDURE CPL-TBA-100 REV0

EXAMINER Mark A. Bolyn II LEVEL II DATE 11-19-88

EXAMINER Ralph Chuckfield I LEVEL II DATE 11-19-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	KBA	KBA	#800886
S/N	08078E/08018E	620209	80093	80087	N/A
SIZE	N/A	0.5"	0.5"	0.5"	N/A
FREQ.	N/A	5MHZ	5MHZ	5MHZ	N/A
ANGLE	N/A	0°	45°	44°	N/A
COUPLANT: SONOTRACE 40			BATCH #8767		

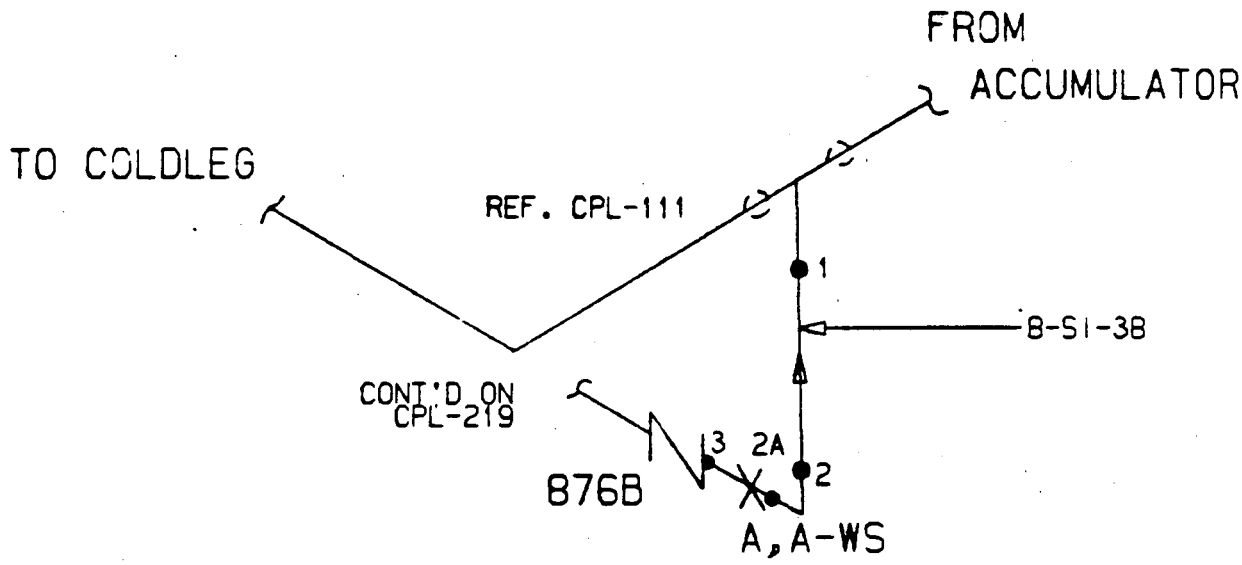
			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM	SURFACE 2°	SURFACE 5°	DIR 7° LOCATION	CALCULATED THICKNESS	DIR 7° LOCATION	CALCULATED THICKNESS	DIR. 0	CALCULATED ANGLE	REMARKS
1	X	N/A	10"	.800"	2"	.840"	1.8"	47°	ANGLE CHECK MADE IN CIRC
									DIRECTION DUE TO LIMITED
									AREA IN AXIAL DIR. (0.9")
									ANII REVIEW
									ANII [signature]
									DATE 11-25-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

[signature] 11/23/88
Richard D. Weber 11/23/88

WELDED SUPPORT
A-WS

121



CPL-114 REV 3

H.B. ROBINSON S.E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION -LOOP B-8"RHR RETURN		
LINE NO. B-SI-3B	CPL-114 REV. 3	

SKETCH CPL-114

EXAMINATION SUMMARY FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
20	A-WS	X			X									
74	3	X												TBA
74	2A	X												
	V876B													
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-114
SYST/COMP.: LOOP B 8" RHR RETURN		PROCEDURE: CPL-ISI-206, REV.0
EXAMINER (LEVEL II): Norm A. Bolyn II, Paul J. Kovalle II		DATE: 12-5-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08018E	S/N			031238					031238					INITIAL TIME: 0200 12-5-88
	SIZE			.375"					.375"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%+7dB	2.0	.8"			80%+6dB	2.1	1.05"			
DAMPING: MIN	2T			80%	4.0	1.6"	1.4"	1.9"	80%	4.2	2.0"	1.5"	2.45"	
FILTER: OFF	3T			60%	6.0	2.5"	2.25"	2.7"	40%	6.4	3.0"	2.5"	3.6"	FINAL TIME: 0430 12-5-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC-MCD														CAL. BLOCK: CPL-58
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			18dB					24dB					THICKNESS: .890"
														TEMP.: 47°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
A-WS	+10°F	NO	YES	YES	YES	NO	SEE ATTACHED LIMITATION TO EXAMINATION SHEET	N/A	X			BASE METAL SCANNED

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Wilson 12/6/88
[illegible] 12/6/88

123

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H. B. ROBINSON	2	CPL-114
SYST/COMP.		PROCEDURE
LOOP B 8" RHR RETURN		CPL-151-206, REV 0
EXAMINER (LEVEL II)		DATE
Marvin A. Boyle II Paul J. Kovallo-II		12-5-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I 08079E	S/N	D10578												INITIAL TIME
	SIZE	.50"												0215 12-5-88
	FREQ.	5.0 MHZ												
	ANGLE	0°												
REP. RATE 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			
REJECT OFF						PEAK	50% DAC LOCATIONS				PEAK	50% DAC LOCATIONS		
DAMPING MIN	BACK-REFL.	80%	4.4											
FILTER HI														
LIN. CHECK SAT														FINAL TIME 0430 12-5-88
SU CABLE 6' BNC-MCD														CAL. BLOCK CPL-58
COUPLANT SONOTRACE 40 #8767	CAL. GAIN													THICKNESS .890"
														TEMP. 47°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
A-WS	+10°F	Y-B	NO	NO	NO	NO	SEE ATTACHED LIMITATION TO EXAMINATION SHEET	N/A	X			LAMINAR SCAN ON BASE METAL

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/6/88
[illegible] 12/6/88

124

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

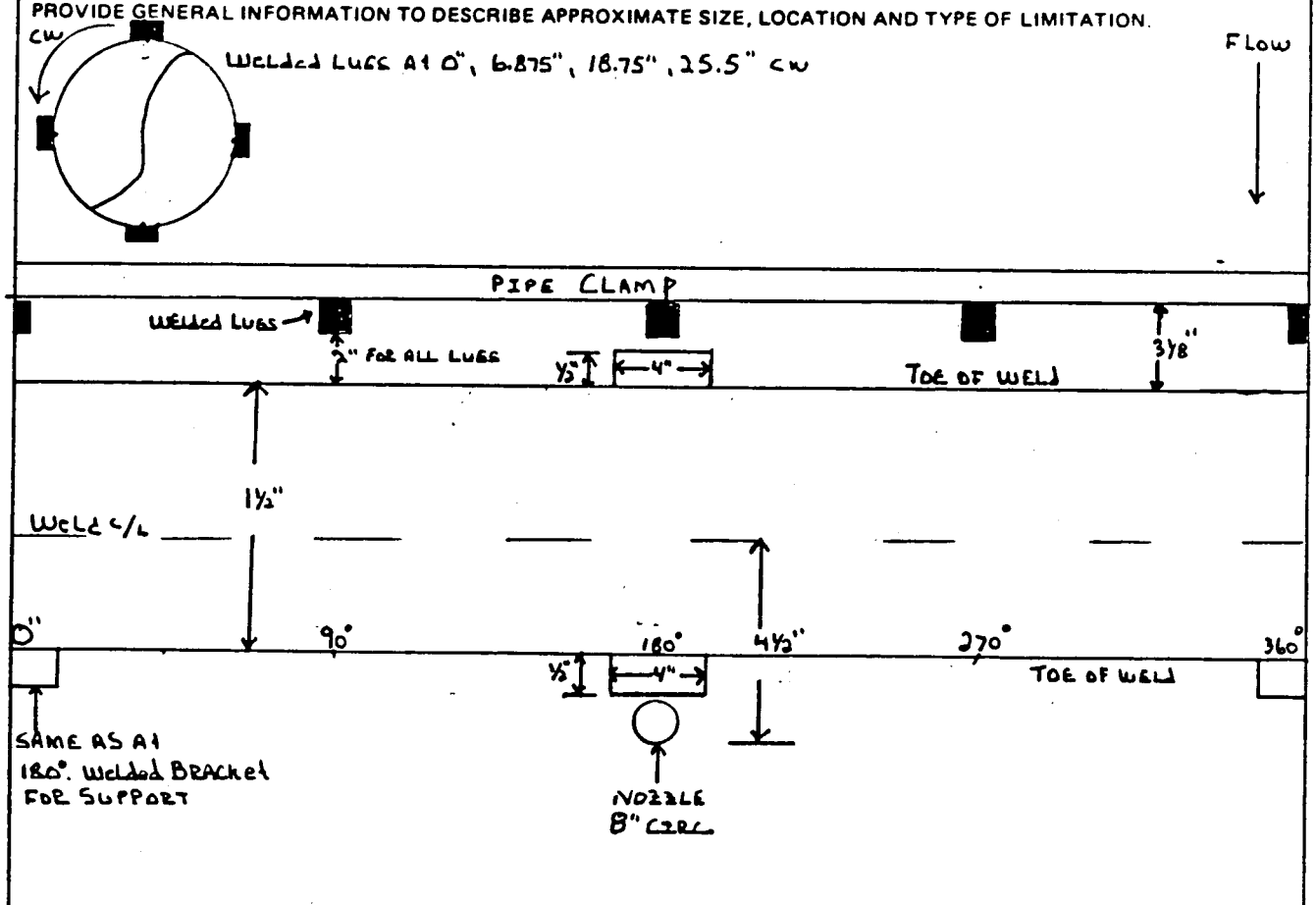
PLANT H.B. Robinson UNIT 2 SKETCH CPL-114

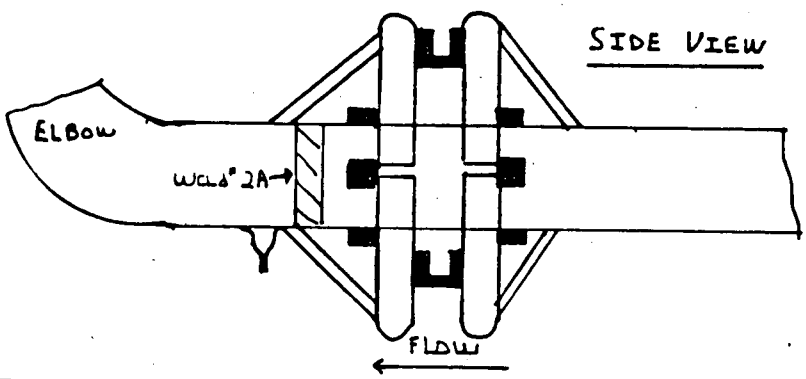
SYST/COMP Loop B 8" RHR RETURN PROCEDURE CPL-ISI-206, Rev. 0

EXAMINER Nmel A. Bolyin II Paul J. Kovalle II DATE 12-5-88
LEVEL II

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): Weld #2A and Welded Lugs A-WS

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.





ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/6/88
Ron Black 12/6/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-114

SYST/COMP. LOOP B 8" RHR RETURN PROCEDURE CPL-ISI-11, REV.0

EXAMINER Paul J. Kornello-II (LEVEL II) Gary M. Jackson II DATE 12-12-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
A-WS	X			TEMP. 67°F

ANII REVIEW
ANII
DATE 12-14-88

Richard B. Weber 12/12/88
[illegible] 12/13/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. ROBINSON	2	CPL-114

SYST/COMP.	PROCEDURE
LOOP B 8" RHR RETURN	CPL-ISI-206 REV.0

EXAMINER (LEVEL II)	DATE
Mark A. Bolyn II / Gary A. Morris II	12-8-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I 08018 E	S/N			031238					031238					INITIAL TIME 0245 12-8-88
	SIZE			.375"					.375"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1 T			80%	2.0	.80"	.70"	.90"	80%	2.0	1.05"	.80"	1.2"	
DAMPING MIN	2 T			40%	4.0	1.60"	1.50"	1.80"	50%	4.2	2.0"	1.75"	2.20"	
FILTER OFF	3 T			30%	6.0	2.5"	2.3"	2.65"						FINAL TIME 0330 12-8-88
LIN. CHECK SAT														
SU CABLE 12' BNC/MCD														CAL. BLOCK CPL-58
COUPLANT SONOTRACE 40 # 8767	CAL. GAIN			18 db					26 db					THICKNESS .890" TEMP. 47°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
3	+5°F	NO	YES	NO	YES	NO	VALVE LIMITS 5 SCAN WELD CROWN LIMITS 7+8 SCANS	ROUNDED	X			

ANII REVIEW
ANII [illegible]
DATE 12-10-88

Richard B. Weber 12/9/88
[illegible] 12/9/88

127

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-114
SYST/COMP.: LOOP B 8" RHR RETURN		PROCEDURE: CPL-ISI-206 REV.0
EXAMINER (LEVEL II): Arnold A. Bolyard II, Gerry A Morin II		DATE: 12-8-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08078E	S/N			21137					21137					INITIAL TIME: 0250 12-8-88
	SIZE			0.25"					0.25"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 3 K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80%	2.0	1.1"	0.90"	1.40"	80%	2.5	1.75"	1.5"	2.2"	
DAMPING: MIN	2 T			24%	4.0	2.20"	1.9"	2.55"	18%	4.9	3.15"	2.8"	3.5"	
FILTER: OFF	3 T			18%	6.0	3.30"	3.00"	3.65"						FINAL TIME: 0332 12-8-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-58
COUPLANT: SCNOTRACK 40 # 8767	CAL. GAIN			43db					47db					THICKNESS: .890"
														TEMP.: 47°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
3	45°F	NO	YES	NO	YES	NO	VALVE LIMITS 5 SCAN WELD CROWN LIMITS 7+8 SCANS	ROUNDED	X			

ANII REVIEW
ANII [illegible]
DATE 12-10-88

Richard B. Walker 12/9/88
[illegible] 12/9/88

128

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. Robinson	UNIT: 2	SKETCH: CPL-114
SYST/COMP.: Loop B 8" RHR RETURN		PROCEDURE: CPL-ISI-206, Rev.0
EXAMINER (LEVEL II): Arnel A. Bufin II, Paul J. Kovalko II		DATE: 12-5-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: Sonic Mark 1 # 08078E	S/N			21137					21137					INITIAL TIME: 0348 12-5-88
	SIZE			0.25"					0.25"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	1.1"	0.9"	1.4"	80%	2.4	1.75"	1.5"	2.2"	
DAMPING: MIN	2T			20%	4.0	2.2"	1.9"	2.55"	10%	4.3	3.15"	2.8"	3.5"	
FILTER: OFF	3T			15%	6.0	3.3"	3.0"	3.65"						FINAL TIME: 0440 12-5-88
LIN. CHECK: Sat.														
SU CABLE: 12' BNC-MCD														CAL. BLOCK: CPL-58
COUPLANT: Sonotrace 40 # 8767	CAL. GAIN			44 db					48 db					THICKNESS: 0.890"
														TEMP.: 47°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
2A	+10°F	NO	YES	YES	YES	NO	See Attached Limitation to Examination Sheet	As welded	X			

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/6/88
[signature] 12/6/88

129

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. Robinson	UNIT: 2	SKETCH: CPL- 114
SYST/COMP.: Loop B 8" RHR RETURN		PROCEDURE: CPL-ISI-206, Rev.0
EXAMINER (LEVEL II): Mark A. Bulpin II, Paul J. Knowlton II		DATE: 12-5-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: Sonic Mark 1 # 08018E	S/N			031238					031238					INITIAL TIME: 0200 12-5-88
	SIZE			0.375"					0.375"					
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	0.8"	0.7"	0.9"	80%	2.1	1.05"	0.8"	1.2"	
DAMPING: MIN	2T			40%	4.0	1.6"	1.5"	1.8"	45%	4.2	2.0"	1.75"	2.2"	
FILTER: OFF	3T			28%	6.0	2.5"	2.3"	2.65"						FINAL TIME: 0430 12-5-88
LIN. CHECK: Sat.														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-58
COUPLANT: Sonotrace 40 # 8767	CAL. GAIN			11 db					18 db					THICKNESS: 0.890"
														TEMP.: 47°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
2A	+ 10°F	No	YES	YES	YES	No	See Attached Limitation to Examination Sheet	As Welded	X			

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/6/88
[illegible] 12/6/88

130

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

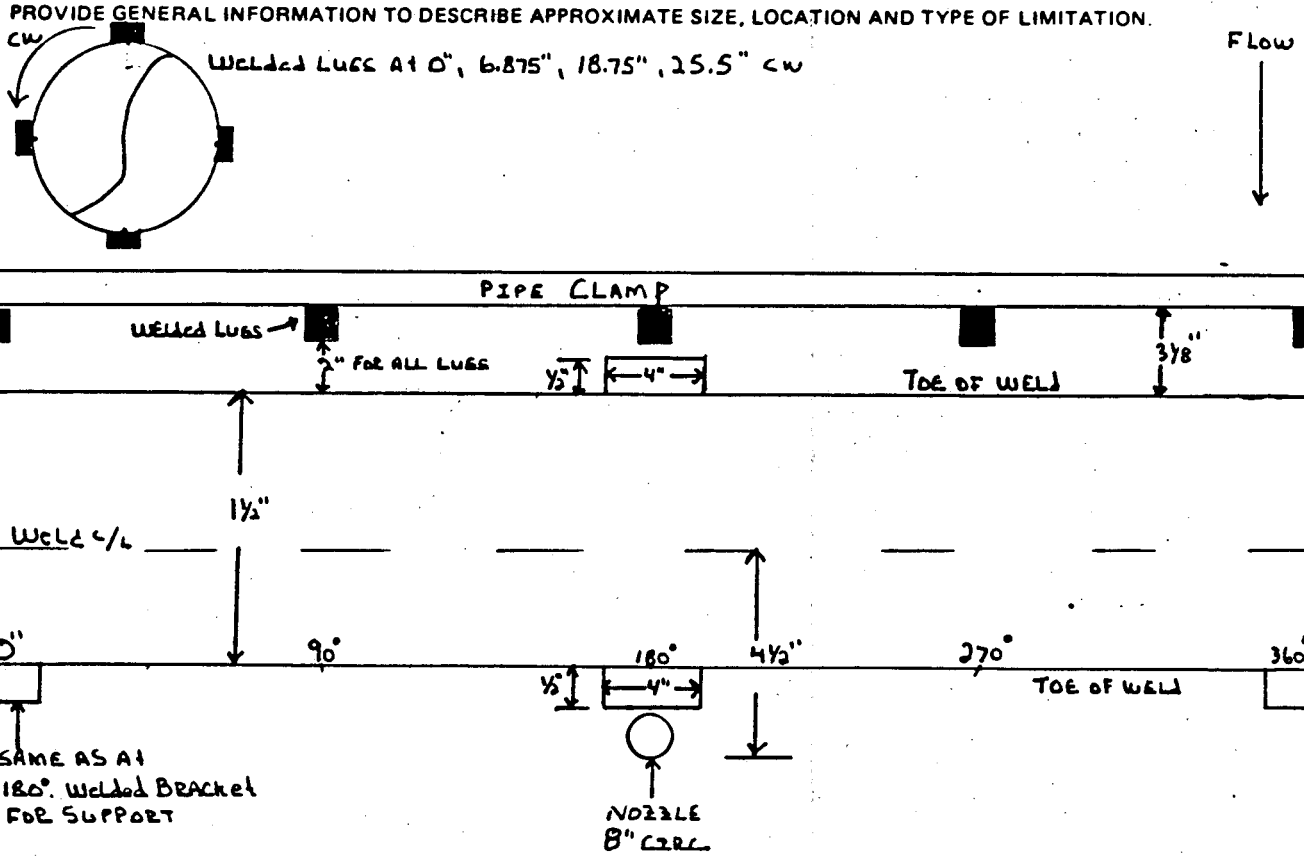
PLANT H.B. Robinson UNIT 2 SKETCH CPL-114

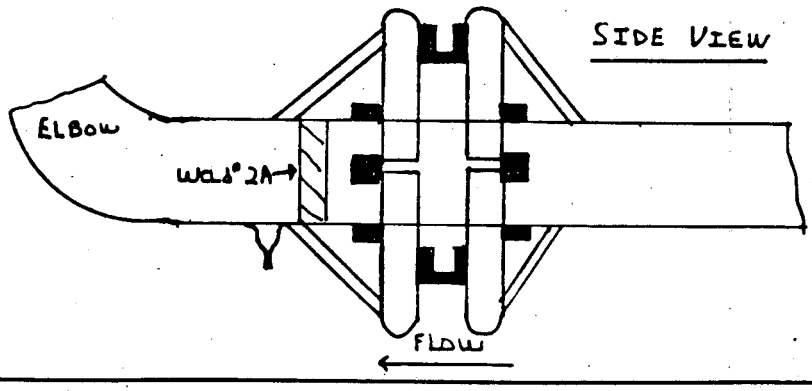
SYST/COMP Loop B 8" RHR Return PROCEDURE CPL-ISI-206, Rev. 0

EXAMINER Nmla A. Bolyn II / Paul J. Knoll II LEVEL II DATE 12-5-88

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): Weld #2A and Welded Lugs A-WS

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.





ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/6/88
[signature] 12/6/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-114

SYST/COMP LOOP B RHR RETURN PROCEDURE CPL TBA-100 REV.0

EXAMINER Arnold A. Bolfino / Ralph Churchfield I LEVEL II DATE 11-16-88

EXAMINER Paul J. Kovallo II / Ralph Churchfield I LEVEL II DATE 11-16-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	# 800886
S/N	08078E/08079E	620209	62408	62410	NA
SIZE	NA	0.5"	0.25"	0.25"	NA
FREQ.	NA	5 MHz	2.25 MHz	2.25 MHz	NA
ANGLE	NA	0°	45°	45°	NA
COUPLANT: SONOTRACE 40 BATCH # 8767					

			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM	SURFACE 2°	SURFACE 5°	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. B	CALCULATED ANGLE	REMARKS
3	X	NA	25°	0.935"	0"	0.950"	1.65"	41°	

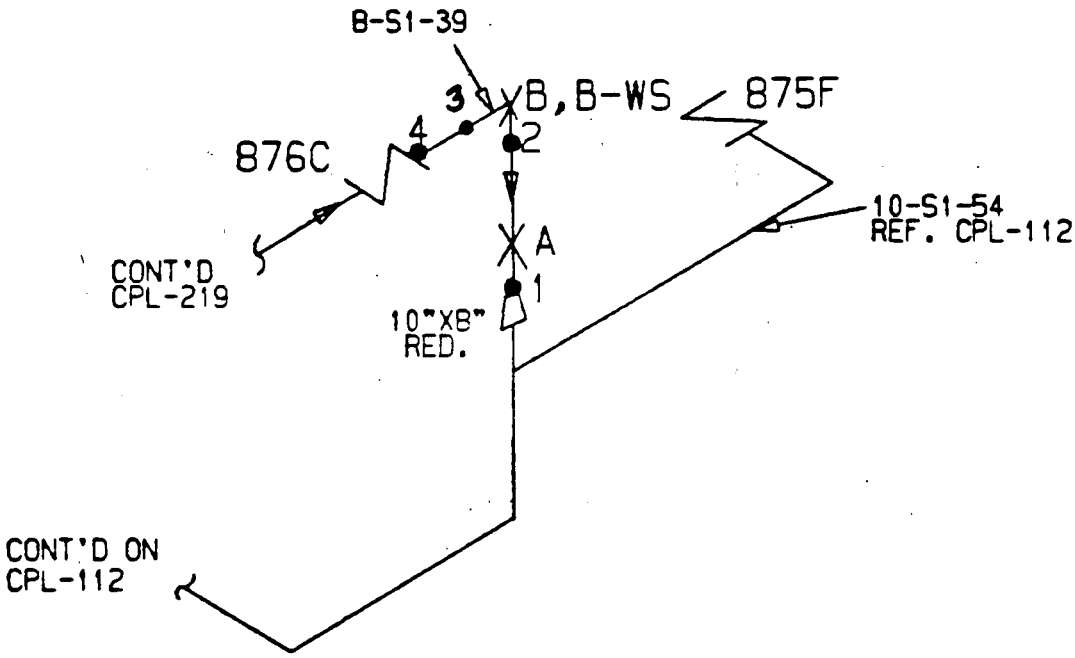
ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

SPRING HANGERS
B
WELDED SUPPORT
B-WS

137



CPL-115 REV 2

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION -LOOP C-8"RHR RETURN		
LINE NO. B-S1-39	CPL- 115 REV.	2

WESTINGHOUSE FORM 46762

SKETCH CPL-115

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
21	B-WS				X									
75	4	X												TBA
	3													TBA
	V876C (16)													
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-115
SYST/COMP.: LOOP C 8" RHR RETURN		PROCEDURE: CPL ISI-206 REV.0
EXAMINER (LEVEL II): Paul J. Kovallo-II / Nmol A. Byne II		DATE: 11-19-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08018E	S/N			031238					031238					INITIAL TIME: 0325 11-19-88
	SIZE			0.375"					0.375"					
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80 %	2.0	0.8"	0.7"	0.9"	80 %	2.1	1.05"	0.8"	1.2"	
DAMPING: MIN	2T			40 %	4.0	1.6"	1.5"	1.8"	45 %	4.1	2.0"	1.75"	2.2"	
FILTER: OFF	3T			30 %	6.0	2.5"	2.3"	2.65"						FINAL TIME: 0450 11-19-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-58
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			46 db					51 db					THICKNESS: 0.890"
														TEMP.: 80°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
4	+20°F	NO	YES	NO	YES	NO	VALVE BODY CONFIGURATION, 5 SIDE WELD CROWN, 7+8 SCANS	AS WELDED	X			

ANII REVIEW
ANII [illegible]
DATE 11-27-88

Richard B. Weber 11/20/88
[illegible] 11/24/88

139

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-115
SYST/COMP.: LOOP C 8" RHR RETURN		PROCEDURE: CPL ISI-206 REV.0
EXAMINER (LEVEL II): Arnold A. Bolyn II / Robert S. Cannet I		DATE: 11-19-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08078E	S/N			F28235					F28235					INITIAL TIME: 0358 11-19-88
	SIZE			0.250"					0.250"					
	FREQ.			2.25 MHZ					2.25 MHZ.					
	ANGLE			60°					60°					
REP. RATE: 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80 %	2.0	1.1"	.9"	1.3"	80 %	2.4	1.7"	1.4"	2.15"	
DAMPING: MIN	2 T			28 %	4.0	2.1"	1.85"	2.3"	10 %	5.0	4.75"	4.35"	4.95"	
FILTER: OFF	3 T			18 %	6.0	3.2"	2.85"	3.5"						FINAL TIME: 0500 11-19-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-58
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			36 db					41 db					THICKNESS: 0.890"
														TEMP.: 80°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
4	+20°F	NO	YES	NO	YES	NO	VALVE BODY CONFIGURATION, 5 SIDE WELD CROWN, 7+8 SCANS.	AS WELDED	X			

ANII REVIEW
ANII [illegible]
DATE 11-27-88

Richard B. Weber 11/23/88
[illegible] 11/24/88

140

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBISON UNIT 2 SKETCH CPL-115

SYST/COMP. LOOP C - 8" RHR RETURN PROCEDURE CPL-ISI-11 REV. 0

EXAMINER Noel A. Bilyeu II / Ralph Churchfield I (LEVEL II) DATE 11-19-88

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX 88G017	EQUIPMENT	
PENETRANT	MAGNAFLUX 85L045		
DEVELOPER	MAGNAFLUX 88B019	EXAM. MEDIUM	
REMOVER	MAGNAFLUX 88G017	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
B-WS	X			AS WELDED CONDITION TEMP. 100°F

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-115

SYST/COMP Loop 'C' 8" RHR Return PROCEDURE CPL-TBA-100, Rev. 0

EXAMINER Arnold Bilyeu II LEVEL II DATE 11-19-88

EXAMINER Ralph Churchfield II LEVEL II DATE 11-19-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	KBA	KBA	#800886
S/N	08078E/08018E	G20209	80093	80087	N/A
SIZE	N/A	0.5"	0.5"	0.5"	N/A
FREQ.	N/A	5MHZ	5MHZ	5MHZ	N/A
ANGLE	N/A	0°	45°	44°	N/A
COUPLANT: SONOTRACE 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD LINE #	SURFACE 2°	SURFACE 5°	DIR. 7° LOCATION	CALCULATED THICKNESS	DIR. 7° LOCATION	CALCULATED THICKNESS	DIR. D	CALCULATED ANGLE	REMARKS
4	X	N/A	7"	0.860"	20"	0.890"	1.85"	46°	3.1" PUP PIECE

ANII REVIEW
ANII
DATE 11-26-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 11/23/88
[illegible] 11/24/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-115

SYST/COMP LOOP "B" RHR RETURN PROCEDURE CPL-TBA-100 REV.0

EXAMINER Arnold A. Blom II / Robert S. Cassat I DATE 11-14-88
LEVEL II

EXAMINER Henry A. Muir III / Ralph Churchfield I DATE 11-14-88
LEVEL II

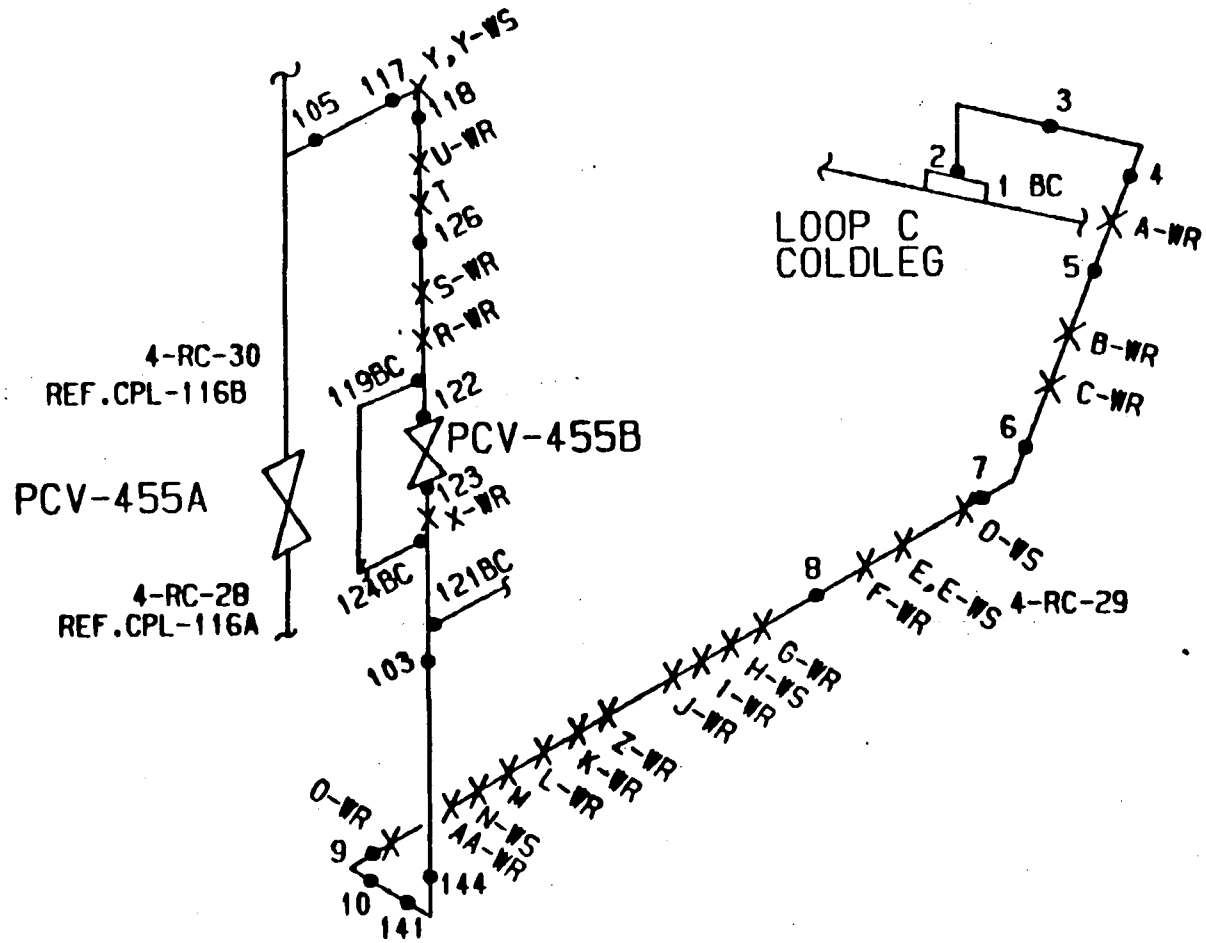
		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	# 800886
S/N	080078E/080079E	G20209	62408	62410	N/A
SIZE	N/A	0.5"	0.25"	0.25"	N/A
FREQ.	N/A	5MHZ	2.25 MHZ	2.25 MHZ	N/A
ANGLE	N/A	0°	45°	45°	N/A
COUPLANT: SONOTRACE 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM	SURFACE 2°	SURFACE 0°	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. 0	CALCULATED ANGLE	REMARKS
3	X	N/A	0"	0.900"	17"	1.020"	1.8"	45°	ANGLE CHECK TAKEN ON OUTERDOS OF ELBOW
									ANII REVIEW ANII DATE 11-25-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 11/28/88
Co-Block 11/23/88

SPRING HANGERS
D,H,N
WELDED SUPPORT
E-WS
Y-WS
N-WS
D-WS
H-WS



145

CPL-116 REV 3

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LOOP C-4"SPRAY LINE	
LINE NO 4-RC-29 CPL-116 REV 3	

SKETCH CPL-116

146

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
22	10	X			X									TBA
22	141	X			X									TBA
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL - 116
SYST/COMP.: LOOP C 4" SPRAY LINES		PROCEDURE: CPL ISI-206 REV.0
EXAMINER (LEVEL II): George B. Morris II, Harry M. Jackman I		DATE: 12-2-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08078E	S/N			21137					21137					INITIAL TIME: 0.240 12-2-88
	SIZE			0.250"					0.250"					
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			60°					60°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80 %	2.0	0.640"	0.484"	0.765"	80 %	2.1	0.875"	0.750"	1.250"	
DAMPING: MIN	2 T			30 %	4.0	1.203"	1.125"	1.546"	80 %	4.2	1.375"	1.250"	2.0"	
FILTER: OFF	3 T			15 %	6.0	1.812"	1.656"	2.062"						FINAL TIME: 0315 12-2-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-24
COUPLANT: SONOTRACE #40 #8767	CAL. GAIN			41 db					54 db					THICKNESS: 0.530"
														TEMP.: 70°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
10	-2°F	NO	YES	YES	YES	NO	WHIP RESTRAINT LIMITS 2 SCAN	ROUNDED	X			*
141	-2°F	NO	YES	YES	YES	NO	WHIP RESTRAINT LIMITS 5 SCAN	ROUNDED	X			*
							* NOTE: SEE LIMITATION TO EXAMINATION SHEET					

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/5/88
[signature] 12/3/88

141

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H. B. ROBINSON	2	CPL-116
SYST/COMP. 4" SPRAY LINES LOOP "C"		PROCEDURE CPL ISI-206 REV.0
EXAMINER (LEVEL II) Paul J. Kovallo-II Robert L Cassat I		DATE 12-2-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I #08018E	S/N			21135					21135					INITIAL TIME
	SIZE			0.250"					0.250"					0230 12-2-88
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			45°					45°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1 T			80 %	2.0	0.5"	0.250"	0.562"	80 %	2.1	0.562"	0.437"	0.687"	
DAMPING MIN	2 T			55 %	4.0	1.0"	0.875"	1.125"	80 %	4.2	1.125"	0.812"	1.250"	
FILTER OFF	3 T			40 %	6.0	1.437"	1.375"	1.625"						FINAL TIME
LIN. CHECK SAT														0310 12-2-88
SU CABLE 12' BNC/HCD														CAL. BLOCK CPL-24
COUPLANT SONOTRACE 40 #8767	CAL. GAIN			38 db.					46 db					THICKNESS 0.530"
														TEMP. 70°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
10	-2°F	No	YES	YES	YES	No	WHIP RESTRAINT LIMITS 2 SCAN	ROUNDED	X			*
141	-2°F	No	YES	YES	YES	No	WHIP RESTRAINT LIMITS 5 SCAN	ROUNDED	X			*
							* NOTE: SEE LIMITATION TO EXAMINATION SHEET					

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
H. R. Black 12/3/88

148

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-116

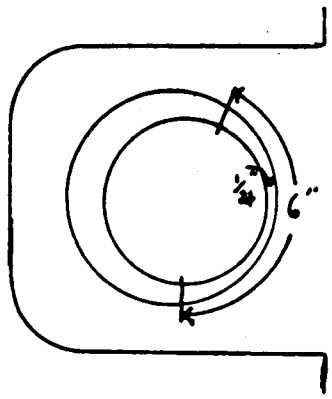
SYST/COMP 4" SPRAY LINE LOOP "C" PROCEDURE CPL-ISI-206 REV. 0

EXAMINER Paul J. Kovallo-II Gary A. Smith LEVEL II DATE 12-2-88

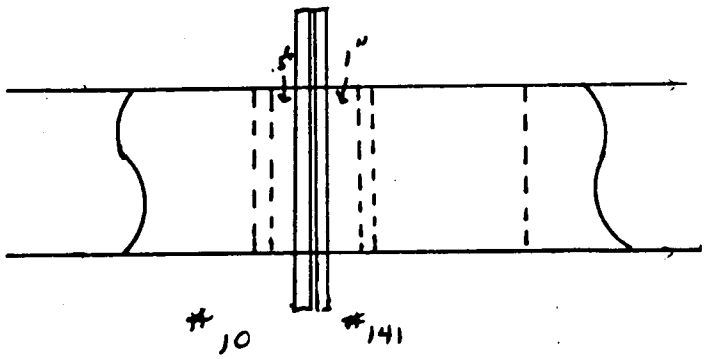
RELATED TO: U/T ✓ P/T ____ M/T ____ V/T ____ ITEM(S): 10, 141

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.

SIDE VIEW



FRONT VIEW



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88

Gary Smith 12/3/88

F49077

150

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-116

SYST/COMP. LOOP "C" 4" SPRAY LINE PROCEDURE CPL-ISI-11 REV.0

EXAMINER Paul J. Kovalle II Gary A Morin II (LEVEL II) DATE 12-1-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
10	X			TEMP. 68°F
141	X			TEMP. 68°F

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-116

SYST/COMP LOOP C 4" SPRAY LINE PROCEDURE CPL TBA-100 REV 0

EXAMINER Norm A. Bryan II LEVEL II DATE 11-19-88

EXAMINER Paul J. Kovallo-II LEVEL II DATE 11-19-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	KBA	NA	# 800886
S/N	08078E/08018E	620209	031238	NA	NA
SIZE	NA	0.5"	0.375"	NA	NA
FREQ.	NA	5 MHz	2.25 MHz	NA	NA
ANGLE	NA	0°	45°	45° WEDGE	NA

COUPLANT: SONOTRACE 40 BATCH # 8767

			MINIMUM		MAXIMUM		ANGLE		
WELD NUMBER	SURFACE 2°	SURFACE 5°	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. D	CALCULATED ANGLE	REMARKS
10	X	NA	4"	0.510"	10"	0.560"	1.0"	42°	
141	NA	X	4"	0.510"	10"	0.560"	1.0"	42°	

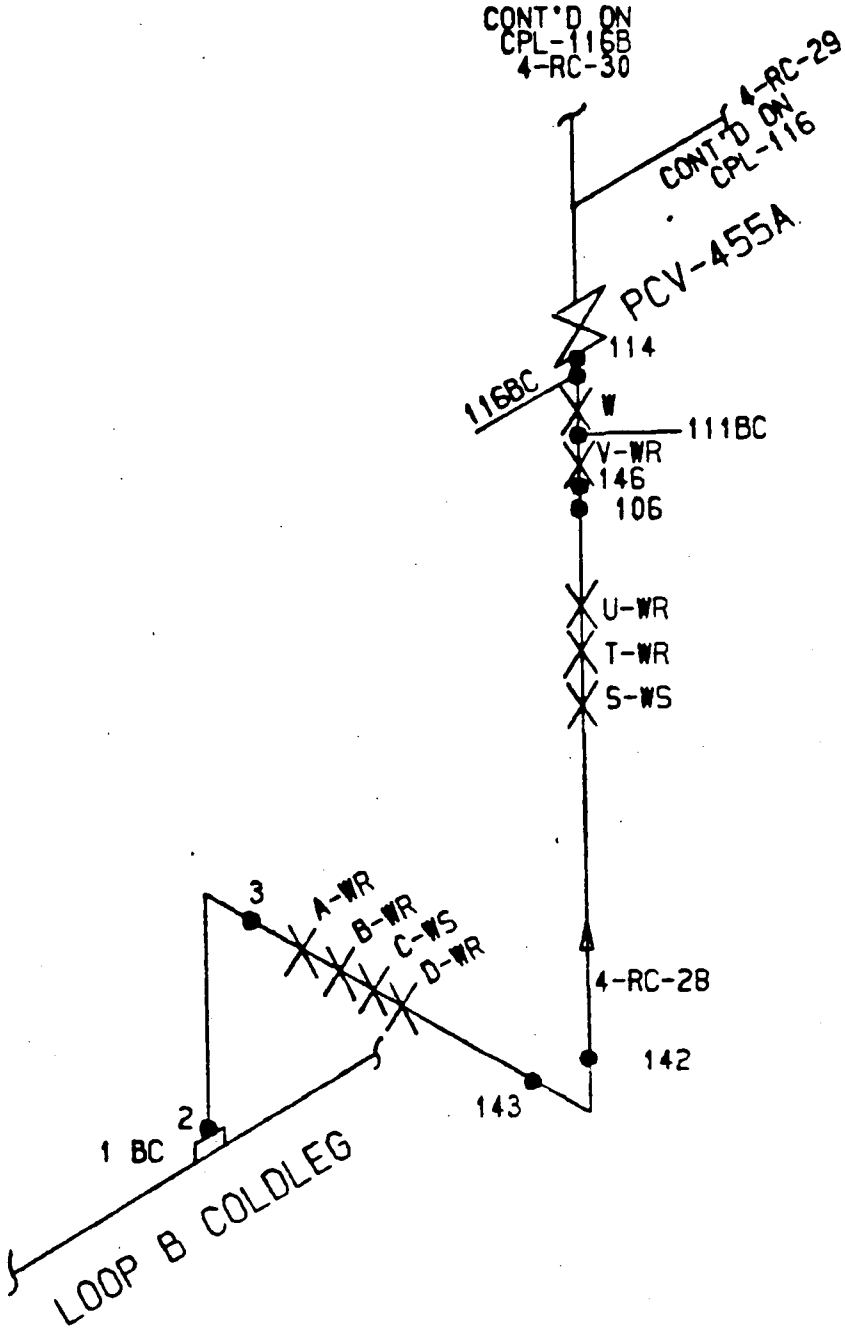
ANII REVIEW
ANII [illegible]
DATE 11-26-88

Richard B. Weber 11/25/88
[illegible] 11/26/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

SPRING HANGERS 152
C

WELDED SUPPORT
S-WS
C-WS



CPL-116A REV 3

H.B. ROBINSON S.E. PLANT		C
UNIT NO. 2		F
DESCRIPTION LOOP B-4"SPRAY LINE		&
LINE NO. 4-RC-28	CPL- 116A REV. 3	L

SKETCH CPL-116A

153

EXAMINATION SUMMARY FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
23	142	X			X									TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-116 A
SYST/COMP.: LOOP B 4" SPRAY LINES		PROCEDURE: CPL ISI-206 REV.0
EXAMINER (LEVEL II): Kenny A Morin II, Harry M Ackerman I		DATE: 12-2-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08078E	S/N			21137					21137					INITIAL TIME: 0240 12-2-88
	SIZE			0.250"					0.250"					
	FREQ.			2.25 MHz					2.25 MHz.					
	ANGLE			60°					60°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80 %	2.0	0.640"	0.484"	0.765"	80 %	2.1	0.875"	0.750"	1.250"	
DAMPING: MIN	2T			30 %	4.0	1.203"	1.125"	1.546"	80 %	4.2	1.375"	1.250"	2.0"	
FILTER: OFF	3T			15 %	6.0	1.812"	1.656"	2.062"						FINAL TIME: 0315 12-2-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-24
COUPLANT: SONOTRACE No #8767	CAL. GAIN			41 db					54 db					THICKNESS: 0.530"
														TEMP.: 70° F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
142	-2°F	NO	YES	YES	YES	NO		ROUNDED	X			

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
12/3/88

154

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. ROBINSON	2	CPL-116A

SYST/COMP.	PROCEDURE
4" SPRAY LINE LOOP "B"	CPL-ISI-206 REV. 0

EXAMINER (LEVEL II)	DATE
Paul J. Kovallo-II Robert L. Cassat I.	12-2-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I #08018E	S/N			21135					21135					INITIAL TIME
	SIZE			0.250"					0.250"					0230 12-2-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			
REJECT OFF						PEAK	50% DAC LOCATIONS				PEAK	50% DAC LOCATIONS		
	1 T			80%	2.0	0.5"	.250"	.562"	80%	2.1	.562"	.437"	.687"	
DAMPING MIN	2 T			55%	4.0	1.0"	.875"	1.125"	80%	4.2	1.125"	.812"	1.250"	
FILTER OFF	3 T			40%	6.0	1.437"	1.375"	1.625"						FINAL TIME
LIN. CHECK SAT														0310 12-2-88
SU CABLE 12' BNC/MCD														CAL. BLOCK CPL-24
COUPLANT SONOTRACE 40 #8767	CAL. GAIN			38 db					46 db					THICKNESS .530"
														TEMP. 70°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
142	-2°F	NO	YES	YES	YES	NO		ROUNDED	X			

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88

155

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-116A

SYST/COMP. Loop B 4" Spray Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Harry M. Pickerman II Donald A. Boyd II DATE 11-23-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
142	X			Temp. 90°F

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/25/88
Jim Black 11/26/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-116A

SYST/COMP Loop B 4" Spray Line PROCEDURE CPL-ISI-100, Rev. 0

EXAMINER Arnold A. Bolfin II LEVEL II DATE 11-23-88

EXAMINER _____ LEVEL II DATE _____

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	Sonic	KBA	KBA	N/A	800886
S/N	08018E	G20209	031238	N/A	N/A
SIZE	N/A	0.5"	0.375"	N/A	N/A
FREQ.	N/A	5MHZ	2.25MHZ	N/A	N/A
ANGLE	N/A	0°	45°	45° wedge	N/A
COUPLANT: Sonotrace 40			BATCH # 8767		

WELD IDENT	SURFACE 2°	SURFACE 5°	MINIMUM DIR 7° LOCATION	MINIMUM CALCULATED THICKNESS	MAXIMUM DIR 7° LOCATION	MAXIMUM CALCULATED THICKNESS	ANGLE DIR 0	ANGLE CALCULATED ANGLE	REMARKS
142	X	N/A	6"	0.500"	2"	0.540"	1.0	43°	

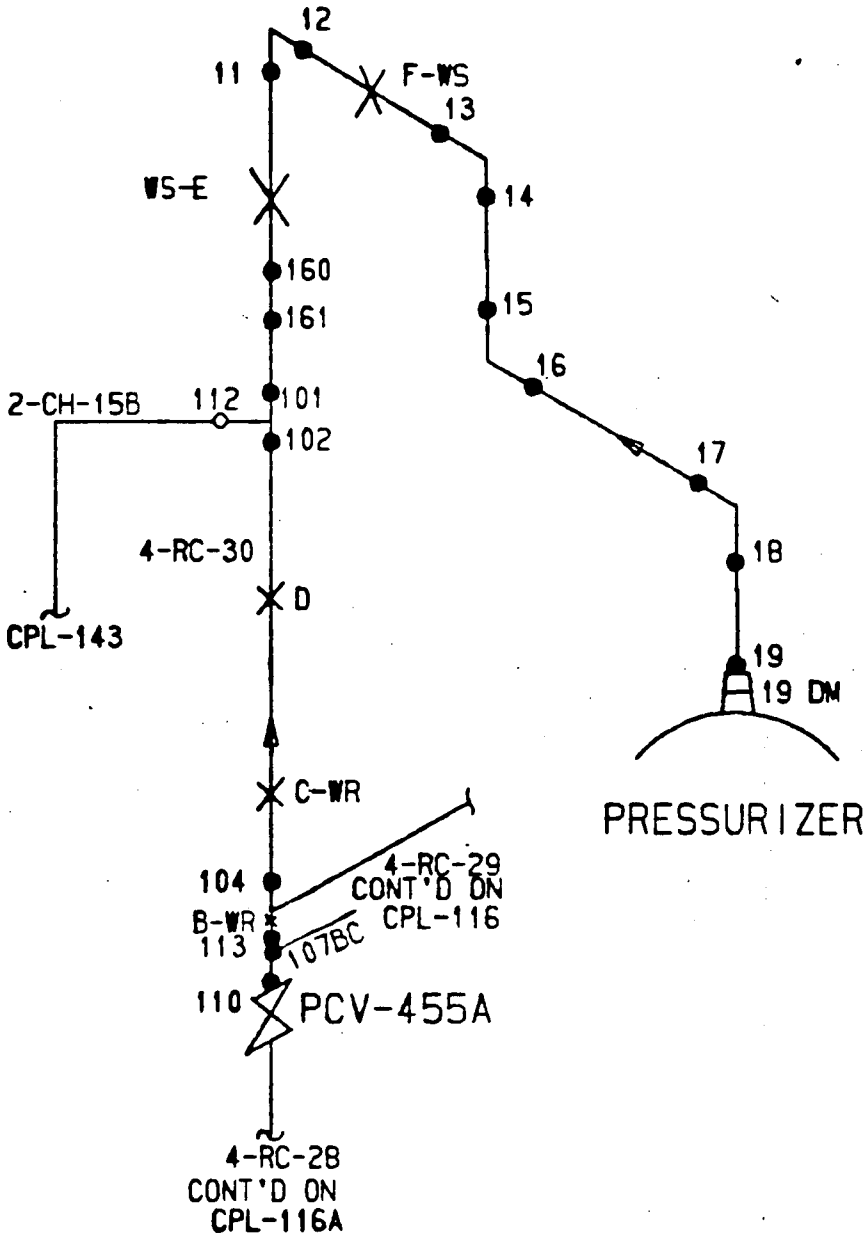
ANII REVIEW
ANII [signature]
DATE 11-26-88

Richard B. Weber 11/26/88
[signature] 11/26/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

SPRING HANGERS
F

WELD SUPPORT
F-WS



CPL-116B REV 3

H.B. ROBINSON S.E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION LOOPS B&C-4"SPRAY LINE			
LINE NO. 4-RC-30	CPL-116B REV.	3	

SKETCH
CPL-116B

EXAMINATION SUMMARY
FOR

1989

159

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
24	161	X					X							TBA SEE TAB F
24	18	X					X							TBA SEE TAB F
76	D							X						
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-116 B
SYST/COMP.: LOOPS B+C 4" SPRAY LINE		PROCEDURE: CPL-151-206, REV.0
EXAMINER (LEVEL II): Paul J. Kovalle-II / Ralph Chmelfield-I		DATE: 12-3-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08018E	S/N			21135					21135					INITIAL TIME
	SIZE			.25"					.25"					2233 12-2-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	.5"	.250"	.562"	80%	2.1	.562"	.437"	.687"	
DAMPING: MIN	2T			55%	4.0	1.0"	.875"	1.125"	80%	4.2	1.125"	.812"	1.250"	
FILTER: OFF	3T			40%	6.0	1.437"	1.375"	1.625"						FINAL TIME
LIN. CHECK: SAT														0005 12-3-88
SU CABLE: 12' BNC-MCD														CAL. BLOCK: CPL-24
COUPLANT: SONOT RACE 40 #8767	CAL. GAIN			37dB					44dB					THICKNESS .530"
														TEMP. 68°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
18	-6°F	NO	YES	NO	YES	NO	WELD 19, SSIDEWELD CROWN 7+8 SCAN	ROUNDED	X			SEE ATTACHED LIMITATION TO EXAMINATION SHEET.
161	-6°F	NO	YES	YES	YES	NO		ROUNDED	X			

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/5/88
[signature] 12/3/88

160

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-116 B
SYST/COMP.: LOOPS B+C 4" SPRAY LINE		PROCEDURE: CPL-151-206, REV.0
EXAMINER (LEVEL II): Paul J. Kovallo-II / Ralph Churchfield I		DATE: 12-3-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08078E	S/N			21137					21137					INITIAL TIME: 2245 12-2-88
	SIZE			.25"					.25"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	.640"	.484"	.765"	80%	2.1	.875"	.750"	1.250"	
DAMPING: MIN	2T			30%	4.0	1.203"	1.125"	1.546"	80%	4.2	1.375"	1.250"	2.0"	
FILTER: OFF	3T			15%	6.0	1.812"	1.656"	2.062"						FINAL TIME: 0010 12-3-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC-MCD														CAL. BLOCK: CPL-24
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			45dB					55dB					THICKNESS: .530"
														TEMP.: 68°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
18	-6°F	NO	YES	NO	YES	NO	WELD 19, 5 SIDE, WELD CROWN 7+8 SCAN	ROUNDED	X			SEE ATTACHED LIMITATION TO EXAMINATION SHEET
161	-6°F	NO	YES	YES	YES	NO		ROUNDED	X			

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B Weber 12/5/88
[illegible] 12/3/88

161

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

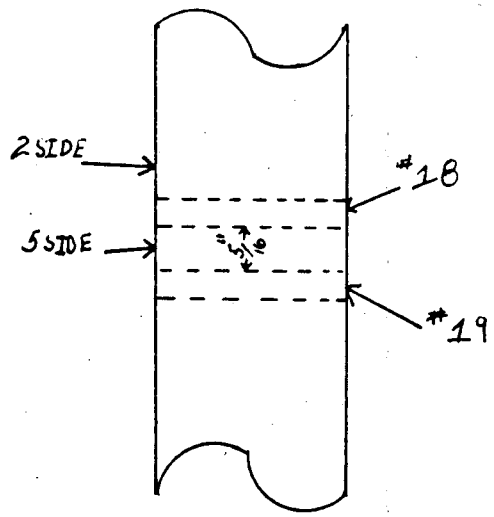
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-116B

SYST/COMP LOOPS B & C 4" SPRAY LINE PROCEDURE CPL-ISI-206 REV 0

EXAMINER Paul J. Kovalla-II LEVEL II DATE 12-3-88

RELATED TO: U/T ✓ P/T ____ M/T ____ V/T ____ ITEM(S): Weld #18

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88

F49077

H. Black 12/3/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-116 B

SYST/COMP. LOOP B&C 4" SPRAY LINE PROCEDURE CPL IST-11 REV. 0

EXAMINER Arnold A. Boykin II / Ralph Schuckfield I (LEVEL II) DATE 12-1-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
18			X	See Attached Surface Ind. Data Sheet Temp. 66°F
161			X	See Attached Surface Ind. Data Sheet. Temp. 66°F

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
Joe Black 12/5/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-116B

SYST/COMP Loop B+C 4" Spray Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER [illegible] II / Ralph Churchfield I (LEVEL II) DATE 12-1-88

PT X MT WELD NO. 18

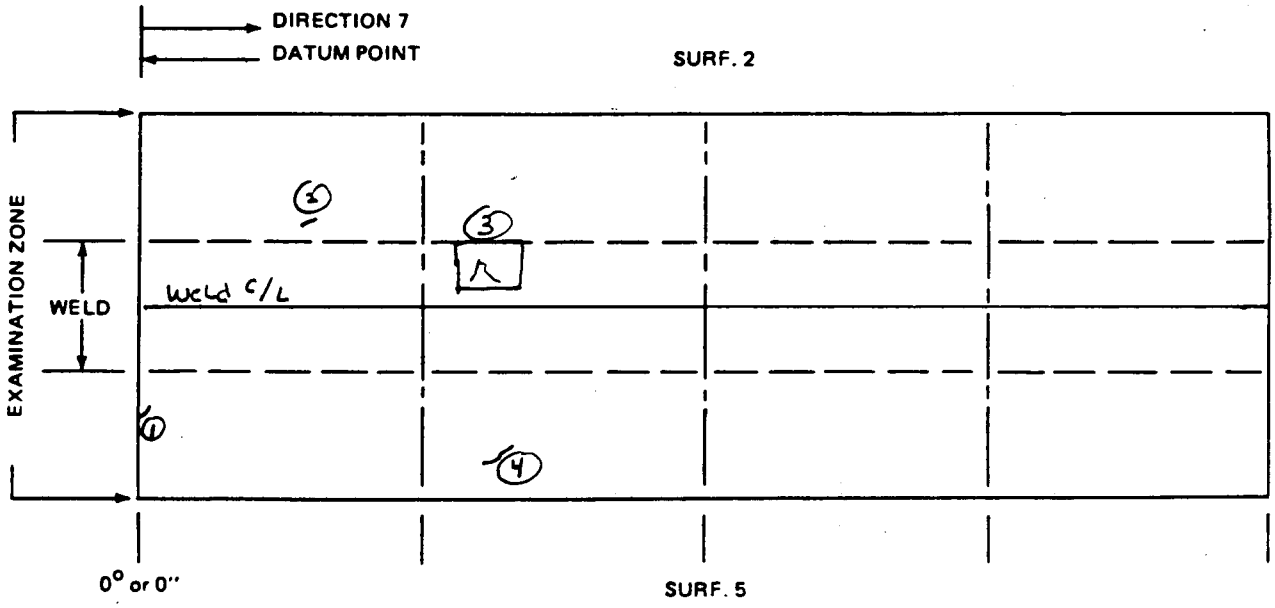
VISUAL AIDS Flashlight, Mirror

REMARKS (1) 0.06" Linear, 1/2" From C/L weld, Located At 0" Datum Point

(2) 0.08" Linear, 1/2" From C/L weld, Located At 3" CW From 0" Datum Point

(3) 0.16" by 0.12" Square Area with Numerious Rounded Indications, Seperated by Less than 1/8", 1/8" From C/L Weld, Located At 4 9/16" CW From 0" Datum Point.

(4) 0.078" Linear, 7/8" From C/L weld, Located At 4 3/4" From 0" Datum Point



ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/5/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-116B

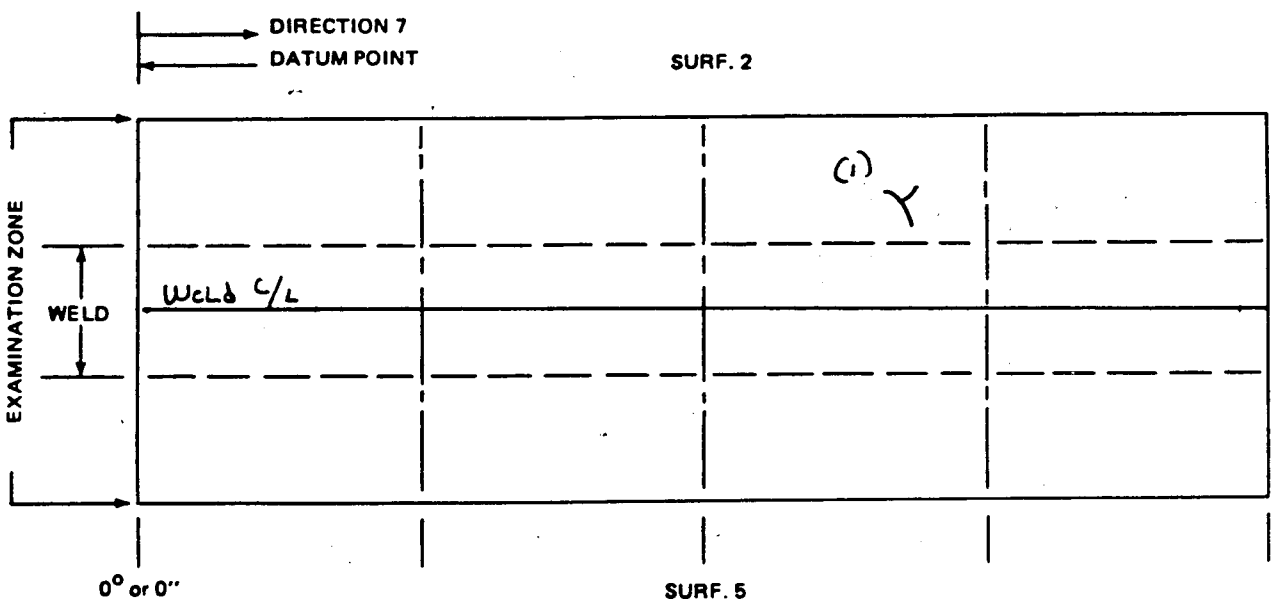
SYST/COMP Loop B+C 4" Spray Line PROCEDURE CPL-IST-11, Rev. 0

EXAMINER [illegible] II / Ralph Churchfield I (LEVEL II) DATE 12-1-88

PT X MT WELD NO. 161

VISUAL AIDS Flashlight, Mirror

REMARKS (1) 0.2" Linear, 1/2" From C/L weld, Located 10 1/2" CW From 0" Datum Point.



ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/5/88
Ian Black 12/5/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-116 B

SYST/COMP LOOP B+C 4" SPRAY LINE PROCEDURE CPL ISI-8 REV. 0

EXAMINER Arnold A. Bolyin II / Ralph Blundell I LEVEL II DATE 12-1-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
D	X			FLASHLIGHT	VT-3 INSULATED PIPE.

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-116B

SYST/COMP Loop B+C 4" Spray Line PROCEDURE CPL-TBA-100, Rev. 0

EXAMINER Arnold A. Boyn II / Ralph Chenfield I (LEVEL II) DATE 12-2-88

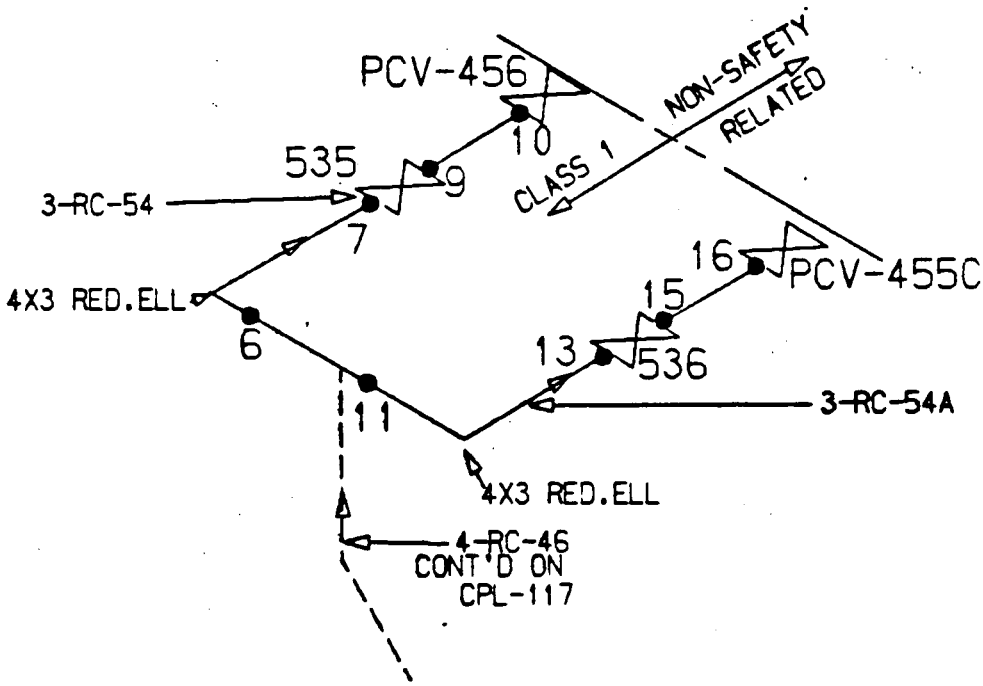
EXAMINER _____ (LEVEL II) DATE _____

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	Sonic	KBA	KBA	N/A	#800886
S/N	08079E	D10578	031238	N/A	N/A
SIZE	N/A	0.50"	0.375"	N/A	N/A
FREQ.	N/A	5.0MHZ	2.25MHZ	N/A	N/A
ANGLE	N/A	0°	45°	45° wedge	N/A
COUPLANT: Sonotrace 40			BATCH #8767		

WELD ITEM	SURFACE 2°	SURFACE 5°	DIRECTION DIR 1° LOCATION	DIRECTION CALCULATED THICKNESS	DIRECTION DIR 2° LOCATION	DIRECTION CALCULATED THICKNESS	ANGLE DIR. 2	ANGLE CALCULATED ANGLE	REMARKS
18	X	N/A	11"	0.62"	7½"	0.78"	1.0"	39°	Thickness & Angle Verification taken on elbow side. Angle verification
									taken on thin part of elbow. Unable to
									check pipe side due to proximity of weld #19
161	X	N/A	11½"	0.49	6"	0.52"	28/32"	40°	Pipe to Pipe weld
161	N/A	X	8½	0.47"	2½"	0.48"	28/32"	42°	Pipe to Pipe weld
									ANII REVIEW
									ANII
									DATE 12-6-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 12/5/88
[illegible] 12/3/88



CPL-117A REV 2

H.B. ROBINSON S.E. PLANT		C
UNIT NO. 2		P
DESCRIPTION 4" PRESSURIZER RELIEF LINE		&
LINE NO. 3-RC-54,54A	CPL-117A REV. 2	L

SKETCH
CPL-117A

EXAMINATION SUMMARY
FOR

1989

169

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
63	V535 (12)							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-117A

SYST/COMP 4" PRESSURIZER RELIEF LINE PROCEDURE CPL ISI-8 REV. 0

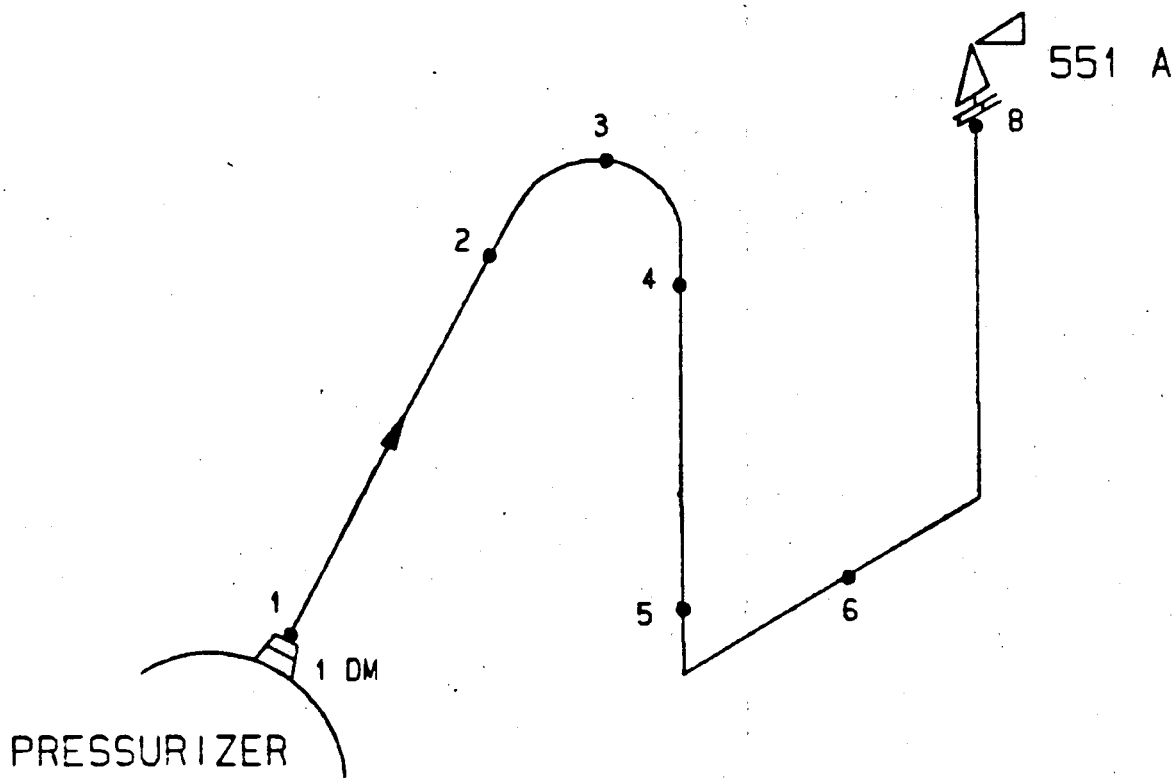
EXAMINER Vinod A. Bolyin II / Ralph Schwarzfeld I LEVEL II/I DATE 12-1-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
VALVE 535	X			FLASHLIGHT	VT-1, Examined 12 Studs And 12 Nuts in Place.

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88

FORM 45934B



CPL-118 REV 2

H.B. ROBINSON S.E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION 4"PRESSURIZER SAFETY LINE			
LINE NO. 4-RC-42	CPL-118 REV.	2	

SKETCH CPL-118

172

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
64	V551A (8)									X				SEE TAB F

WESTINGHOUSE FORM .62

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-118

SYST/COMP 4" PRESSURIZER SAFETY LINE PROCEDURE CPL ISI-8 REV.0

EXAMINER Daniel A. Bolfin II / Ralph Churchfield I (LEVEL II) DATE 12-1-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
VALVE 551 A			X	FLASHLIGHT	VT-1, Examined 12 Bolts and 24 Nuts on Outlet Flange and 8 Bolts and 16 Nuts on In-Let Flange. See Attached Gen. Ind. Data Sheet.

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

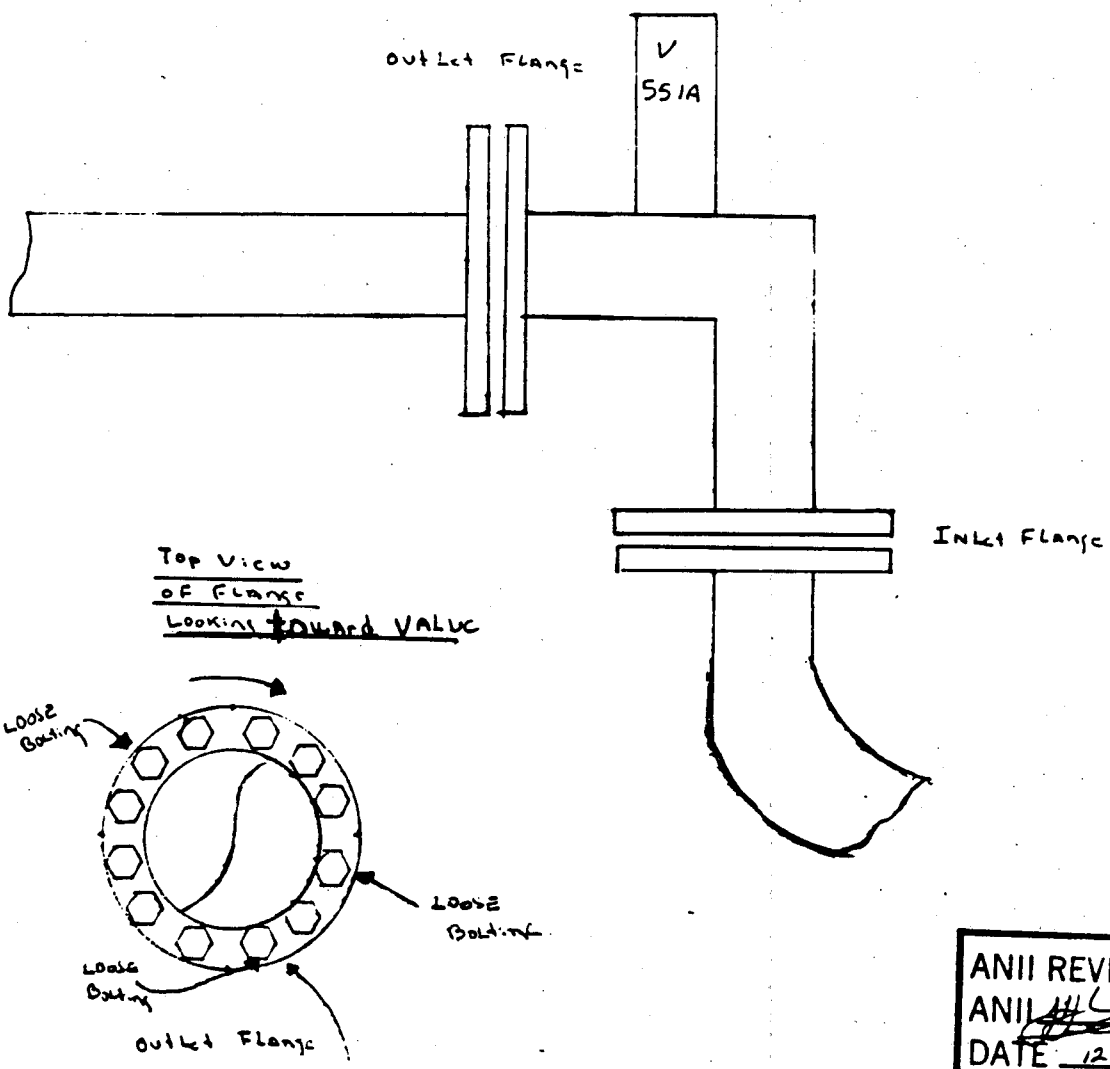
PLANT H.B Robinson UNIT 2 SKETCH CPL-118

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-TSI-8 Rev 0

EXAMINER Mark A. Boyle II / Ralph Churchfield I DATE 12-2-88
LEVEL II

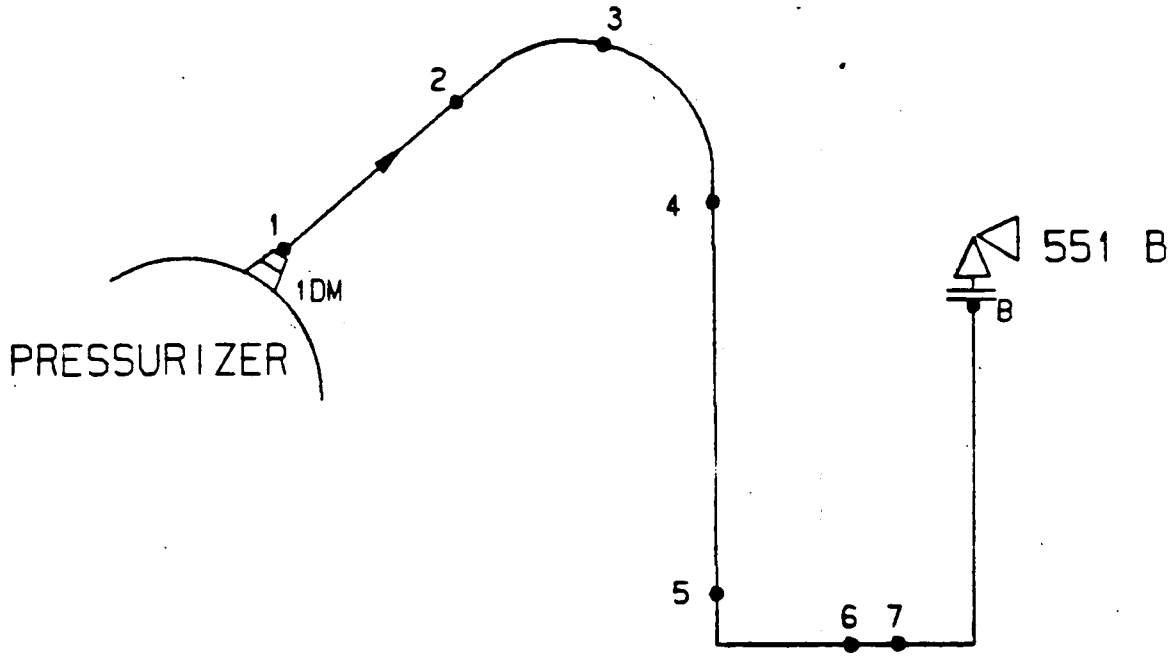
DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. V 551A

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88



CPL-118A REV 2

H.B. ROBINSON S.E. PLANT	C F & L
UNIT NO. 2	
DESCRIPTION 4" PRESSURIZER SAFETY LINE	
LINE NO. 4-RC-43 CPL- 118A REV. 2	

SKETCH CPL-118A

EXAMINATION SUMMARY
FOR

1989

176

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
2	1DM	X					X							TBA SEE TAB F
25	1DM	X					X							TBA SEE TAB F
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-118 A
SYST/COMP.: 4" PRESSURIZER SAFETY LINE		PROCEDURE: CPL-151-206, REV.0
EXAMINER (LEVEL II): Paul J. Kovallo-II Robert L. Cornett II		DATE: 12-3-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08018E	S/N			21135					21135					INITIAL TIME: 2233 12-2-88
	SIZE			.25"					.25"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	.5"	.250"	.562"	80%	2.1	.562"	.437"	.687"	
DAMPING: MIN	2T			55%	4.0	1.0"	.875"	1.125"	80%	4.2	1.125"	.812"	1.250"	
FILTER: OFF	3T			40%	6.0	1.437"	1.375"	1.625"						FINAL TIME: 0005 12-3-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC-McD														CAL. BLOCK: CPL-24
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			37dB					44dB					THICKNESS: .530"
														TEMP.: 68°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1 DM	-6°F	NO	YES	YES	YES	NO	SEE ATTACHED LIMITATION TO EXAMINATION SHEET.	FLUSH	X			

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
Dr Black 12/5/88

177

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-118 A
SYST/COMP.: 4" PRESSURIZER SAFETY LINE		PROCEDURE: CPL-151-206, REV. 0
EXAMINER (LEVEL II): Paul J. Kovallo-II, Robert L. Cannt I		DATE: 12-3-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08078E	S/N			21137					21137					INITIAL TIME: 2245 12-2-88
	SIZE			.25"					.25"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	.640"	.484"	.765"	80%	2.1	.875"	.750"	1.250"	
DAMPING: MIN	2T			30%	4.0	1.209"	1.125"	1.546"	80%	4.2	1.375"	1.250"	2.0"	
FILTER: OFF	3T			15%	6.0	1.812"	1.656"	2.062"						FINAL TIME: 0010 12-3-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC-MCD														CAL. BLOCK: CPL-24
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			45 dB					55 dB					THICKNESS: .530"
														TEMP.: 68°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1DM	-6°F	NO	YES	YES	YES	NO	SEE ATTACHED LIMITATION TO EXAMINATION SHEET.	FLUSH	X			

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/5/88
J. Black 12/5/88

178

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

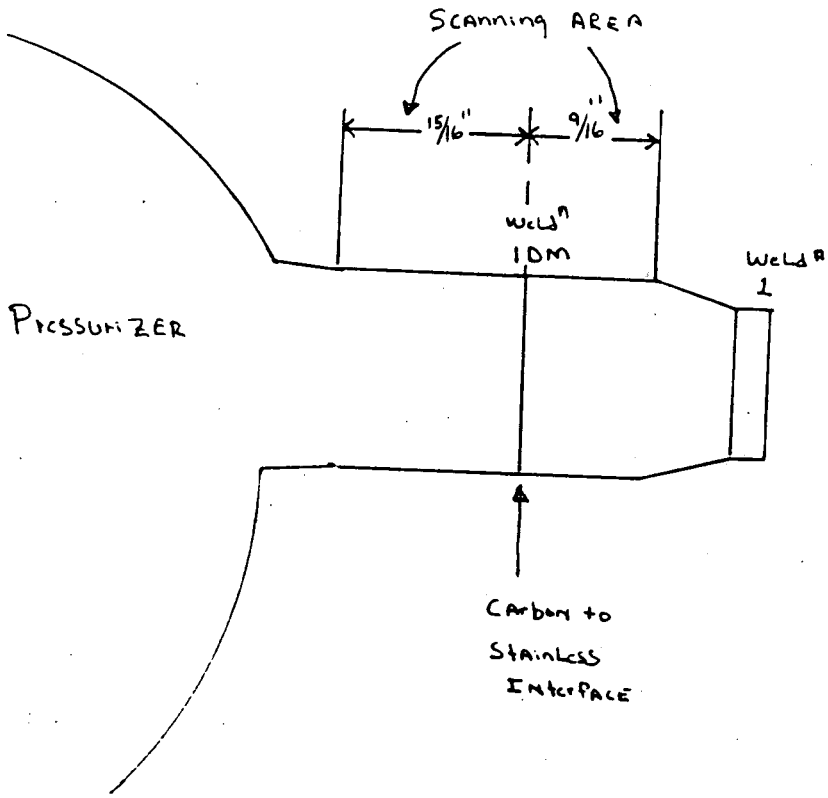
PLANT H.B. Robinson UNIT 2 SKETCH CPL-118A

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-ISI-206, Rev. 0

EXAMINER Paul J. Kovalle II (LEVEL II) DATE 12-3-88

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): 1 DM

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
Lu Black 12/5/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL - 118A

SYST/COMP. 4" PRESSURIZER SAFETY LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Donald A. Boykin II / Ralph Churchfield I LEVEL II DATE 12-1-88

P/T		BATCH NOS.	M/T	
CLEANER	MAGNAFLUX	88G017	EQUIPMENT	
PENETRANT	MAGNAFLUX	85L045		
DEVELOPER	MAGNAFLUX	88B019	EXAM. MEDIUM	
REMOVER	MAGNAFLUX	88G017	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
1 DM			X	See Attached Surface Ind. Data Sheet. Temp. 66°F

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-118A

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Donald A. Bolyn II / Ralph Churchfield I (LEVEL II) DATE 12-1-88

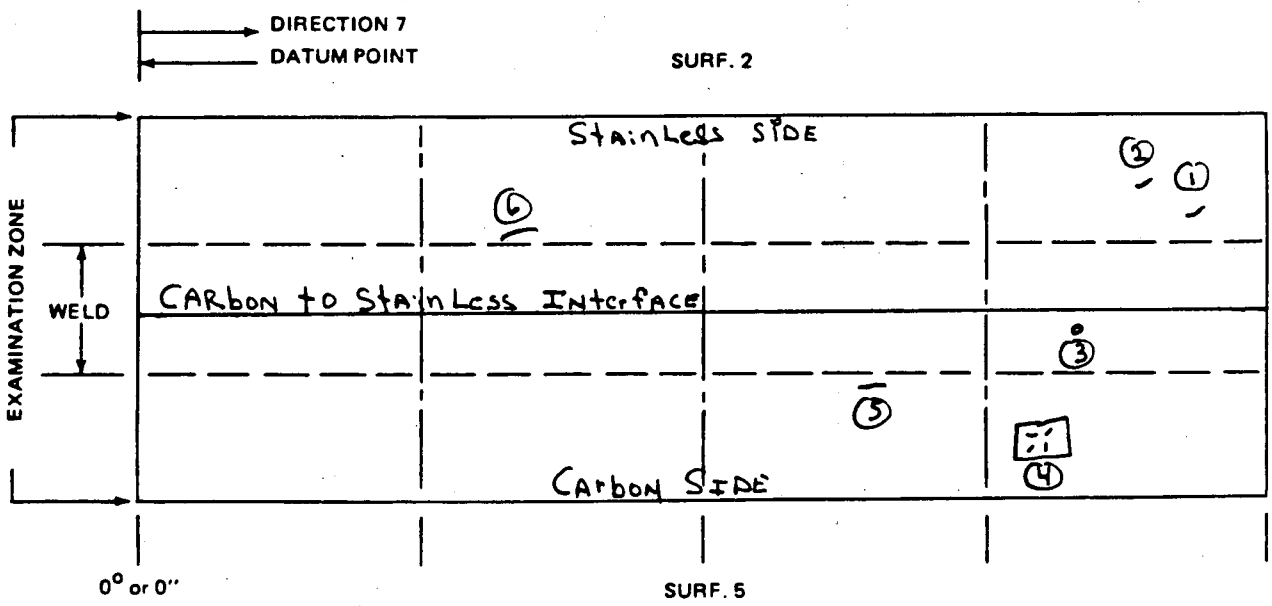
PT X MT WELD NO. 1 DM

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS (1) 3/32" Linear, 13/32" From Interface, Located at 1" CCW From 0" Datum Point

(2) 1/16" Linear and 1/32" Rounded, 15/32" From Interface, Located 1 1/4" CCW From 0" Datum Point.

(3) 1/16" Rounded, 1/8" From Interface, Located 2 3/4" CCW From 0" Datum Point.



(4) 3/8" by 5/8 Square Area with 3: 1/16" Linear's and 1: 3/32 Linear, 2 1/32" From Interface, Located at 3" CCW From 0" Datum Point.

(5) 3/32" Linear, 3/16 From Interface, Located 5 1/2" CCW From 0" Datum Point.

(6) 1/16" Linear, 3/8" From Interface, Located 6 1/4" CW From 0" Datum Point.

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/5/88

PORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-118A

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-TBA-100, Rev.0

EXAMINER Nmel A. Bolyn II / Ralph Eberhardt II (LEVEL II) DATE 12-2-88

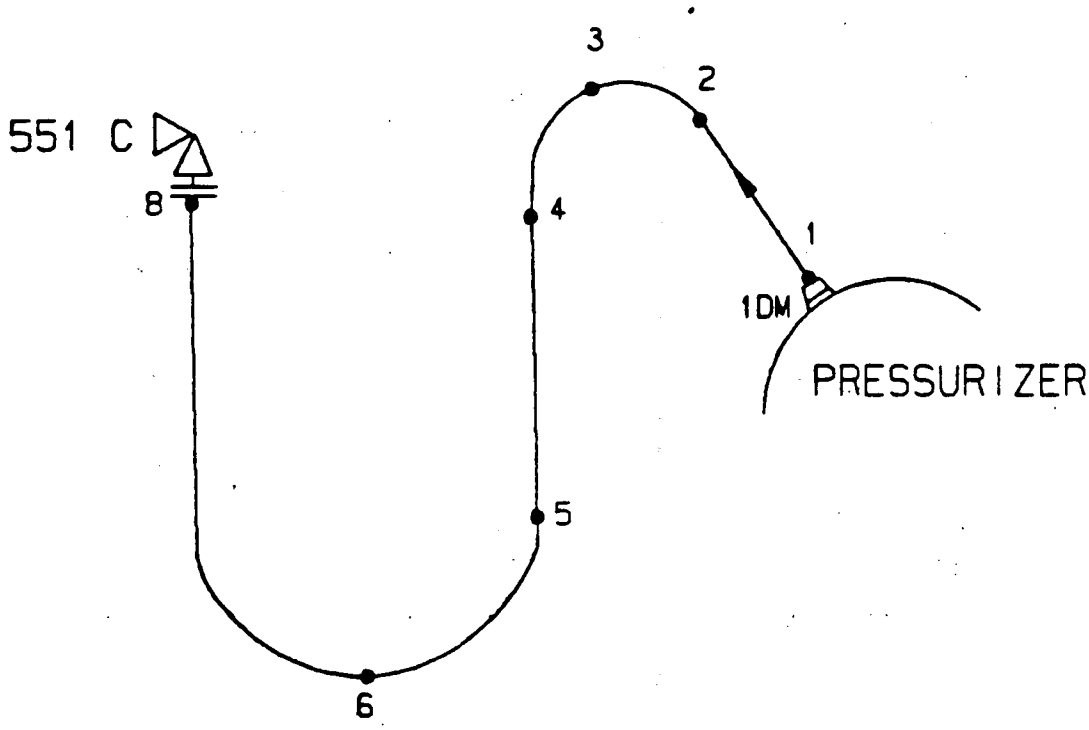
EXAMINER _____ (LEVEL II) DATE _____

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	Sonic	KBA	KBA	N/A	# 800886
S/N	08079E	D10578	031238	N/A	N/A
SIZE	N/A	0.50"	0.375"	N/A	N/A
FREQ.	N/A	5.0MHZ	2.25 MHZ	N/A	N/A
ANGLE	N/A	0°	45°	45° Wedge	N/A
COUPLANT: Sonotrace 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM	SURFACE 2°	SURFACE 5°	DIR 5° LOCATION	CALCULATED THICKNESS	DIR 5° LOCATION	CALCULATED THICKNESS	DIR. 0	CALCULATED ANGLE	REMARKS
1DM	X	X	0"	0.62"	8"	0.78"	N/A	N/A	Weld was Scanned Across the the Avaible Scanning AREA ON Both
									2 + 5 SIDE. Unable to do Angle Beam Verification
									Due to Limited Scanning AREA
									ANII REVIEW ANII DATE 12-6-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 12/5/88
E M Black 12/3/88



CPL-118B REV 2

H.B. ROBINSON S.E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION 4"PRESSURIZER SAFETY LINE		
LINE NO. 4-RC-45	CPL-118B REV. 2	

SKETCH CPL-118B

EXAMINATION SUMMARY
FOR

1989

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
2	1DM	X					X							TBA SEE TAB F
26	8	X					X							TBA SEE TAB F
27	1DM	X					X							TBA SEE TAB F
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-118 B
SYST/COMP.: 4" PRESSURIZER SAFETY LINE		PROCEDURE: CPL-1S1-206, REV.0
EXAMINER (LEVEL II): Paul J. Kovalle-II, Robert L. Cassat, I		DATE: 12-3-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08018E	S/N			21135					21135					INITIAL TIME: 2233 12-2-88
	SIZE			.25"					.25"					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	.5"	.250"	.562"	80%	2.1	.562"	.437"	.687"	
DAMPING: MIN	2T			55%	4.0	1.0"	.875"	1.125"	80%	4.2	1.125"	.812"	1.250"	
FILTER: OFF	3T			40%	6.0	1.437"	1.375"	1.625"						FINAL TIME: 0005 12-3-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC-MCO														CAL. BLOCK: CPL-24
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			37dB					44dB					THICKNESS: .530"
														TEMP.: 68°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1DM	-6°F	NO	YES	YES	YES	NO	SEE ATTACHED LIMITATION TO EXAMINATION SHEET.	FLUSH	X			
8	-6°F	NO	NO	YES	YES	NO	FLANGE 2 SIDE, WELD CROWN 7 & 8 SCAN.	AS WELDED	X			SEE ATTACHED LIMITATION TO EXAMINATION SHEET

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/5/88
[signature] 12-3-88

185

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-118 B
SYST/COMP.: 4" PRESSURIZER SAFETY LINE		PROCEDURE: CPL-151-206, REV.0
EXAMINER (LEVEL II): Paul J. Kovallo-II, Robert L. Cassat I		DATE: 12-3-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08078E	S/N			21137					21137					INITIAL TIME
	SIZE			.25"					.25"					2245 12-2-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	.640"	.484"	.765"	80%	2.1	.875"	.750"	1.250"	
DAMPING: MIN	2T			30%	4.0	1.203"	1.125"	1.546"	80%	4.2	1.375"	1.250"	2.0"	
FILTER: OFF	3T			15%	6.0	1.812"	1.656"	2.062"						FINAL TIME
LIN. CHECK: SAT														0010 12-3-88
SU CABLE: 12' BNC-MCD														CAL. BLOCK: CPL-24
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			45dB					55dB					THICKNESS .530"
														TEMP. 68°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1 DM	-6°F	NO	YES	YES	YES	NO	SEE ATTACHED LIMITATION TO EXAMINATION SHEET	FLUSH	X			
8	-6°F	NO	NO	YES	YES	NO	FLANGE 2 SIDE, WELD CROWN 7+8 SCAN.	AS WELDED	X			SEE ATTACHED LIMITATION TO EXAMINATION SHEET.

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard A. Weber 12/5/88
[signature] 12-3-88

189

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

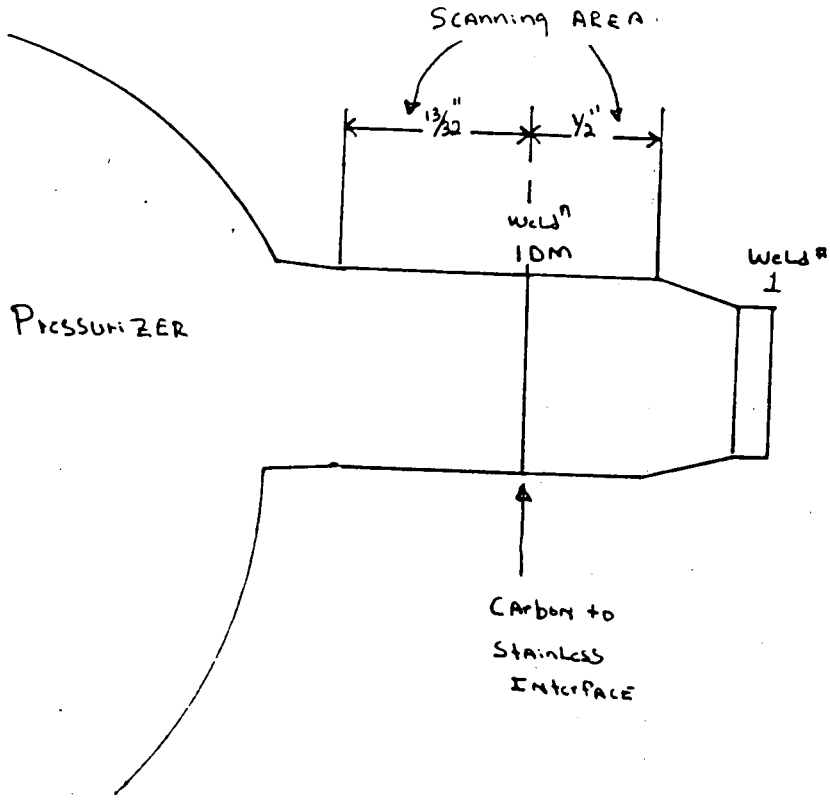
PLANT H.B Robinson UNIT 2 SKETCH CPL- 118B

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-ISI-206, Rev. 0

EXAMINER Paul J. Kovalle-II LEVEL II DATE 12-3-88

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): 1 DM

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
12/3/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

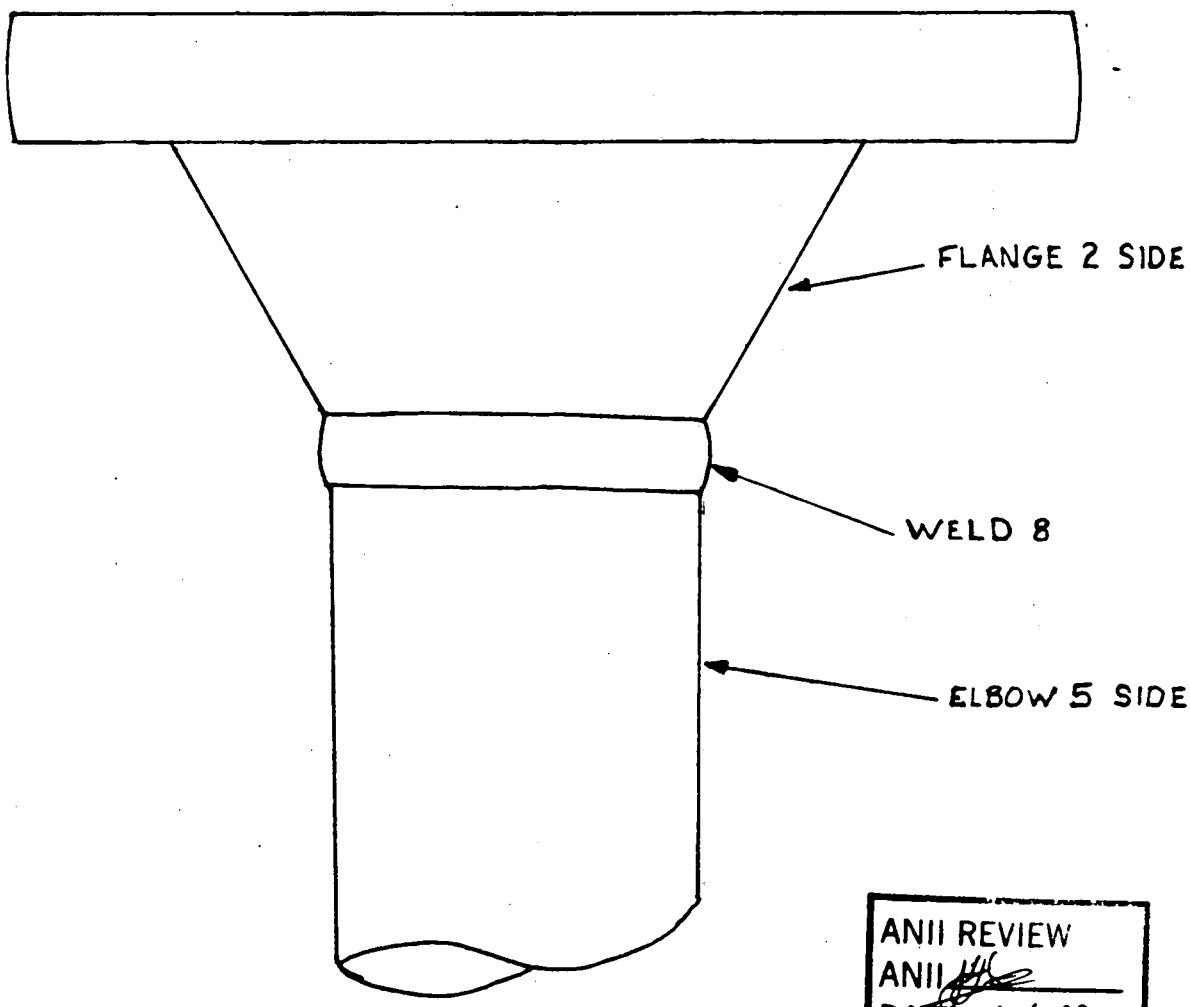
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-118 B

SYST/COMP 4" PRESSURIZER SAFETY LINE PROCEDURE CPL-ISI-206 REV. 0

EXAMINER Paul J. Kovalle-II LEVEL II DATE 12-3-88

RELATED TO: U/T ✓ P/T ____ M/T ____ V/T ____ ITEM(S): WELD # 8

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-118B

SYST/COMP. 4" PRESSURIZER SAFETY LINE PROCEDURE CPL ISI-11 REV.0

EXAMINER Arnold A. Bolfin II / Ralph Churchfield I LEVEL II DATE 12-1-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
8			X	See Attached Surface Ind. Data Sheet Temp. 66°F
1DM			X	See Attached Surface Ind. Data Sheet Temp. 66°F

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
J. Blank 12/3/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-118B

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Mark A. Bolin II / Ralph Churchfield LEVEL II DATE 12-1-88

PT X MT WELD NO. 8

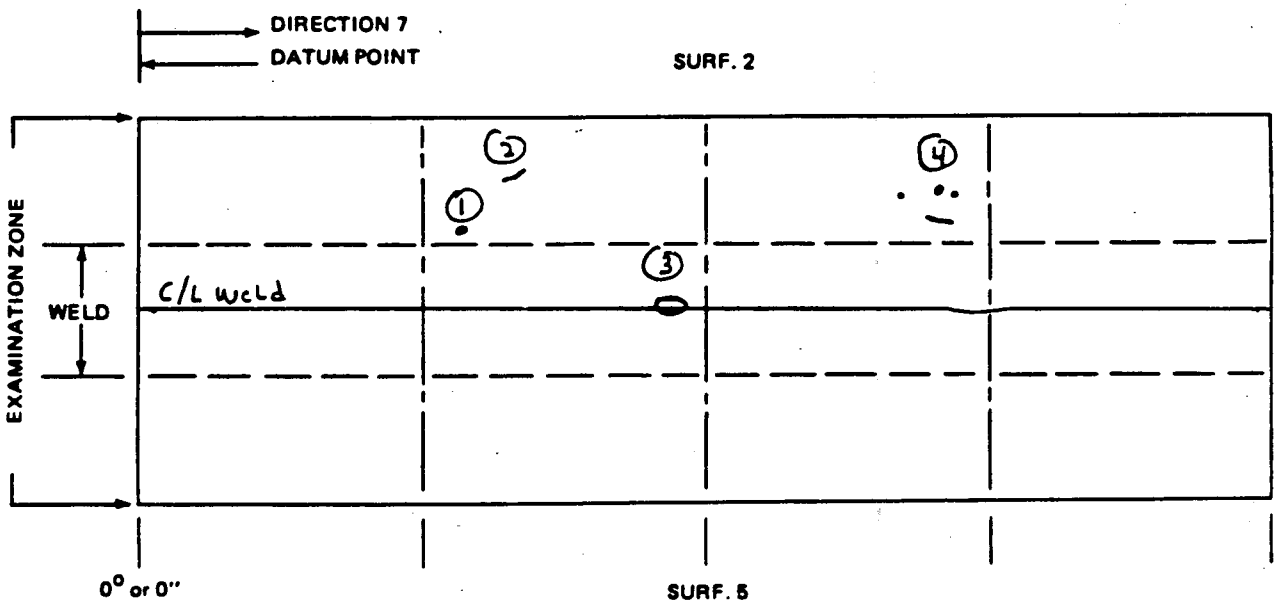
VISUAL AIDS Flashlight, Mirror

REMARKS (1) 1/16" Rounded, 1/2" From C/L weld, Located at 4 1/2" CW From 0" Datum Point

(2) 1/16" Linear, 7/16" From C/L weld, Located at 4 3/4" CW From 0" Datum Point

(3) 3/8" Rounded, At C/L weld, Located at 7" CW From 0" Datum Point

(4) 5/64" Linear with 2: 1/32" Rounded and 1/64" Round Ind. Within 1/2" From 5/64" Linear Ind., 1/2" From C/L weld, Located at 11 1/2" CW From 0" Datum Point.



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
L M Black 12/3/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-11BB

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Mark A. Bolyn II / Ralph Churchfield I (LEVEL II) DATE 12-1-88

PT X MT WELD NO. 1DM

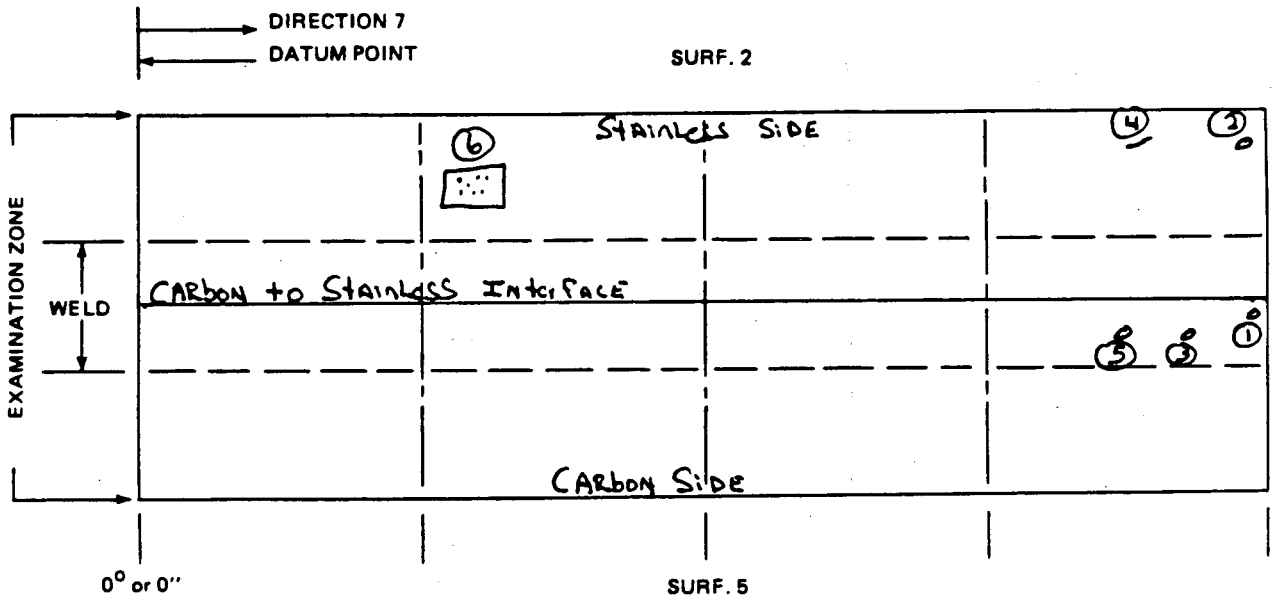
VISUAL AIDS Flashlight, Mirror

REMARKS (1) 1/16" Rounded, 1/4 From Interface, Located at 7/8" CCW From 0" Datum Point.

(2) 1/16" Rounded, 3/4" From Interface, Located at 7/8" CCW From 0" Datum Point

(3) 3/32" Rounded, 3/16" From Interface, Located at 1" CCW From 0" Datum Point

(4) 1/16" Linear, 3/4" From Interface, Located at 1 1/4" CCW From 0" Datum Point



(5) 1/8" Rounded, 5/32" From Interface, Located At 1 3/8" CCW From 0" Datum Point.

(6) 1/4" by 1/4" Square Area with Seven Rounded Ind. Less than 1/8" Separated by Less than 1/16", 1" From Interface, Located at 4 1/2" CW From 0" Datum Point.

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
Ch Beck 12/3/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-118B

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-TBA-100, Rev. 0

EXAMINER Arnold A. Bolyn II / Ralph Blandford I DATE 12-2-88
LEVEL II

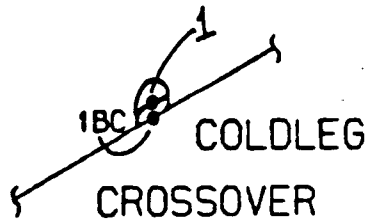
EXAMINER _____ DATE _____
LEVEL II

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	Sonic	KBA	KBA	N/A	# 800986
S/N	08079E	D10578	031238	N/A	N/A
SIZE	N/A	0.50"	0.375"	N/A	N/A
FREQ.	N/A	5.0 MHZ	2.25 MHZ	N/A	N/A
ANGLE	N/A	0°	45°	45° Wedge	N/A
COUPLANT: Sonotrace 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD IDENT.	SURFACE 2°	SURFACE 5°	DIR. T° LOCATION	CALCULATED THICKNESS	DIR. T° LOCATION	CALCULATED THICKNESS	DIR. A	CALCULATED ANGLE	REMARKS
1DM	X	X	0"	0.63"	4 3/4"	0.71"	N/A	N/A	Weld was Scanned Across the Avaible Scanning Area on Both 2 + 5 Side
									Unable to do Angle Beam Verification, Due to
									Limited Scanning Area.
8	N/A	X	13"	0.60	7	0.78"	31/32"	39°	Angle Verification taken on thin Part of Elbow.
									Weld # 8 is A Elbow to Flange Weld
									ANII REVIEW ANII [signature] DATE 12-6-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 12/5/88
[signature] 12/3/88



CPL-120 REV 3 MOD-959

H.B. ROBINSON S.E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION LOOP B-3" RTD RETURN LINE	
LINE NO. 3-RC-77 CPL-120 REV. 3	

SKETCH CPL-120

EXAMINATION SUMMARY
FOR

1989

194

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
28	1BC				X									TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-120

SYST/COMP. LOOP B 3" RTD RETURN LINE PROCEDURE CPL IST-11 REV. 0

EXAMINER Gary M. Ackerman II Paul J. Knolls II (LEVEL II) DATE 12-9-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
1BC	X			TEMP. 60°F

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
Jim Black 12/9/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-120

SYST/COMP LOOP "B" 3" RTD RETURN LINE PROCEDURE CPL TRA-100 REV.0

EXAMINER Arnold A. Bolyni II / Ralph Churchfield I DATE 11-17-88
LEVEL II

EXAMINER Paul J. Amarillo II / Robert L. Cassat I DATE 11-17-88
LEVEL II

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR .	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	# 800886
S/N	08078E/08079E	G20209	62408	62410	N/A
SIZE	N/A	0.5"	0.25"	0.25"	N/A
FREQ.	N/A	5 MHZ	2.25 MHZ	2.25 MHZ	N/A
ANGLE	N/A	0°	45°	45°	N/A
COUPLANT: SONOTRACE 40 BATCH #8767					

			MINIMUM		MAXIMUM		ANGLE		
WELD LINE#	SURFACE 2°	SURFACE 5°	DIR 7° LOCATION	CALCULATED THICKNESS	DIR 7° LOCATION	CALCULATED THICKNESS	DIR. B	CALCULATED ANGLE	REMARKS
1 (BC)	X	N/A	15"	2.78"	0"	2.82"	4.5"	39°	DATA TAKEN ON R.C. PIPE

ANII REVIEW
ANII
DATE 11-22-88

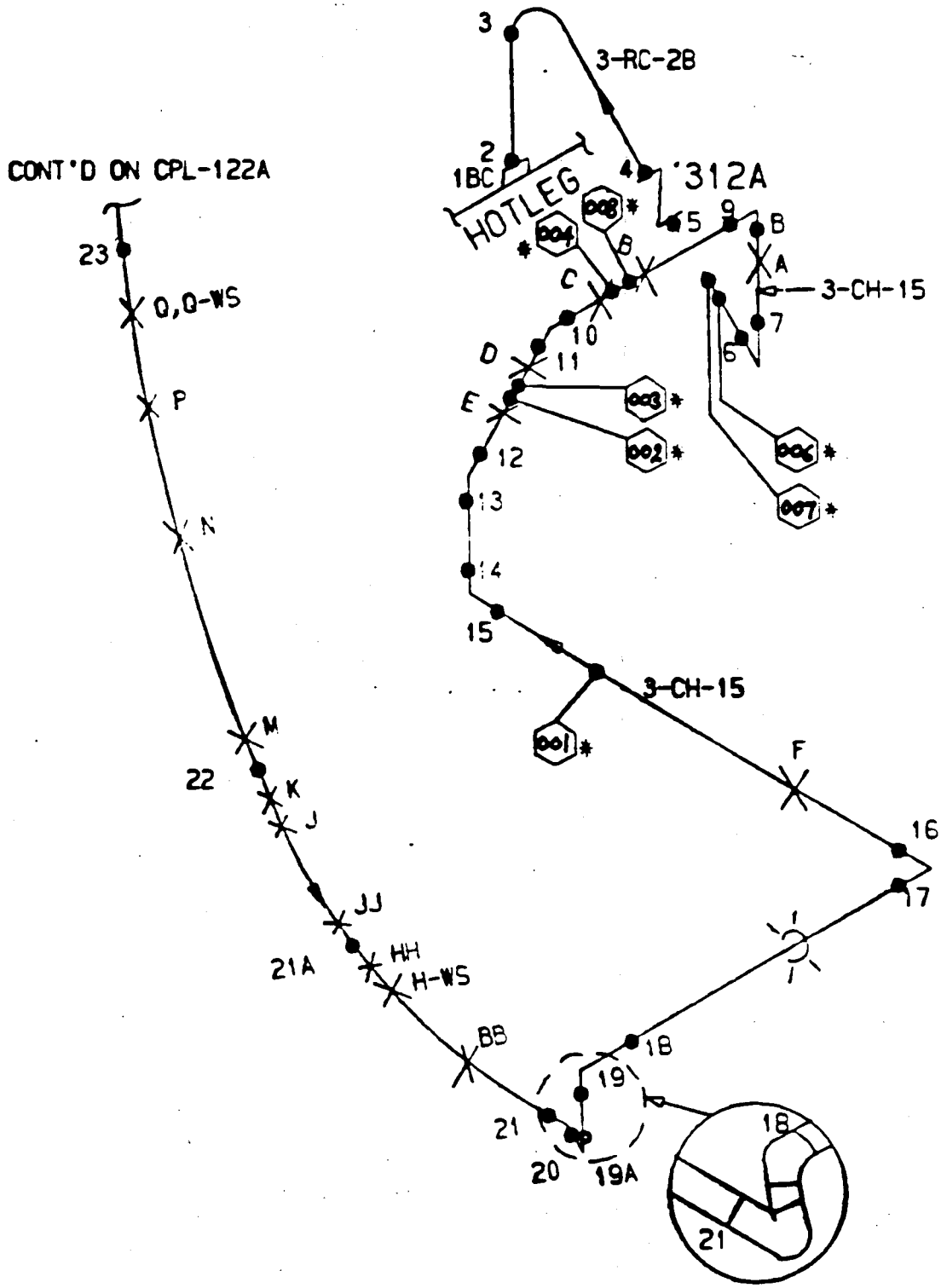
Richard B. Weber 11/20/88
J.W. Black 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

SPRING HANGERS
0
WELDED SUPPORT
Q-WS
H-WS

197

* MOD.713
DWG. FSM-713-34B REV.4



CPL-122 REV 3

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION LP.A 3" ALT. CHARGING LINE	
LINE NO. 3-CH-15	CPL- 122 REV. 3

WESTINGHOUSE FORM 46762

SKETCH CPL-122

EXAMINATION SUMMARY
FOR

1989

198

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
29	002				X									
29	003				X									
29	16				X									
29	17				X									
30	R									X				SEE TAB F
30	JJ							X						
30	HH							X						
30	Q-WS									X				SEE TAB F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-122

SYST/COMP. LOOP "A" 3" ALT. CHARGING LINE PROCEDURE CPL-ISI-11 REV.0

EXAMINER Robert S Cassatt II LEVEL II DATE 11-27-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
002	X			TEMP. FOR ALL WELDS 64°F
003	X			
16	X			
17	X			

ANII REVIEW
ANII [signature]
DATE 11-29-88

Richard B. Weber 11/27/88
[signature] 11/28/88

FORM 45935C

200

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-122

SYST/COMP LOOP A 3" ALT CHARGING LINE PROCEDURE CPL-IST-8 REV.0

EXAMINER [illegible] LEVEL II DATE 11-27-88

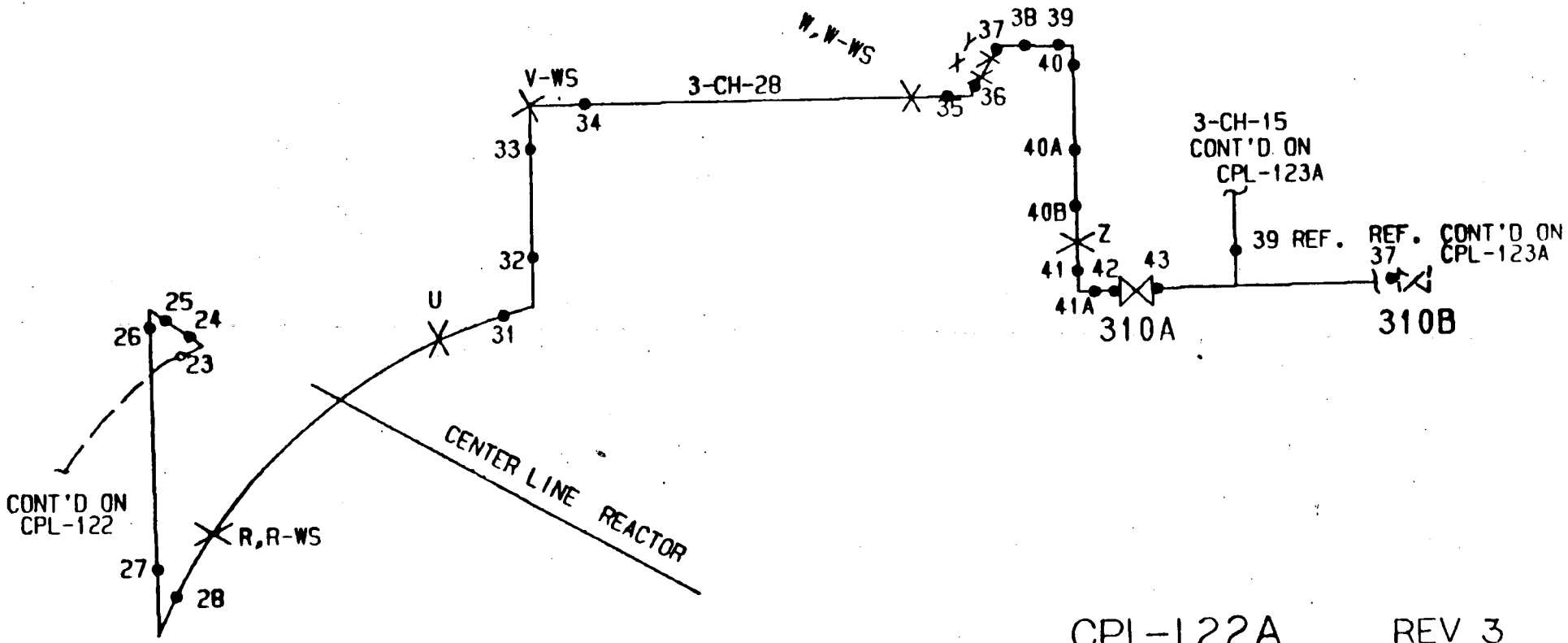
IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
H H	X			FLASHLIGHT	VT-3
J J	X			FLASHLIGHT	VT-3
Q			X	FLASHLIGHT	DUAL SPRING CAN. ONE CAN OFF SCALE HIGH END, OTHER CAN NO SCALE VT-3
R			X	FLASHLIGHT	NOT THERE VT-3

ANII REVIEW
ANII [illegible]
DATE 11-30-88

Richard B. Weber 11/29/88
Jim Black 11/29/88

FORM 45934B

SPRING HANGERS
X,Y
WELDED SUPPORTS
W-WS
R-WS
V-WS



CPL-122A REV 3

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LP.A 3" ALT. CHARGING LINE	
LINE NO. 3-CH-28	CPL-122A REV. 3

201

WESTINGHOUSE FORM 46762

SKETCH CPL-122A

EXAMINATION SUMMARY
FOR

1989

202

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
31	33				X									
31	34				X									
32	R-WS						X							SEE TAB F
65	V310A (6)							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-122A

SYST/COMP. LP.A 3" ALT CHARGING LINE PROCEDURE CPL IST-11 REV.0

EXAMINER Harry M. Ackerman II LEVEL II DATE 11-20-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
33	X			TEMP-68°F
34	X			TEMP-68°F

ANII REVIEW
ANII
DATE 11-25-88

Richard B. Weber 11/22/88
John Blank 11/23/88

FORM 45935C

204

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-122A

SYST/COMP. LP. A 3" ALT. CHARGING LINE PROCEDURE CPL ISI 11 REV. 0

EXAMINER Gerry A Morini II LEVEL II DATE 12-17-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
R-WS			X	SEE SURFACE INDICATION DATA SHEET, ATTACHED.
				TEMP. 62°F

ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88
Jim Blevins 12-19-88

FORM 46935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

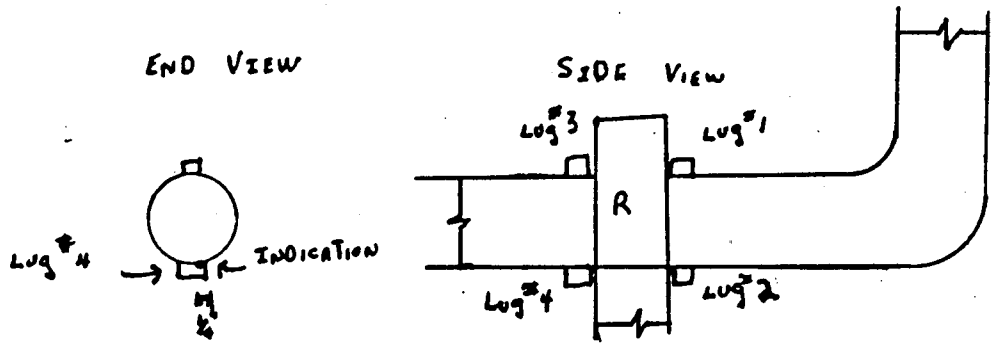
SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-122A

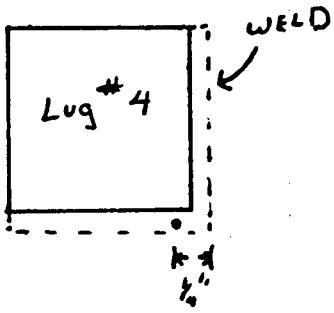
SYST/COMP LP A 3" ALT. CHARGING LINE PROCEDURE CPL 151 11 REV.0

EXAMINER Gary A Morini II LEVEL II DATE 12-17-88

PT X MT WELD NO. R-WS



INDICATION: 3/16" ROUNDED 1/4" FROM EDGE OF Lug # 4



ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88
12/19/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-122A

SYST/COMP LOOP "A" 3" ALT. CHARGING LINE PROCEDURE CPL-TST-8 REV. 0

EXAMINER George A Moore II (LEVEL II) DATE 11-19-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
V 310 A	X			FLASHLIGHT	VT-1 EXAMINED IN PLACE 6 STUDS + NUTS

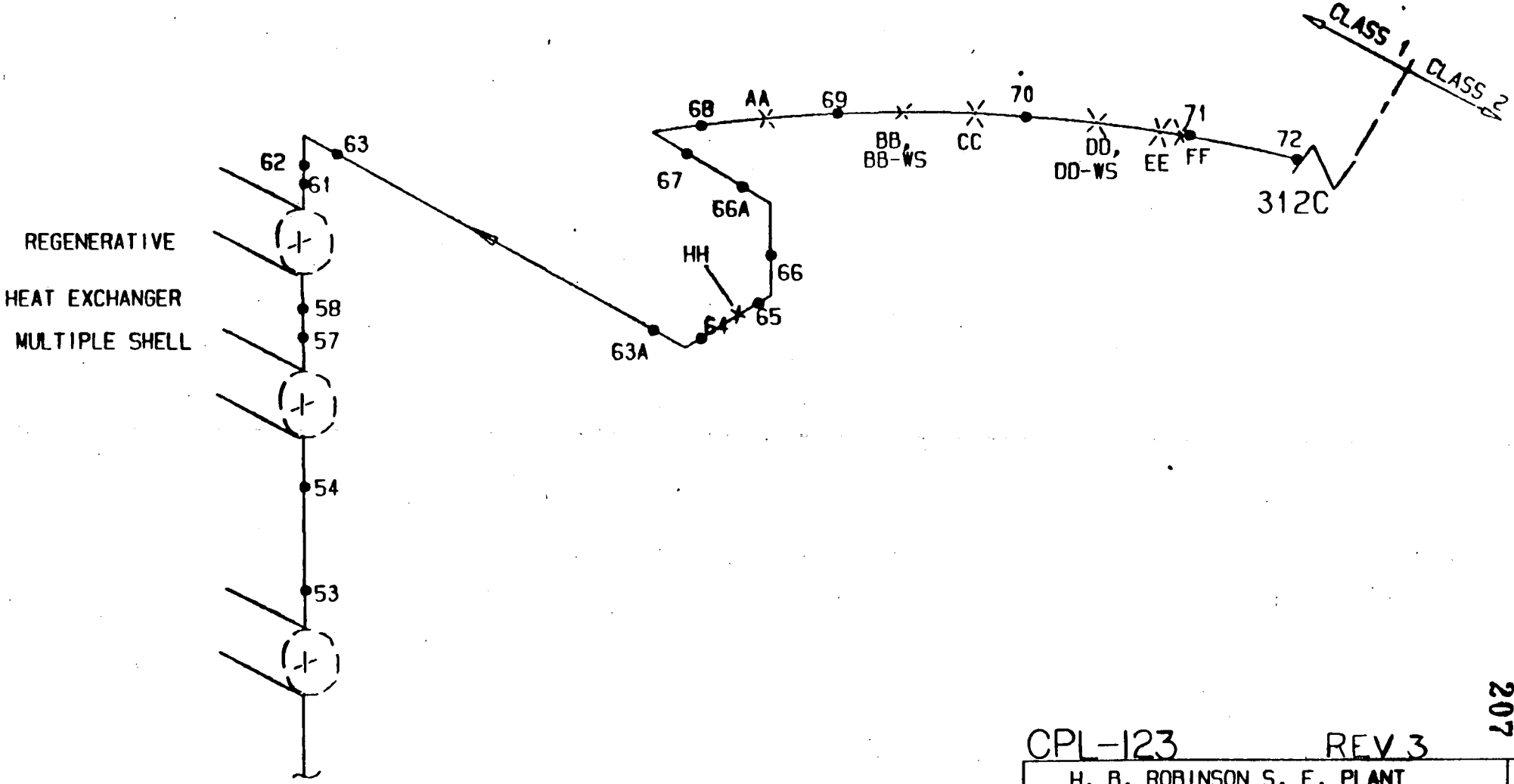
ANII REVIEW
ANII
DATE 11-25-88

Richard B. Weber 11/22/88
J. Black 11/23/88

FORM 45934B

WELDED SUPPORTS

AA-WS
BB-WS
DD-WS



CPL-123 REV 3

H. B. ROBINSON S. E. PLANT	
UNIT NO. 2	
DESCRIPTION: LOOP B 3" CHGTNG LINE (1 OF 3)	CP&L

207

SKETCH CPL-123 208

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
33	FF									X				SEE TAB F
34	63A				X									
34	64						X							SEE TAB F
66	V312C (12)							X						

WESTINGHOUSE FORM -3762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-123

SYST/COMP. LOOP B 3" CHGING. LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Gary A Morini II (LEVEL II) DATE 12-11-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
63A	X			TEMP. 68°F
64			X	TEMP. 68°F - SEE ATTACHED SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII [signature]
DATE 12-12-88

Richard B. Weber 12/11/88
[signature] 12/11/88

FORM 45935C

210

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-123

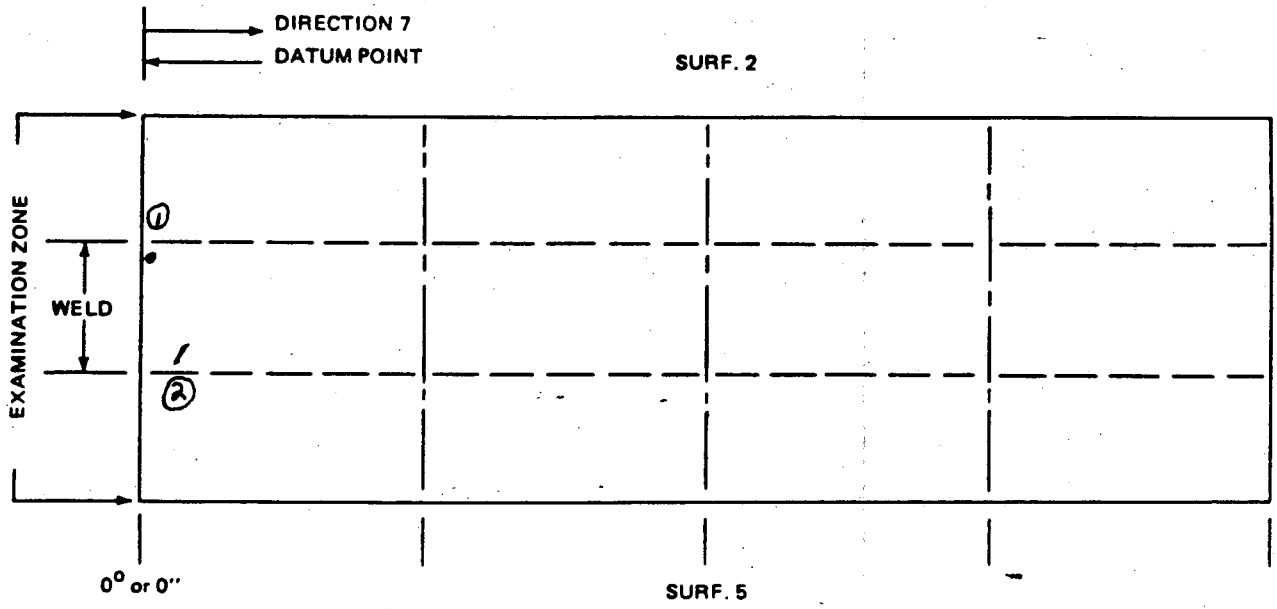
SYST/COMP LOOP B 3" CHGING. LINE PROCEDURE CPL-ISI-11 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 12-11-88

PT X MT WELD NO. 64

VISUAL AIDS FLASHLIGHT

REMARKS ① (NRI) 3/32" ROUNDED, 1/8" FROM 0°, 3/16" FROM WELD ℄
② (RI) 1/8" LINEAR, 3/8" FROM 0°, 1/4" FROM WELD ℄



ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
Jim Black 12/11/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-123

SYST/COMP LOOP B 3" CHGING LINE PROCEDURE CPL ISI-8 REV.0

EXAMINER Gary A. Moinwitt / Howard A. Bolgin II (LEVEL II) DATE 11-30-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
FF			X	FLASHLIGHT	SEE ATTACHED GENERAL INDICATION DATA SHEET VT-3
312C	X			FLASHLIGHT	12 STUDS + NUTS EXAMINED IN PLACE VT-1

ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
L. W. Black 12/3/88

FORM 45934B

212

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

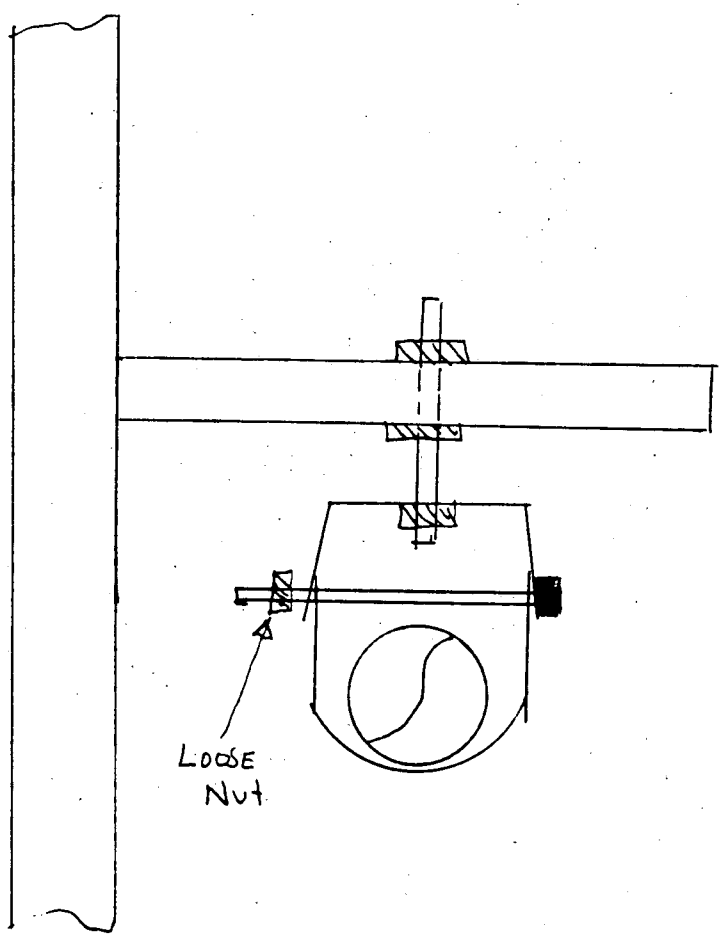
PLANT H.B. Robinson UNIT 2 SKETCH CPL-123

SYST/COMP Loop B 3" CHARGING Line PROCEDURE CPL-ISI-8, Rev.0

EXAMINER Arnold A. Bullin II Henry A. Morris II (LEVEL II) DATE 11-30-88

DETECTED BY U/T___ P/T___ M/T___ V/T X IDENT NO. Hanger FF

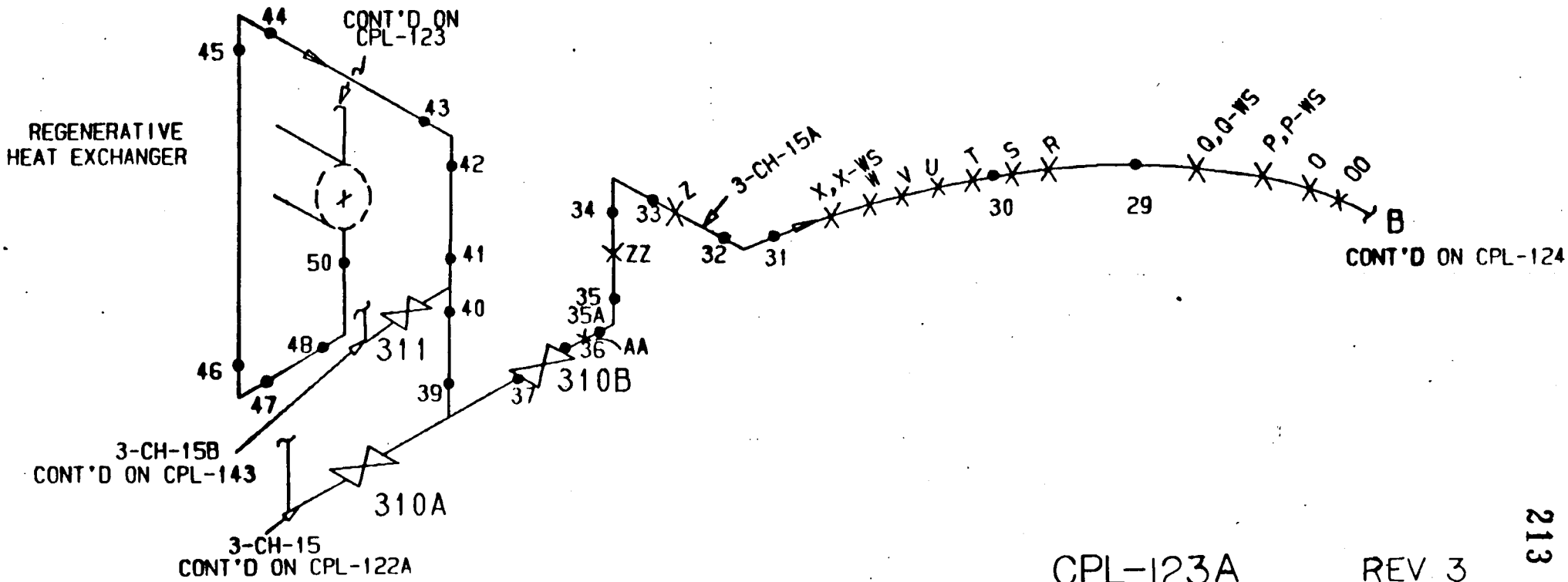
PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
[illegible] 12/3/88

SPRING HANGERS
Z
WELDED SUPPORT
Q-WS
X-WS
P-WS



CPL-123A REV 3

H. B. ROBINSON S. E. PLANT	
UNIT NO. 2	
DESCRIPTION:	LOOP B 3" CHGTNG LINE (2 OF 3)
LINE NO. 3-CH-15A	CPL-123A REV. 3

CP&L

213

WESTINGHOUSE FORM 46762

SKETCH CPL-123A

EXAMINATION SUMMARY
FOR

1989

214

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
35	35				X									
35	36				X									
36	AA							X						
36	ZZ							X						
36	00							X						
67	V310B (6)							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-123A

SYST/COMP. LOOP "B" 3" CHARGING LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Gary M. Gekeman II (LEVEL II) DATE 11-19-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
35	X			TEMP. 84°F

ANII REVIEW
ANII
DATE 11-25-88

Richard B. Weber 11/22/88
J.M. Black 11/23/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-123A

SYST/COMP. LOOP B 3" CHGING LINE PROCEDURE CPL ISI-11 REV.0

EXAMINER [signature] LEVEL II DATE 11-20-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
36	X			TEMP. - 70°F

ANII REVIEW
ANII [signature]
DATE 11-25-88

Richard B. Weber 11/22/88
[signature] 11/23/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL - 123 A

SYST/COMP LOOP B 3" CHGING LINE PROCEDURE CPL ISI-8 REV.0

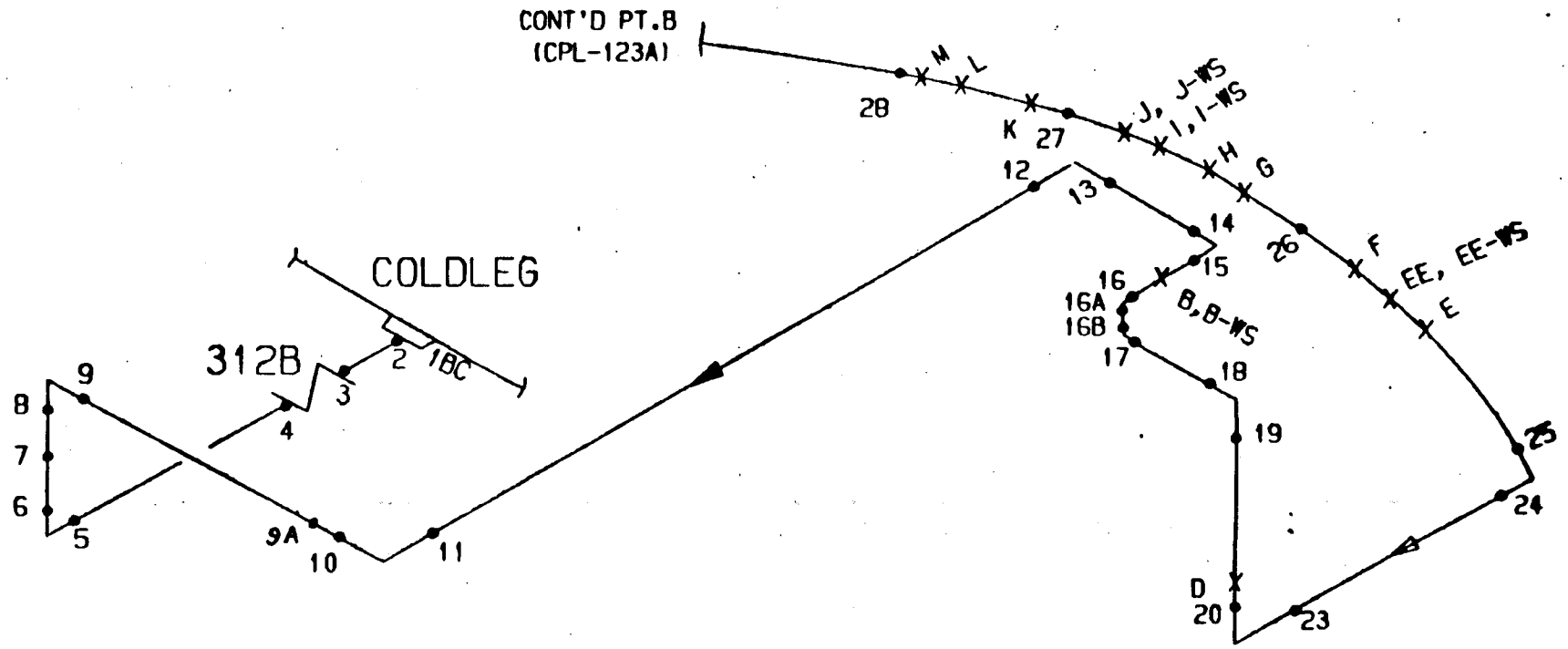
EXAMINER Gary A Morin II LEVEL II DATE 11-19-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
AA	X			FLASHLIGHT	VT-3
OO	X			FLASHLIGHT	VT-3
ZZ	X			FLASHLIGHT	VT-3
V 310B	X			FLASHLIGHT	VT-1 6 STUDS + NUTS EXAMINED IN PLACE

ANII REVIEW
ANII [signature]
DATE 11-23-88

Richard B Walker 11/22/88
[signature] 11/23/88

FORM 45934B



218

CPL-124 REV 3

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LOOP B 3" CHGING LINE (3 OF 3)	
LINE NO. 3-CH-15A CPL-124 REV 3	

SKETCH CPL-124

EXAMINATION SUMMARY
FOR

1989

219

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
37	8				X									
37	9				X									
37	10					X								
38	EE-WS				X									

WESTINGHOUSE FORM

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-124

SYST/COMP. LOOP B 3" CHGING LINE PROCEDURE CPL-ISI-11 REV.0

EXAMINER Harry M. Johnson II LEVEL II DATE 11-23-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
8	X			TEMP. ALL WELDS - 70°F.
9	X			
10		X		SEE ATTACHED SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/26/88
[illegible] 11/26/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

221

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-124

SYST/COMP LOOP B 3" CHGING LINE PROCEDURE CPL IST-11- REV.0

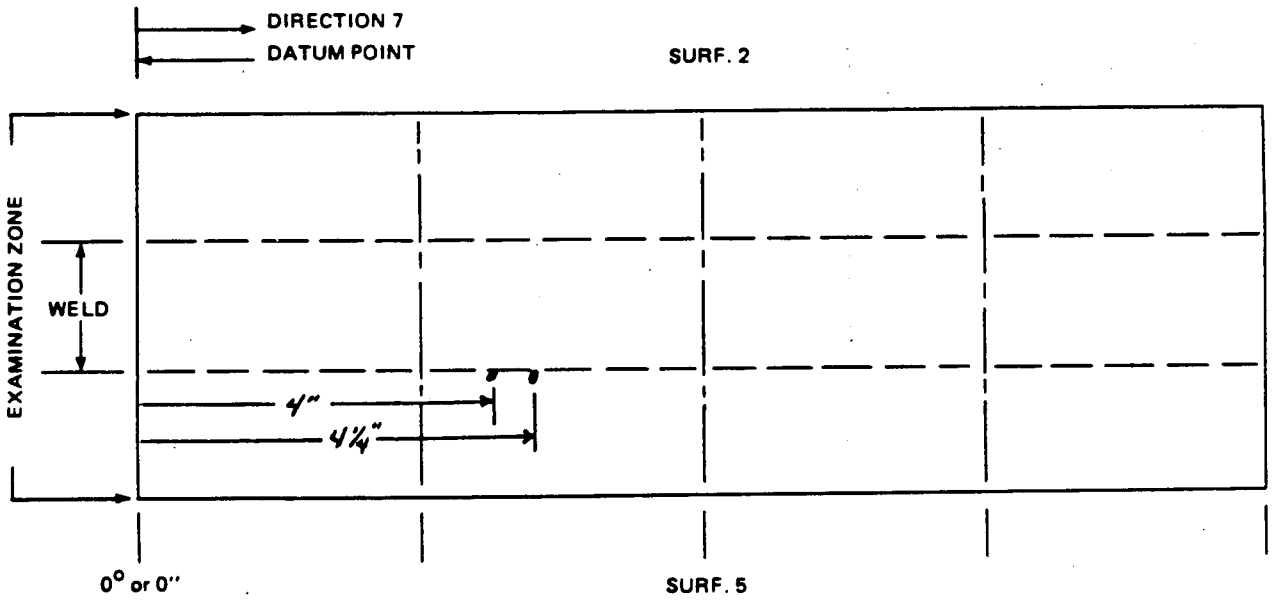
EXAMINER Harry M. Ackerman II LEVEL II DATE 11-23-88

PT ✓ MT WELD NO. 10

VISUAL AIDS FLASHLIGHT - MIRROR

REMARKS TWO ROUNDED INDICATIONS SEPERATED BY 1/4"

INDICATION #1 - 1/16" INDICATION #2 - 3/32"



ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/26/88
Chr Black 11/26/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-124

SYST/COMP. LOOP B 3" CHGING LINE PROCEDURE CPL-1S1-11, REV.0

EXAMINER Paul J. Kovallo II LEVEL II Gary M. Johnson II DATE 12-12-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

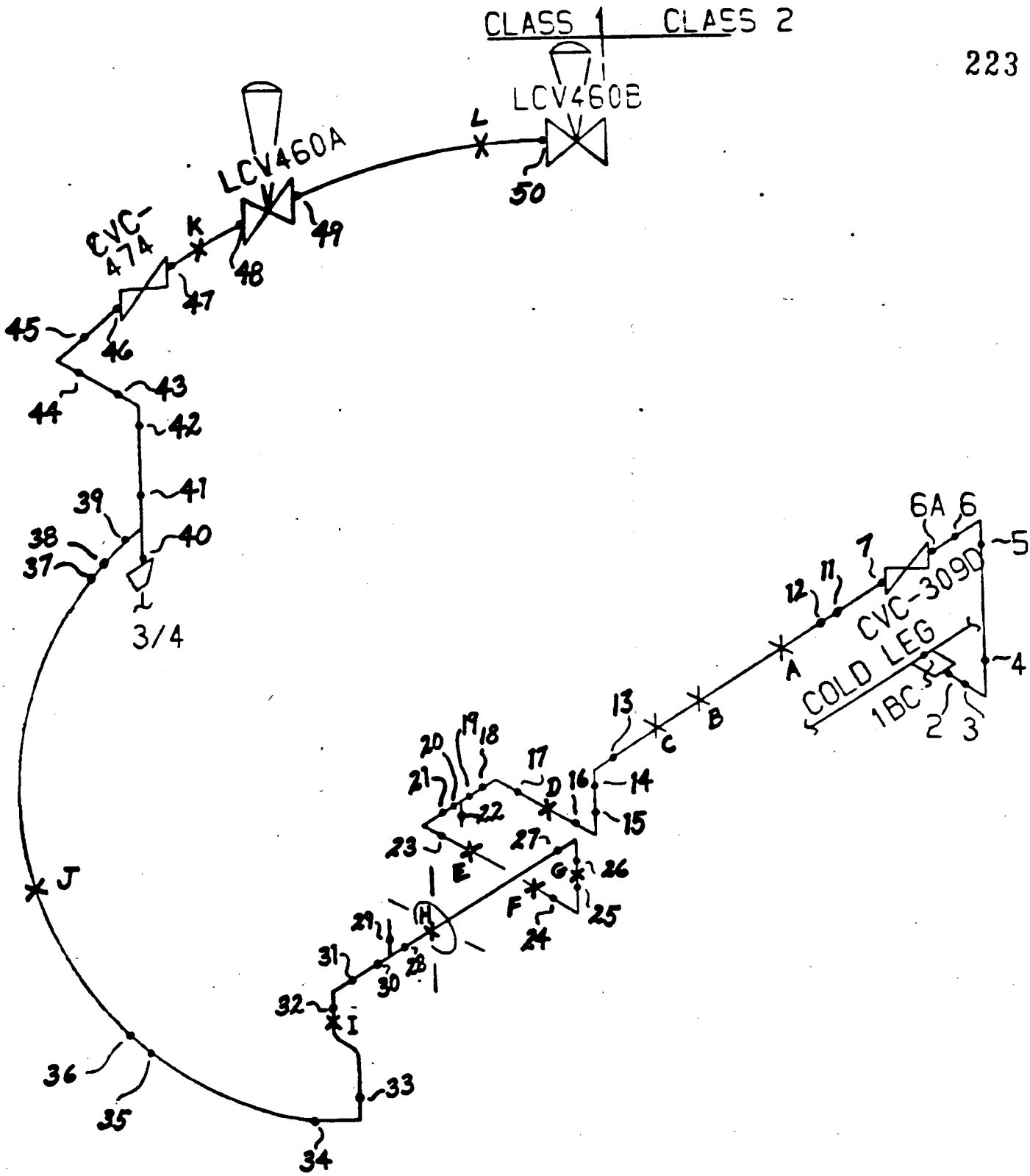
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
EE-WS	X			TEMP 64°F

ANII REVIEW
ANII
DATE 12-14-88

Richard B. Weber 12/13/88
J. Black 12/13/88

FORM 45935C



NOTES:

WELDS 8,9,&10 DELETED BY MOD-891

CPL-125 REV 3

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION: LOOP A 2" LETDOWN LINE	
LINE NO. 2-CH-17	CPL-125 REV 3

SKETCH CPL-125

EXAMINATION SUMMARY
FOR

1989

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
39	5				X									
39	37				X									
39	38				X									
39	39				X									
39	40				X									
39	41				X									
39	42				X									
39	43				X									
39	44				X									
39	45				X									
39	46				X									
39	47				X									
39	48						X							SEE TAB F
39	49				X									
39	50						X							SEE TAB F
40	B							X						
40	C							X						
40	D							X						
40	E							X						
68	V309D (2)							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B.ROBINSON UNIT 2 SKETCH CPL-125

SYST/COMP. LOOP A 2" LETDOWN LINE PROCEDURE CPL ISI-11 REV.0

EXAMINER Gary M. Jakeman II / Ralph Churchfield II (LEVEL II) DATE 11-27-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
5	X			TEMP - 62°F

ANII REVIEW
ANII
DATE 11-29-88

Richard B. Weber 11/27/88
J. M. Black 11/28/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-125

SYST/COMP. Loop A 2" Letdown Line PROCEDURE CPL-IST-11, Rev. 0

EXAMINER Arnold A. Griffin II, Joseph Morin II, Robert L. Cantu II (LEVEL II) DATE 12-10-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	BBG017
PENETRANT	MAGNAFLUX	BSL045
DEVELOPER	MAGNAFLUX	BBB019
REMOVER	MAGNAFLUX	BBG017

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
37	X			*
38	X			*
39	X			*
40	X			*
41	X			*
42	X			*
43	X			*
44	X			*
45	X			*
46	X			*
47	X			*
48			X	*, See Attached Surface Ind. Data Sheet
49	X			*
50			X	*, See Attached Surface Ind. Data Sheet
				* Temp. for ALL of the above welds was 62° F

ANII REVIEW
ANII [illegible]
DATE 12-12-88

Richard B. Weber 12/11/88
[illegible] 12/12/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-125

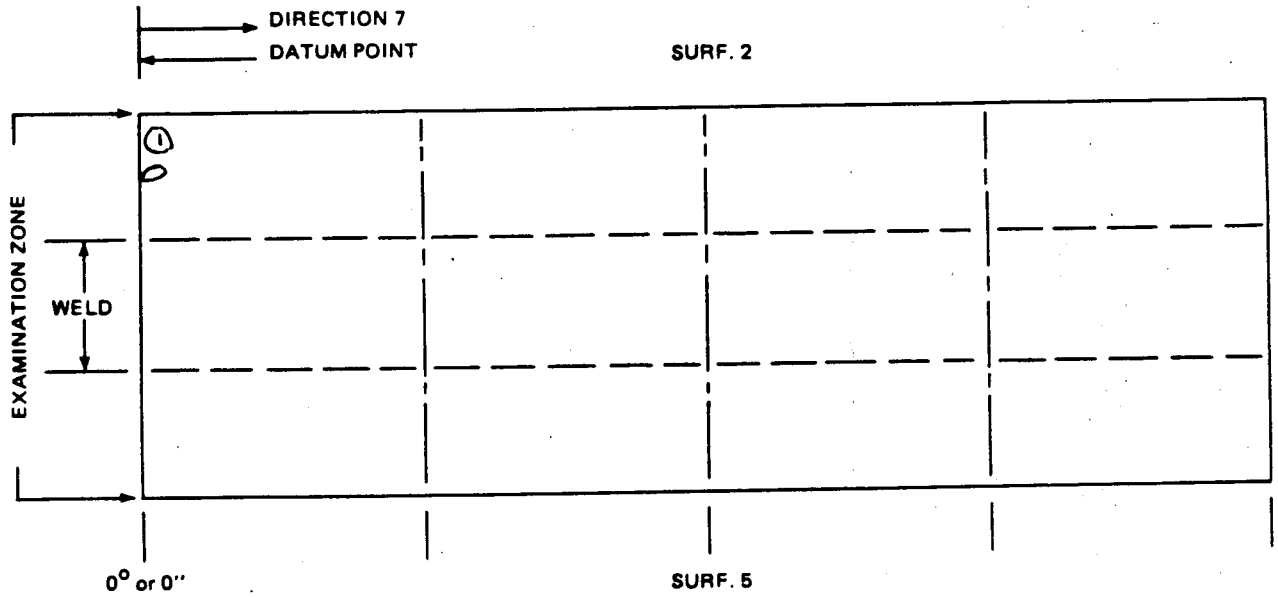
SYST/COMP Loop A 2" Letdown Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER [signature] LEVEL II DATE 12-10-88

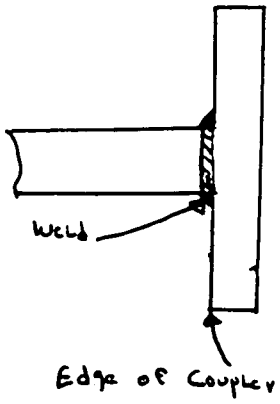
PT X MT WELD NO. 48

VISUAL AIDS Flashlight, MIRROR

REMARKS (1) 1/8" Rounded at 0" Datum Point, 3/8" From Edge of Coupler



Flow Determined by Ascending Weld Numbers



ANII REVIEW
ANII [signature]
DATE 12-12-88

[signature] 12/11/88
[signature] 12/11/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-125

SYST/COMP Loop A 2" Letdown Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER [signature] LEVEL II DATE 12-10-88

PT X MT WELD NO. 50

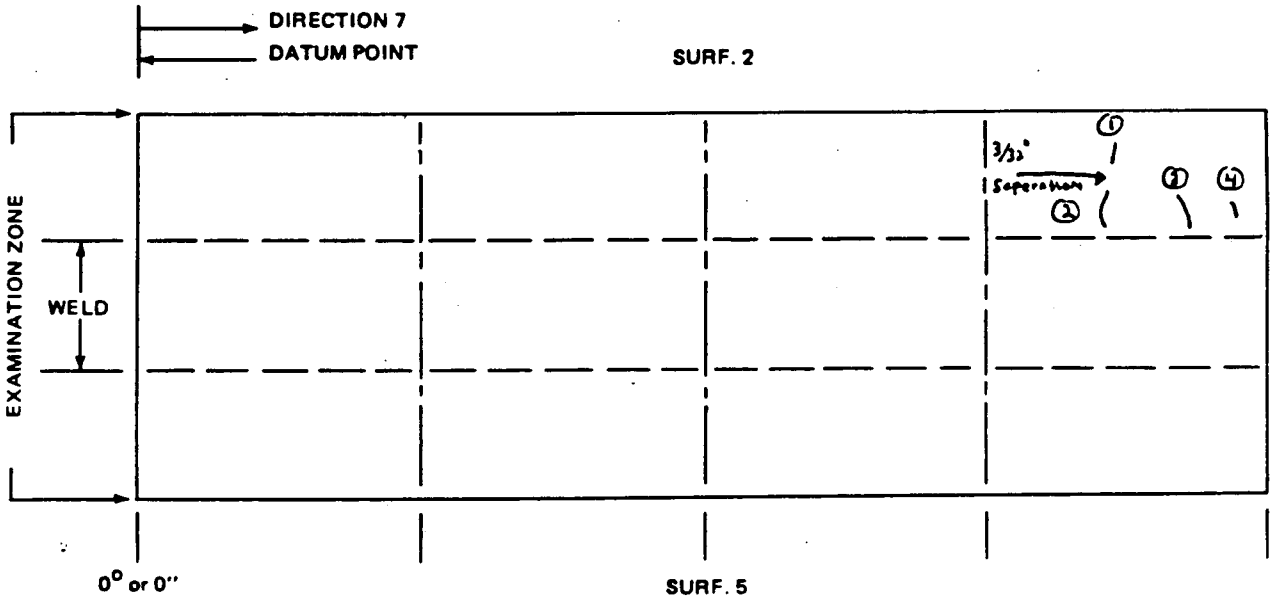
VISUAL AIDS Flashlight, Mirror

REMARKS ① 1/16" Linear, 5/16" from Edge of Coupler, Located at 15/16" CCW from 0" Datum Point.

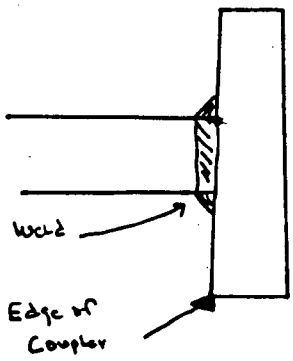
② 1/8" Linear, 3/32" from Edge of Coupler, Located at 15/16" CCW from 0" Datum Point

③ 1/8" Linear, 1/32" from Edge of Coupler, Located at 7/8" CCW from 0" Datum Point

④ 3/64" Linear, 1/16" from Edge of Coupler, Located at 3/8" CCW from 0" Datum Point



Flow Determined by Ascending Weld Numbers



ANII REVIEW
ANII [signature]
DATE 12-12-88

Richard B. Weber 12/11/88
Ewin Black 12/11/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

229

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-125

SYST/COMP LOOP A 2" LETDOWN LINE PROCEDURE CPL-IST-8 REV.0

EXAMINER [signature] LEVEL II [signature] I DATE 11-27-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
B	X			FLASHLIGHT	VT-3
C	X			FLASHLIGHT	VT-3
D	X			FLASHLIGHT	SPRING HANGER SETTING 5/8" VT-3
E	X			FLASHLIGHT	VT-3

ANII REVIEW
ANII [signature]
DATE 11-29-88

Richard B. Weber 11/27/88
[signature] 11/27/88

FORM 45934B

230

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-125

SYST/COMP LOOP A 2" LETDOWN LINE PROCEDURE CPL-151-8 REV. 0

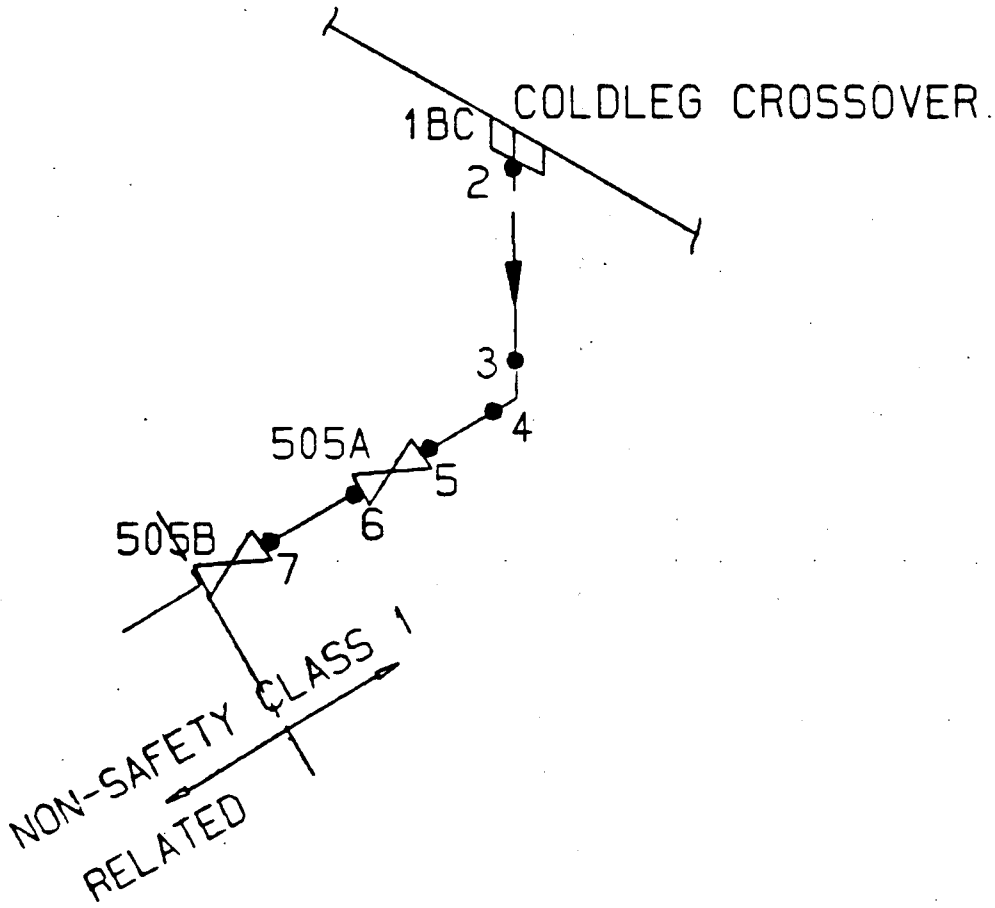
EXAMINER Gary A Morini II LEVEL II DATE 12-9-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
V309 D	X			FLASHLIGHT	VT-1 TWO STUDS + NUTS IN PLACE

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
Eric Black 12/9/88

FORM 45934B



CPL-126 REV 2

H.B. ROBINSON S.E. PLANT		C
UNIT NO. 2		P
DESCRIPTION: LOOP A 2" DRAIN LINE		&
LINE NO. 2-RC-40	CPL- 126 REV. 2	L

SKETCH CPL-126

232

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
41	7				X									
69	V505B (2)									X				SEE TAB F

WESTINGHOUSE FORM 3762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

233

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-126

SYST/COMP. LOOP "A" 2" DRAIN LINE PROCEDURE CPL-ISI-11 REV.0

EXAMINER Robert L Cassat II LEVEL II DATE 11-27-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
7	X			TEMP. 68°F

ANII REVIEW
ANII
DATE 11-29-88

Richard B Weber 11/29/88
Ch Blank 11/28/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-126

SYST/COMP LOOP A 2" DRAIN LINE PROCEDURE CPL-ISI-8 REV.0

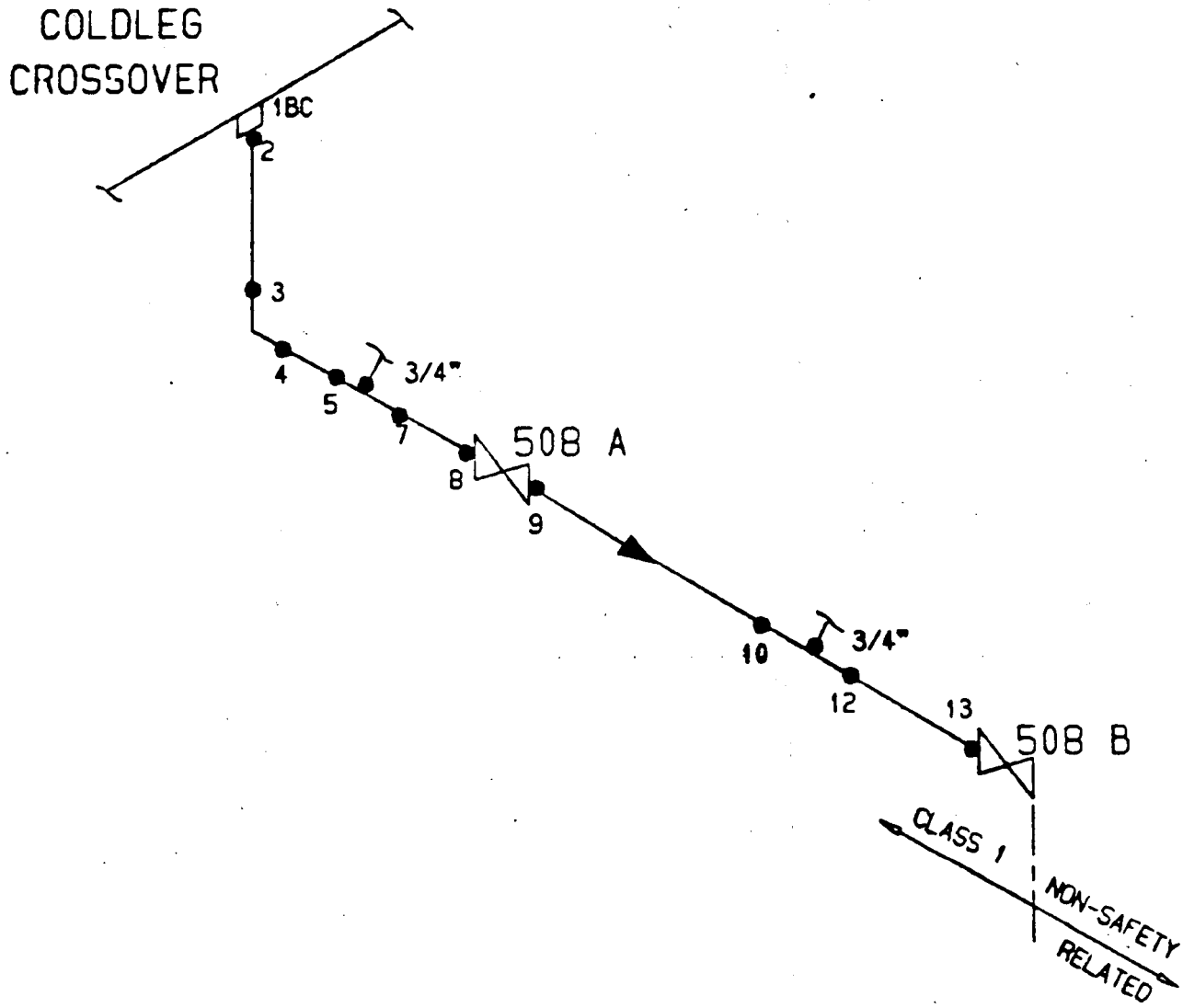
EXAMINER Glenn A Morris II / Ralph Schuffield II (LEVEL II) DATE 11-27-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
505 R			X	FLASHLIGHT	2 STUDS, 2 NUTS. WHITE FOREIGN SUBSTANCE ON STUDS VT-1

ANII REVIEW
ANII [illegible]
DATE 11-29-88

Richard B. Weber 11/27/88
J M Black 11/28/88

FORM 45934B



CPL-127 REV 2

H.B. ROBINSON S.E. PLANT		C
UNIT NO. 2		P
DESCRIPTION: LOOP B 2" DRAIN LINE		&
LINE NO. 2-RC-39	CPL- 127 REV. 2	L

SKETCH CPL-127

236

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
42	5						X							SEE TAB F
70	V508B							X						
70	V508A									X				SEE TAB F

WESTINGHOUSE FORM 40762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-127

SYST/COMP. LOOP B 2" DRAIN LINE PROCEDURE CPL-ISI-11 REV.0

EXAMINER Robert L Cornett II LEVEL II DATE 12-9-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
5			X	TEMP. 63°F SEE SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII
DATE 12-11-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-127

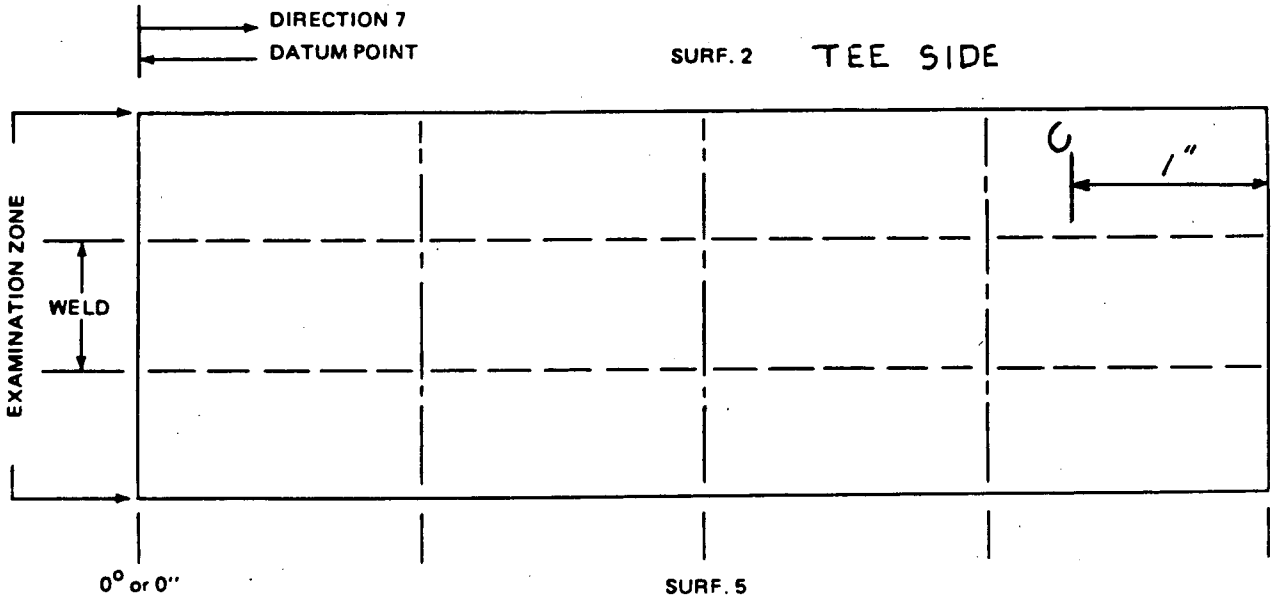
SYST/COMP LOOP B 2" DRAIN LINE PROCEDURE CPL-ISI-11 REV. 0

EXAMINER Robert S. Cossart II LEVEL II DATE 12-9-88

PT ✓ MT WELD NO. 5

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS 3/8" CURVILINEAR, 3/4" FROM TOE ON 2 SIDE 1" CCW FROM 0



ANII REVIEW
ANII
DATE 12-11-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT HB ROBINSON UNIT 2 SKETCH CPL-127

SYST/COMP LOOP B 2" DRAIN LINE PROCEDURE CPL-151-8 REV. 0

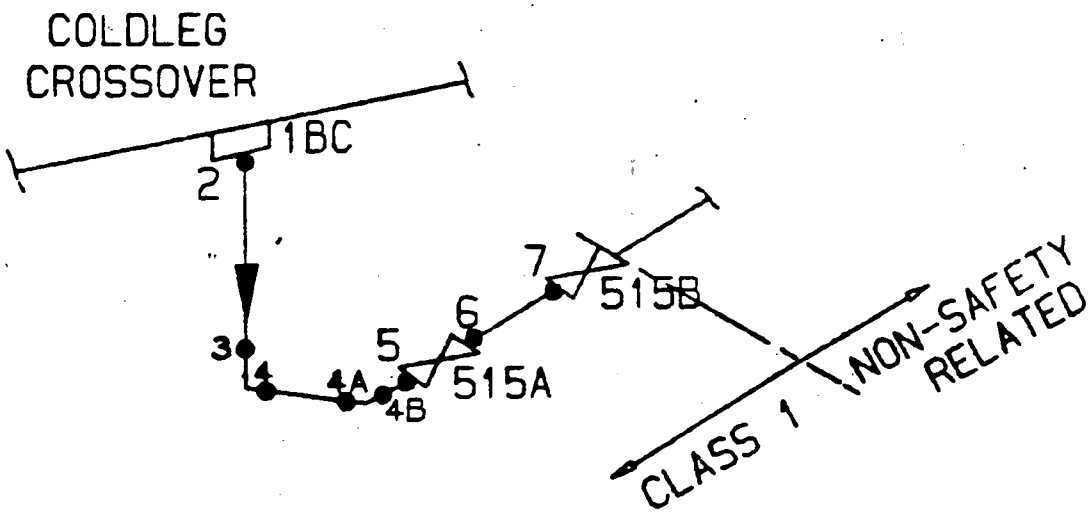
EXAMINER Arnold A. Bolfini II LEVEL II DATE 12-9-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
V 508 B	X			FLASHLIGHT	2 STUDS & 2 NUTS IN PLACE VT-1
V 508 A			X	FLASHLIGHT	2 STUDS & 2 NUTS WHITE SUBSTANCE LEAKING FROM VALVE STEM. VT-1

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
E M Black 12/9/88

FORM 45934B



CPL-128 REV 2

H.B. ROBINSON S.E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LOOP C-2" DRAIN LINE	
LINE NO. 2-RC-38	CPL- 128 REV. 2

WESTINGHOUSE FORM 46762

SKETCH CPL-128

EXAMINATION SUMMARY
FOR

1989

241

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
43	6				X									

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-128

SYST/COMP. LOOP C 2" DRAIN LINE PROCEDURE CPL IST-11 REV.0

EXAMINER Robert L Cassat II (LEVEL II) DATE 11-21-88

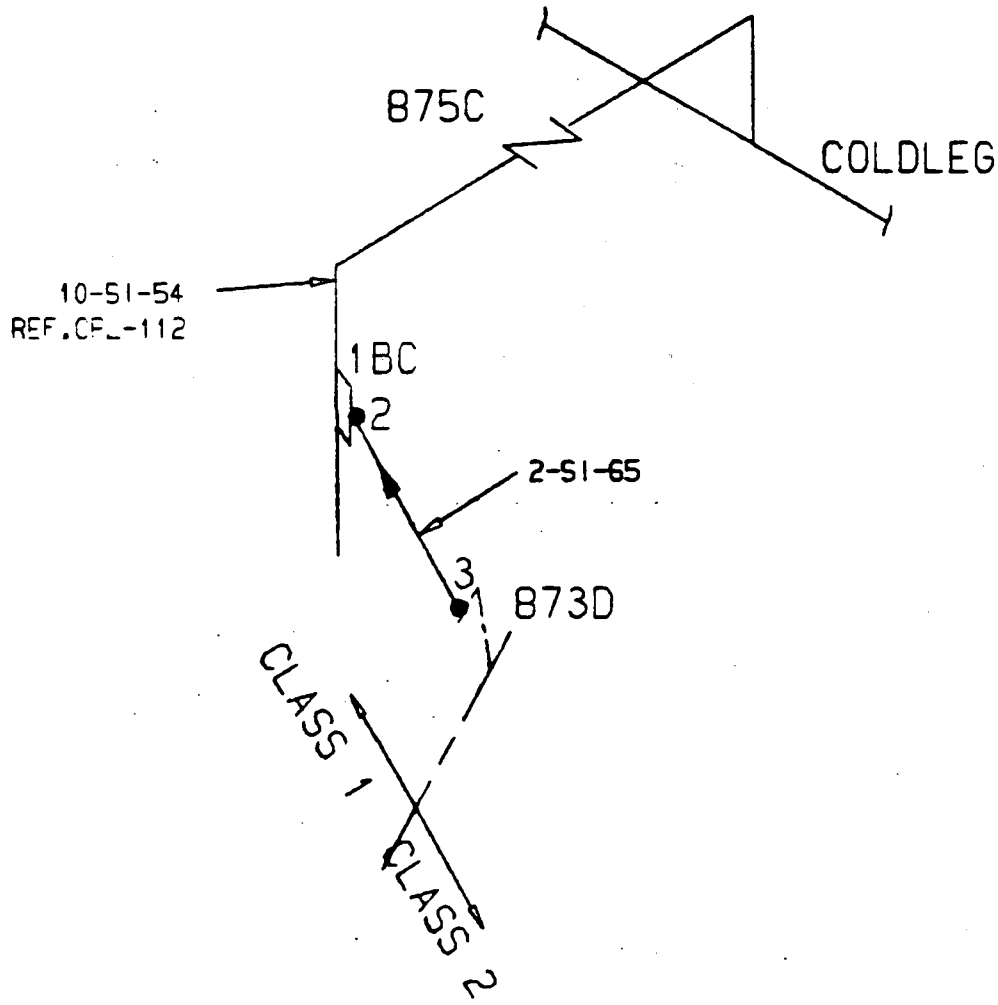
P/T		BATCH NOS.	M/T	
CLEANER	MAGNAFLUX	88G017	EQUIPMENT	
PENETRANT	MAGNAFLUX	85L045		
DEVELOPER	MAGNAFLUX	88B019	EXAM. MEDIUM	
REMOVER	MAGNAFLUX	88G017	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
6	X			TEMP - 80°F

ANII REVIEW
ANII [signature]
DATE 11-23-88

Richard B. Weber 11/23/88
[signature] 11/23/88

FORM 45935C



CPL-131 REV 2

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION: LOOP C-2" SIS B.I.T. LINE	
LINE NO. 2-SI-65	CPL- 131 REV. 2

WESTINGHOUSE FORM 46762

SKETCH CPL-131

EXAMINATION SUMMARY
FOR

1989

244

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
44	3				X									

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-131

SYST/COMP. LOOP C 2" SIS B.I.T. LINE PROCEDURE CPL ISI-11 REV.0

EXAMINER Larry M Robinson II Robert L Cassat II DATE 12-8-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

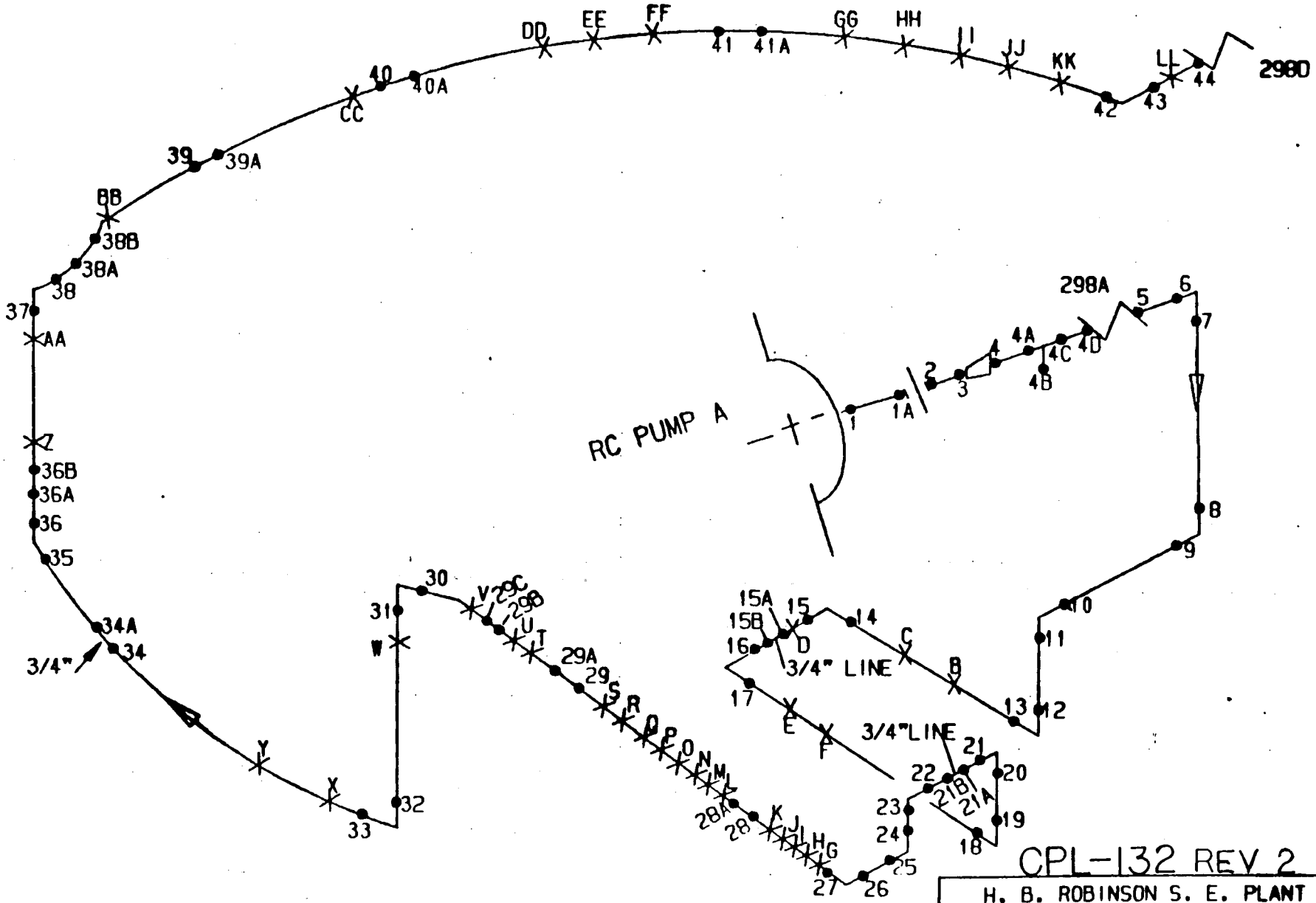
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
3	X			TEMP. - 60°F.

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
[illegible] 12/9/88

FORM 45935C



H. B. ROBINSON S. E. PLANT	CP&I
UNIT NO. 2	
DESCRIPTION: LOOP A 2" SEAL INJECT. LINE	
LINE NO. 2-CH-BC CPL-132 REV. 2	

SKETCH CPL-132

247

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
45	1A				X									
45	15A				X									
45	15B				X									
46	Z							X						
46	AA							X						
46	BB							X						
46	CC							X						
46	DD									X				SEE TAB F
46	EE							X						
46	FF							X						
46	GG									X				SEE TAB F
46	HH							X						
46	II									X				SEE TAB F
46	JJ									X				SEE TAB F
46	KK							X						
46	LL								X					

WESTINGHOUSE FORM 40762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B ROBINSON UNIT 2 SKETCH CPL-132

SYST/COMP. LOOP A 2" SEAL INJECT. LINE PROCEDURE CPL IST-11 REV 0

EXAMINER Gary M. Jakeman II / Ralph C. Churchfield I (LEVEL II) DATE 11-27-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
1A	X			TEMP. FOR ALL WELDS - 64°F
15A	X			
15B	X			

ANII REVIEW
ANII
DATE 11-29-88

Richard B. Weber 11/27/88
[illegible] 11/28/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-IST-206, Rev. 0

EXAMINER Arnold A. Bolyin II LEVEL II DATE 12-5-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
AA	X			Flashlight Mirror	VT-3, Insulated Pipe
BB	X			Flashlight Mirror	VT-3, Insulated Pipe
CC	X			Flashlight Mirror	VT-3, Insulated Pipe
Z	X			Flashlight Mirror	VT-3, Insulated Pipe

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/6/88
[illegible] 12/6/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL- 132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Ronald A. Bolyn II (LEVEL II) DATE 11-29-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
DD			X	MIRROR FLASHLIGHT	VT-3, Insul. Pipe, See Attached
					Gen. Ind. Data Sheet.
EE	X			MIRROR FLASHLIGHT	VT-3, Insul. Pipe. Appear to be
					Lugs underneath Insulation.
FF	X			MIRROR FLASHLIGHT	VT-3, Insulated Pipe
GG			X	MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached
					Gen. Ind. Data Sheet.
HH	X			MIRROR FLASHLIGHT	VT-3, Insulated Pipe
II			X	MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached
					Gen Ind. Data Sheet
JJ			X	MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached
					Gen. Ind. Data Sheet.
KK	X			MIRROR FLASHLIGHT	VT-3, Insulated Pipe
LL		X		MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached
					Gen. Ind. Data Sheet

ANII REVIEW
ANII [signature]
DATE 12-4-88

Richard B. Weber 11/30/88
[signature] 12/3/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

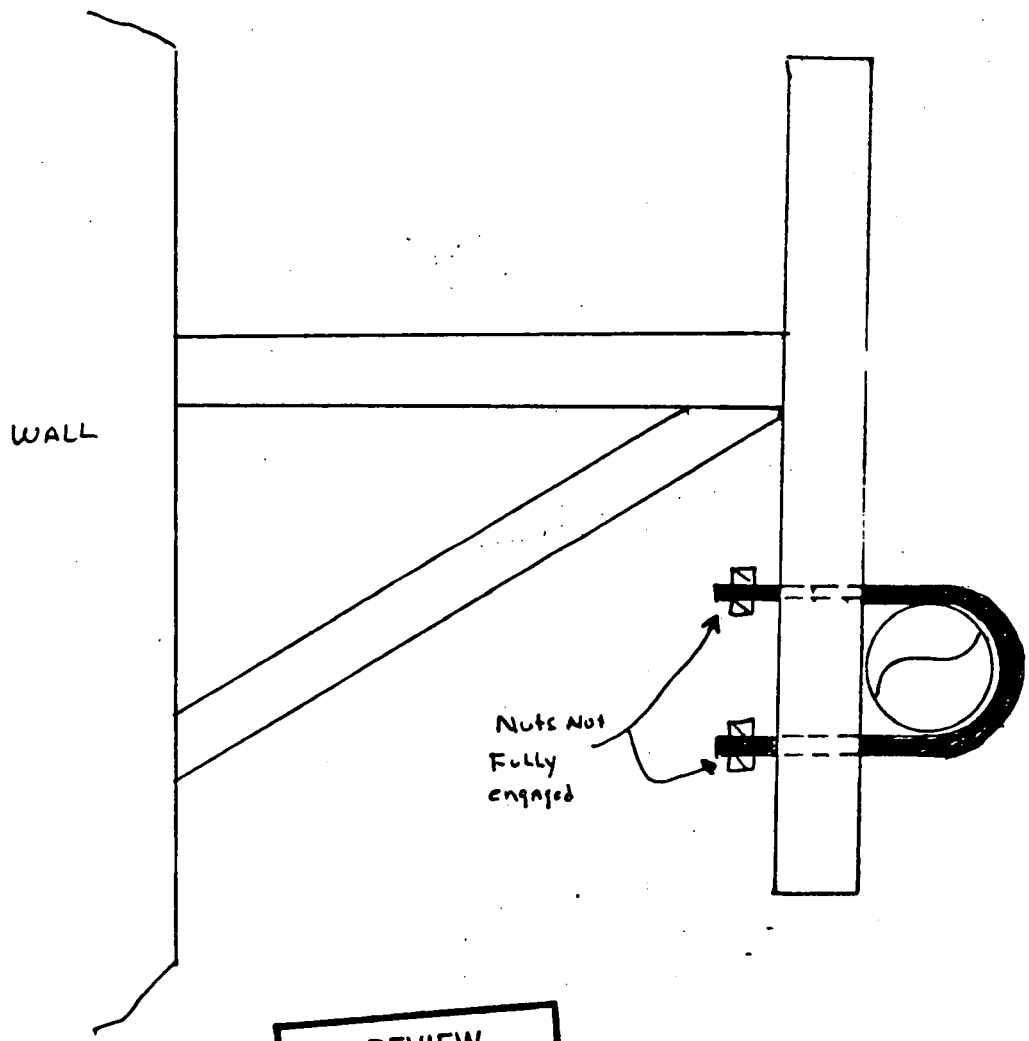
PLANT H. B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Mark A. Bollin II DATE 11-29-88
LEVEL II

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger DD

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
[illegible] 12/3/88

252

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

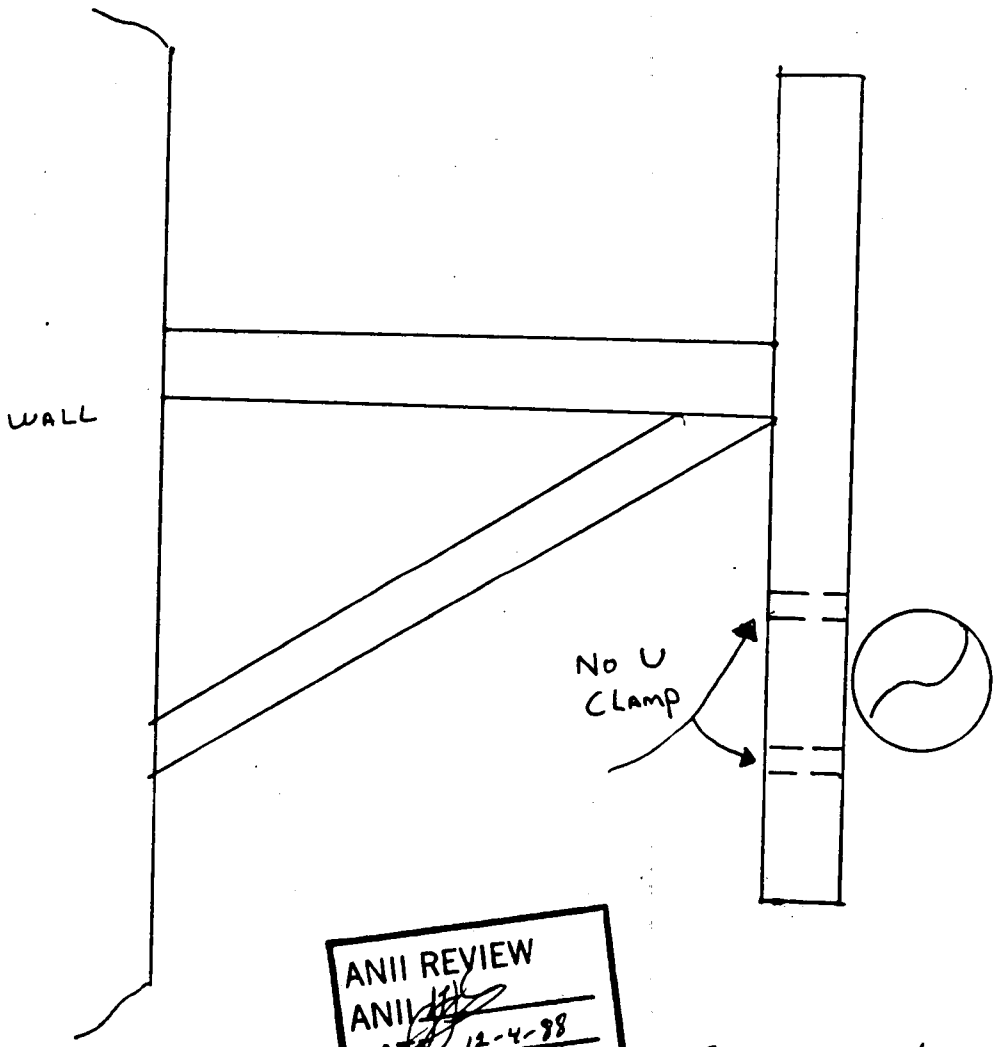
PLANT H.B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Arnel A. Boldin II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger GG

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
12/3/88

253

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

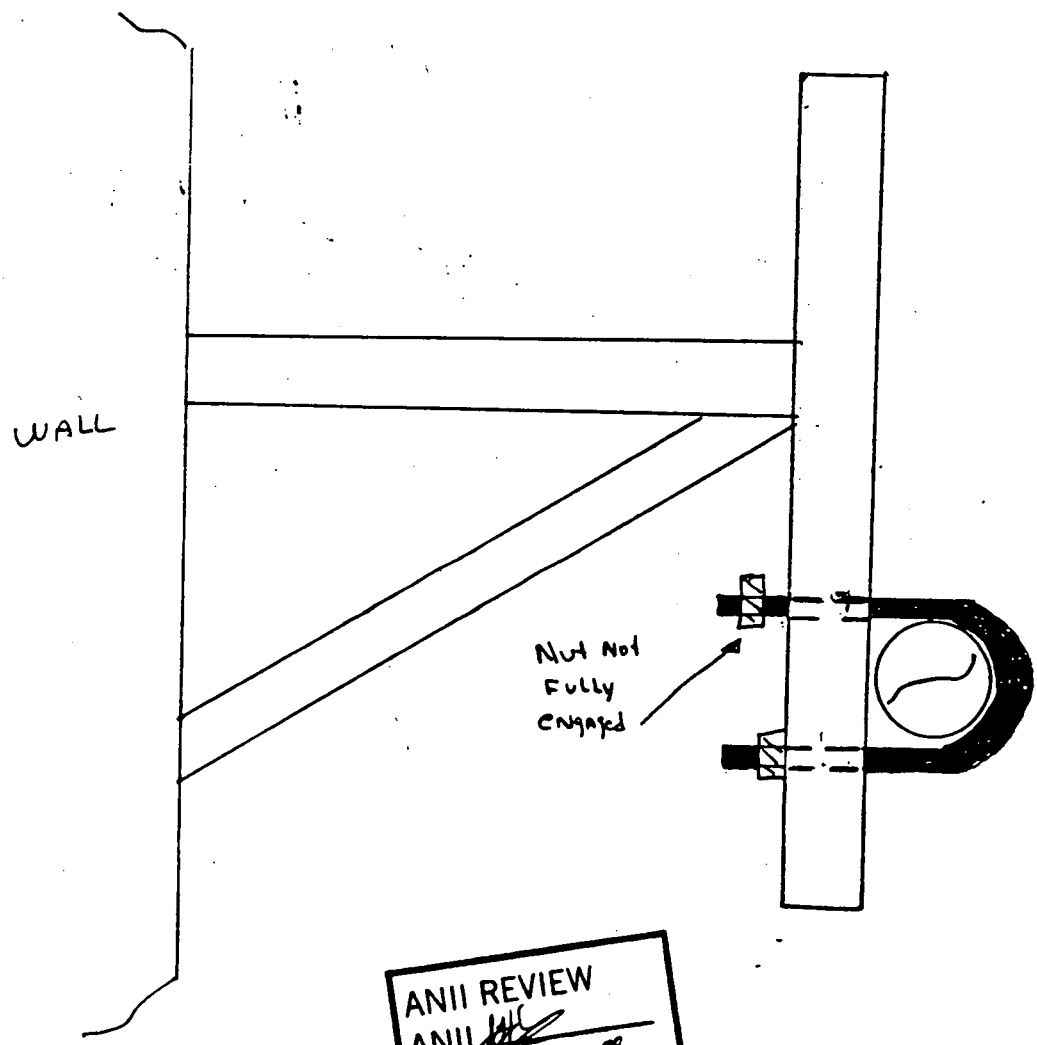
PLANT H.B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Lionel A. Bollyn II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger II

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
J. W. Blanck 12/3/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

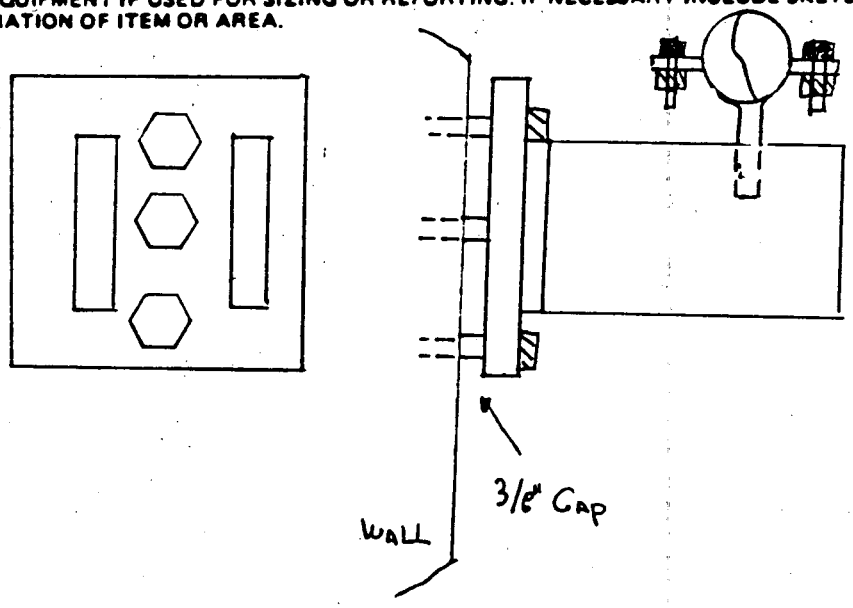
PLANT H.B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Scal Inject. Line PROCEDURE CPL-IST-8, Rev. 0

EXAMINER Mark A. Bolgin II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger JJ

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
J. Blanck 12/3/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

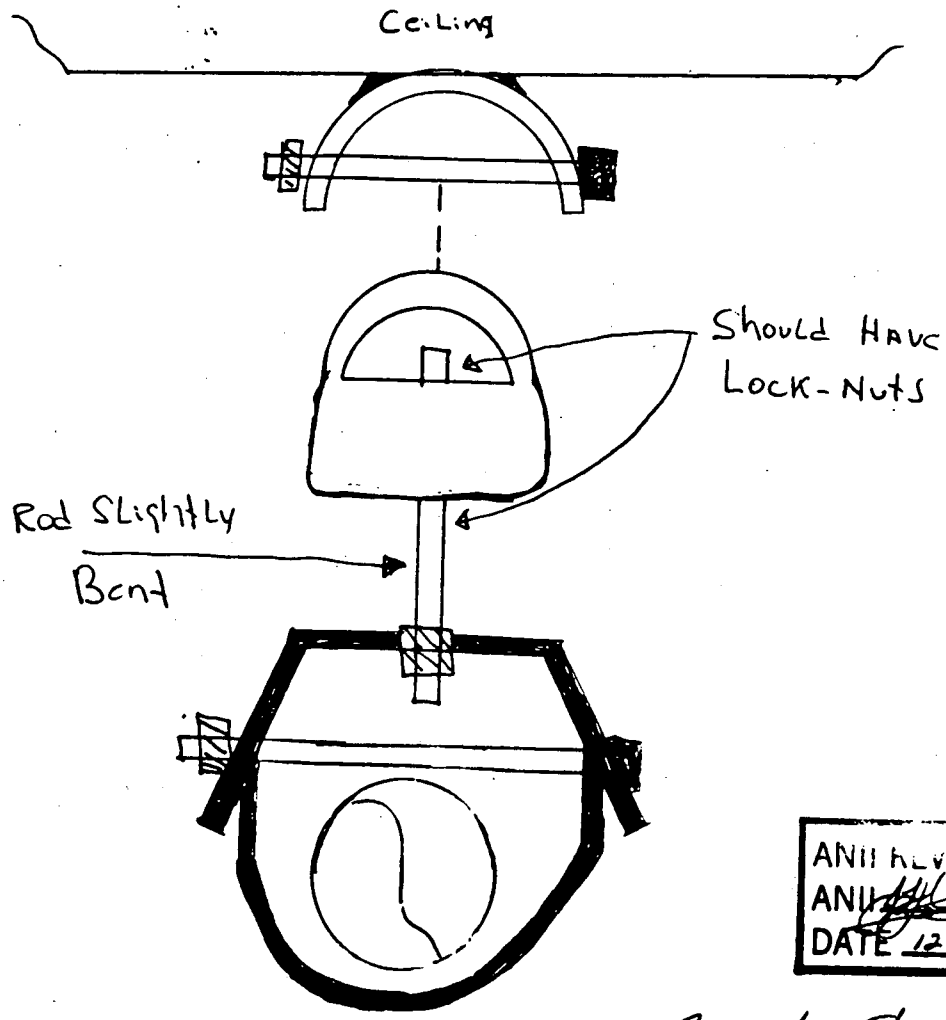
PLANT H.B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-IST-8, Rev. 0

EXAMINER Arnold A. Bolyn II LEVEL II DATE 11-29-88

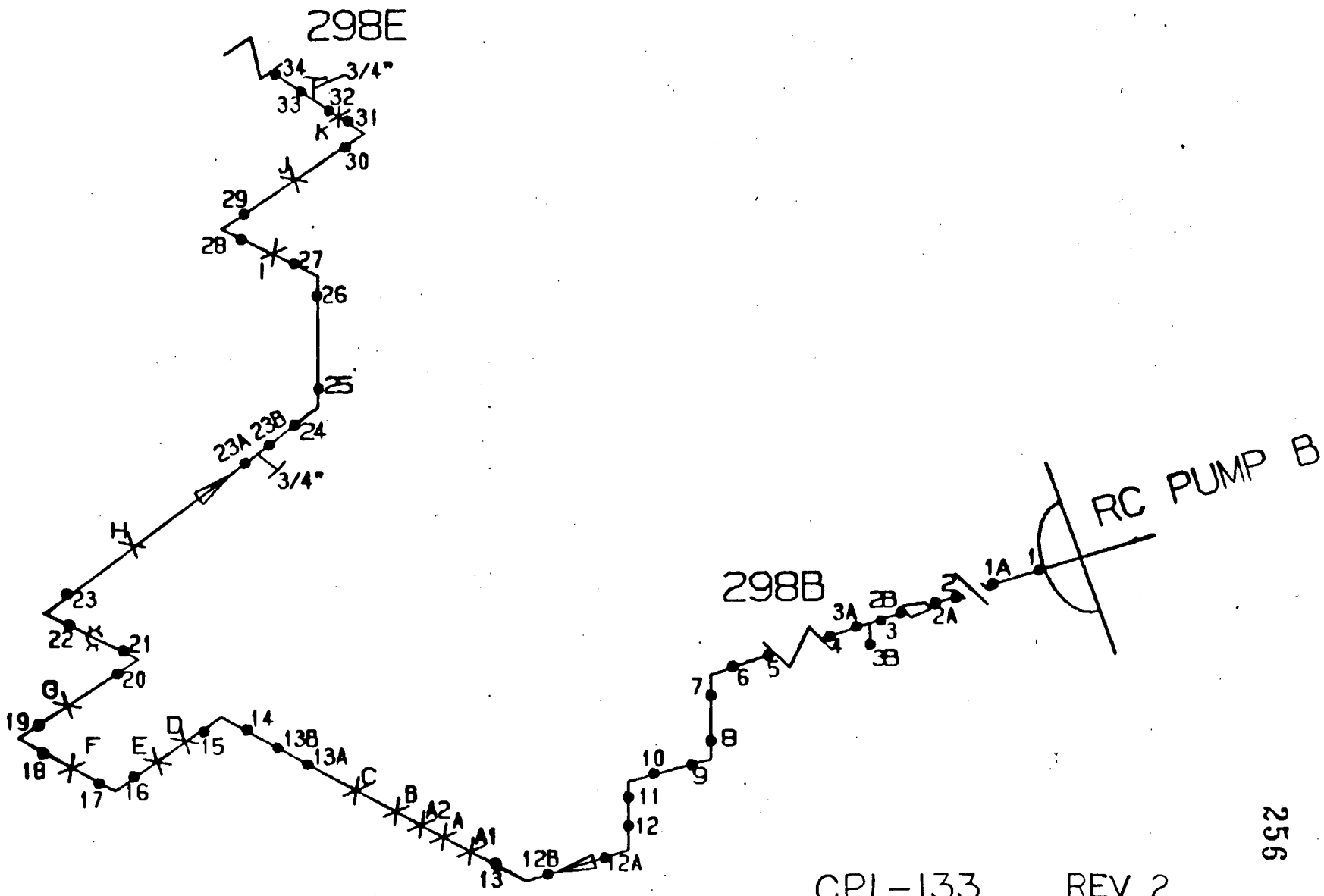
DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger LL

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
Jim Blanck 12/3/88



256

CPL-133 REV 2

H. B. ROBINSON S. E. PLANT	CPL & L
UNIT NO. 2	
DESCRIPTION: LOOP B 2" SEAL INJECT. LINE	
LINE NO. 2-CH-BB CPL-133 REV	

WESTINGHOUSE FORM 46762

SKETCH CPL-133

257

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
47	H							X						
47	I									X				SEE TAB F
47	J							X						
47	A1							X						
47	K									X				SEE TAB F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-133

SYST/COMP Loop B 2" SEAL INJECT. LINE PROCEDURE CPL-ISI-8, REV-0

EXAMINER Nmola. Bolyn II LEVEL II DATE 11-27-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
A1	X			FLASHLIGHT	VT-3, INSULATED PIPE
A2				FLASHLIGHT	UNACCESSIBLE
H	X			FLASHLIGHT	VT-3, INSULATED PIPE
I			X	FLASHLIGHT	VT-3, INSULATED PIPE, SEE ATTACHED
					GENERAL IND. DATA SHEET
J	X			FLASHLIGHT	VT-3, INSULATED PIPE, THIS IS NOT
					A HANGER IT IS A SUPPORT OF A PIPE
					BELOW IT.
K			X	FLASHLIGHT	VT-3, INSULATED PIPE. THIS HANGER
					WAS NOTED DURING EXAMINATION
					OF HANGER J. SEE ATTACHED GENERAL
					IND. DATA SHEET.

ANII REVIEW
ANII [signature]
DATE 11-30-88

Richard B. Weber 11/29/88
[signature] 11/29/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

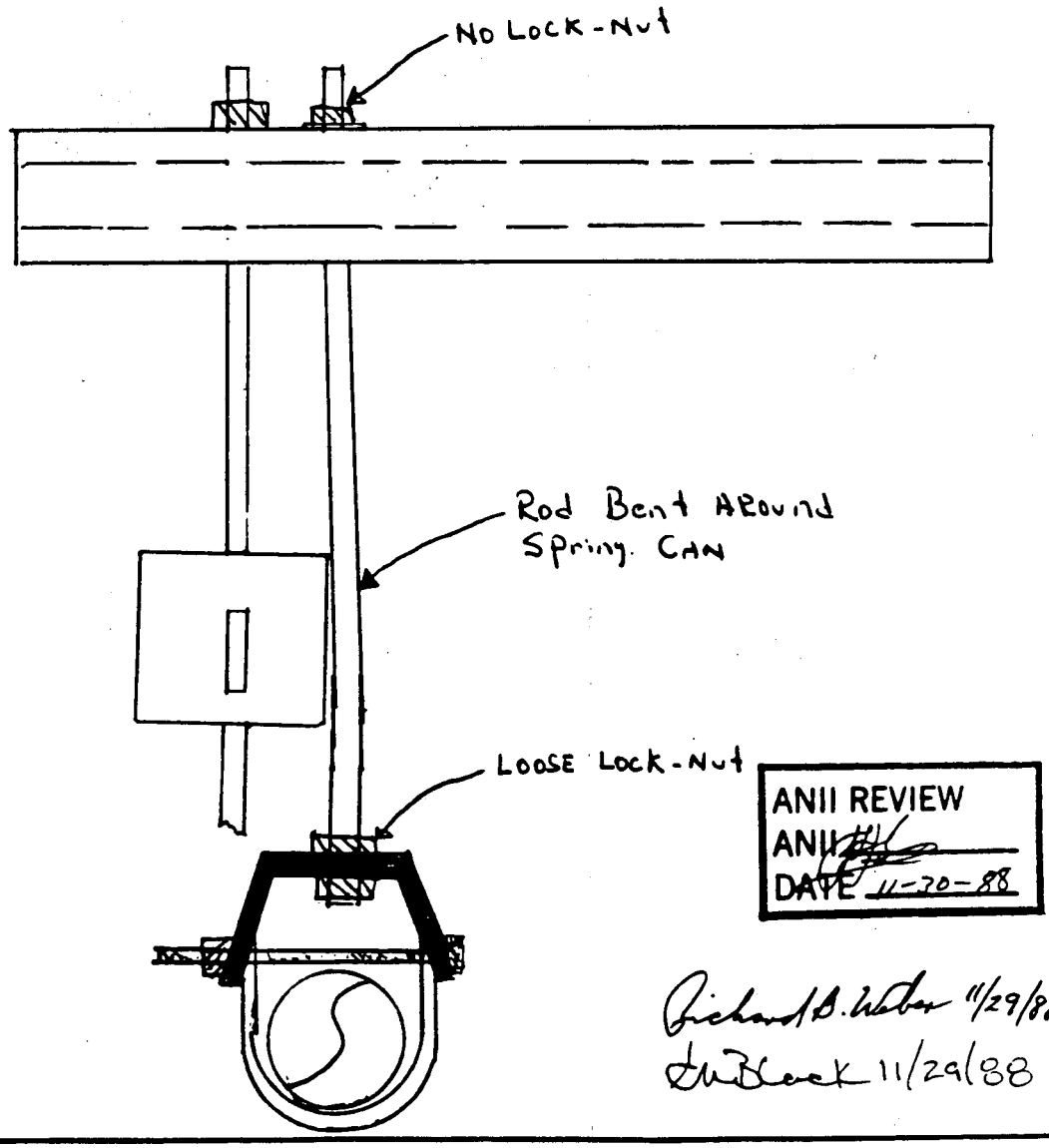
PLANT H.B. Robinson UNIT 2 SKETCH CPL-133

SYST/COMP Loop B 2" Seal Inject. Line PROCEDURE CPL-IST-8, Rev. 0

EXAMINER [illegible] LEVEL II DATE 11-27-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger I

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII [illegible]
DATE 11-30-88

Richard B. Weber 11/29/88
[illegible] 11/29/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

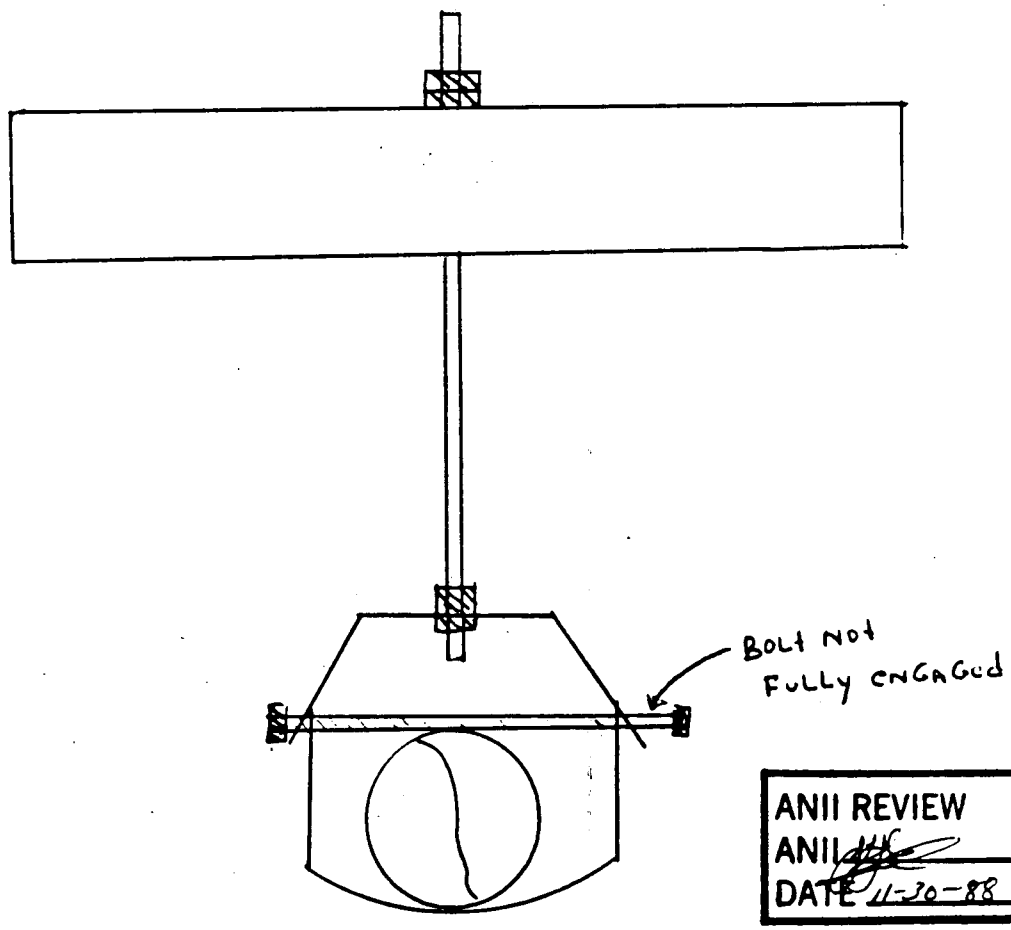
PLANT H.B. Robinson UNIT 2 SKETCH CPL-133

SYST/COMP Loop B 3" Seal Inject. Line PROCEDURE CPL-ISI-B, Rev. 0

EXAMINER Neil A. Bollin II DATE 11-27-88
LEVEL II

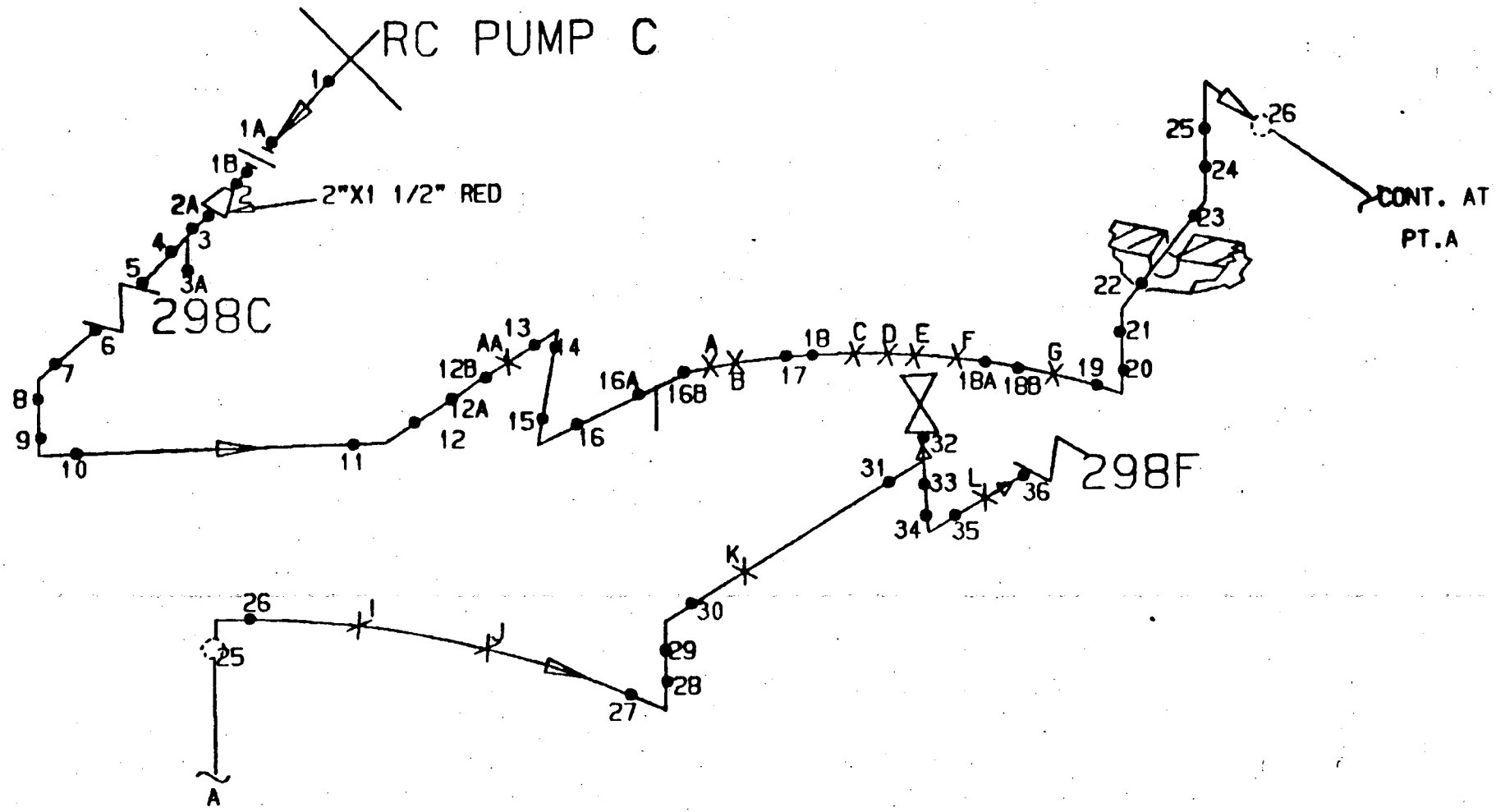
DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger K

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 11-30-88

Richard B. Weber 11/29/88
Lu Black 11/29/88



261

CPL-134 REV 2

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LOOP C 2" SEAL INJECT. LINE	
LINE NO. 2-CH-8A CPL-134 REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL-134

262

EXAMINATION SUMMARY FOR 1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
48	10				X									
48	11				X									
48	12				X									
48	12A				X									
48	12B				X									
48	16A						X							SEE TAB F
48	16B				X									
48	17				X									
48	18					X								
48	19				X									
48	20				X									
48	21				X									
49	I							X						
49	J							X						
49	K							X						
49	L							X						
49	AA							X						
49	G									X				SEE TAB F
50	FLG. BOLTS							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP. LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL ISI-11 REV.0

EXAMINER [illegible] II [illegible] II LEVEL II DATE 11-21-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
10	X			FOR ALL WELDS BELOW - TEMP. - 70°F
11	X			
12	X			
12A	X			
12B	X			
16A			X	* SEE ATTACHED SURFACE INDICATION DATA SHEET.
16B	X			
17	X			
18		X		* SEE ATTACHED SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII [illegible]
DATE 11-30-88

[illegible] 11/23/88
[illegible] 11/29/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-134

SYST/COMP Loop C 2" Seal Inject. Line PROCEDURE CPL ISI-11, Rev. 0

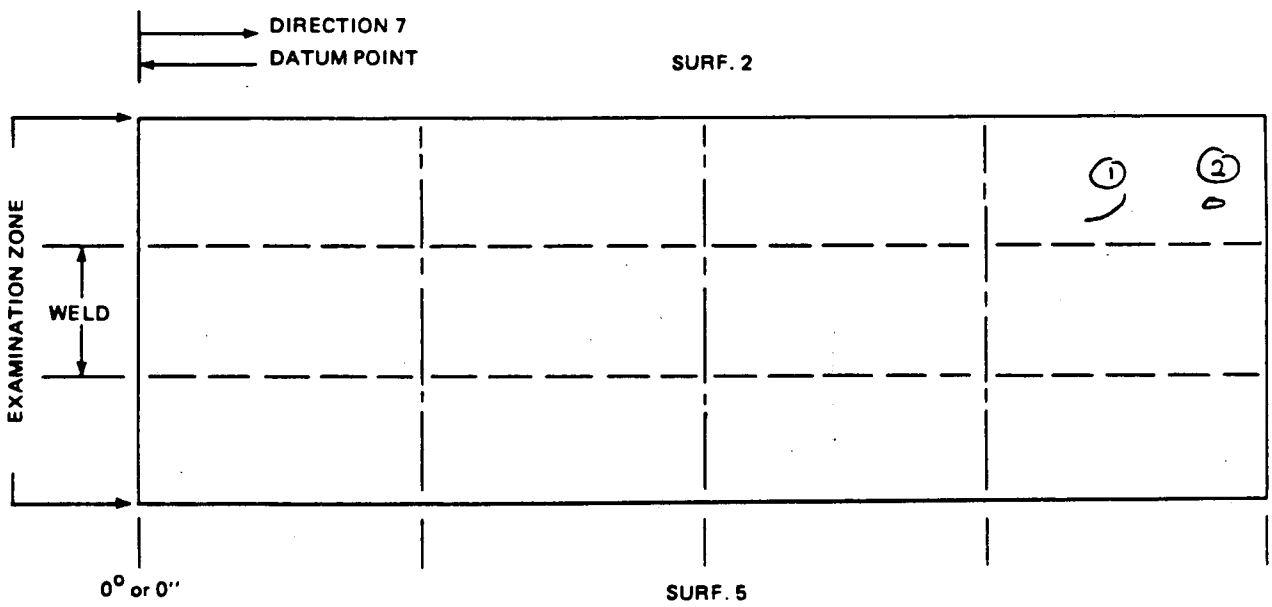
EXAMINER Arnold A. Bolyin II, Gary L. Morin II (LEVEL II) DATE 11-21-88

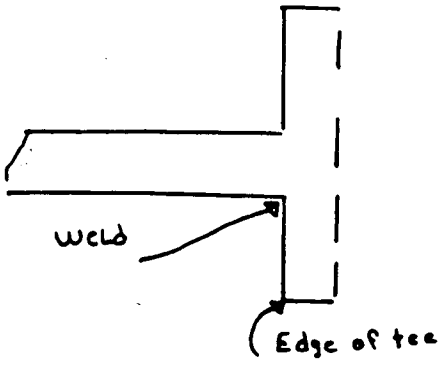
PT X MT WELD NO. 16A

VISUAL AIDS MIRROR, Flashlight

REMARKS (1) 1/4" Linear, 1/4" From Edge of Tee, Located 1/3" CCW From 0" Datum

(2) 3/32" Rounded, 13/32" From Edge of tee, Located 1/4" CCW From 0" Datum





ANII REVIEW
ANII [signature]
DATE 11-28-88

Richard B. Weber 11/29/88
[signature] 11/29/88

FORM 46932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-134

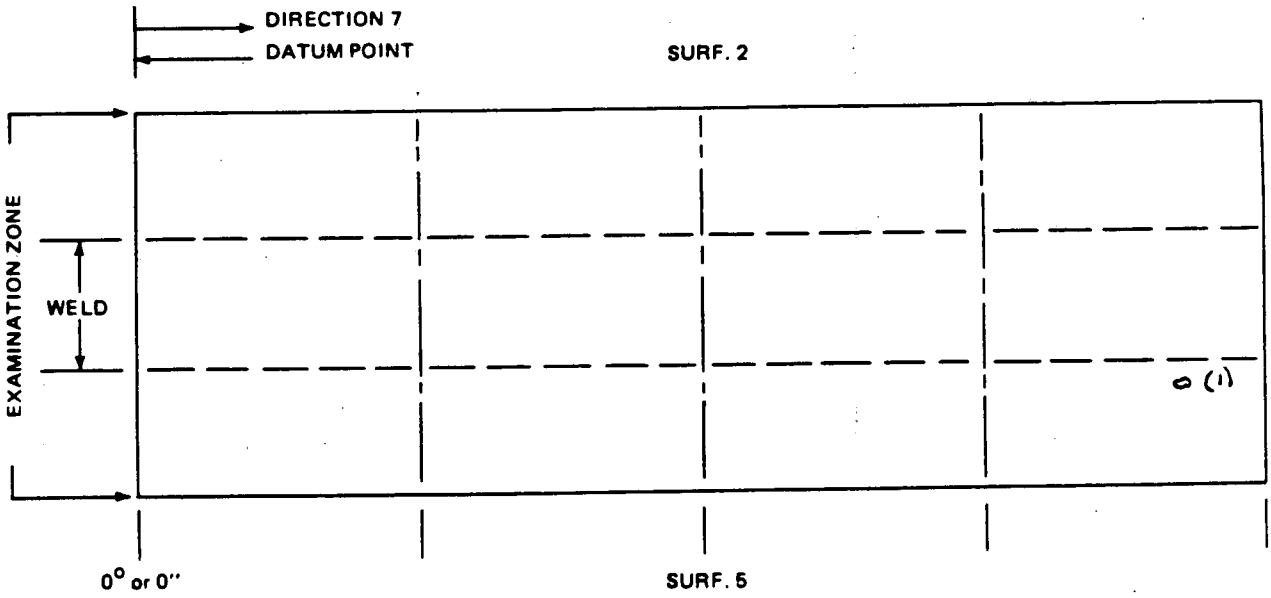
SYST/COMP Loop C 2" Seal Inject. Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Arnold A. Bolyni II, George A. Marini II (LEVEL II) DATE 11-21-88

PT X MT WELD NO. 18

VISUAL AIDS MIRROR, FLASHLIGHT

REMARKS (1) 1/16" Rounded, 5/16" FROM C/L of weld, Located 1½" CCW FROM 0" Datum



ANII REVIEW
ANII
DATE 11-30-88

Richard B. Weber 11/29/88
[illegible] 11/29/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP. LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL-ISI-11 REV0

EXAMINER Robert J Court II / Ralph Churchfield I (LEVEL II) DATE 11-22-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
19	X			TEMP. 71°F
20	X			TEMP. 71°F
21	X			TEMP. 71°F

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/23/88
Lin Black 11/24/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL ISI-8 REV.0

EXAMINER George A Morini II LEVEL II DATE 11-21-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
FLANGE BOLTS	X			FLASHLIGHT	4 STUDS, 8 NUTS EXAMINED IN PLACE VT-1
AA	X			FLASHLIGHT	VT-3
I	X			FLASHLIGHT	VT-3
J	X			FLASHLIGHT	VT-3
K	X			FLASHLIGHT	VT-3
L	X			FLASHLIGHT	VT-3

ANII REVIEW
ANII [signature]
DATE 11-25-88

Richard B. Weber 11/23/88
Jim Black 11/23/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL ISI-8 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 11-22-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
G			X	FLASHLIGHT	BOLT MISSING OFF WALL PLATE. U CLAMP LOOSE ON PIPE VT-3
					SEE ATTACHED SKETCH.

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/23/88
[illegible] 11/26/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

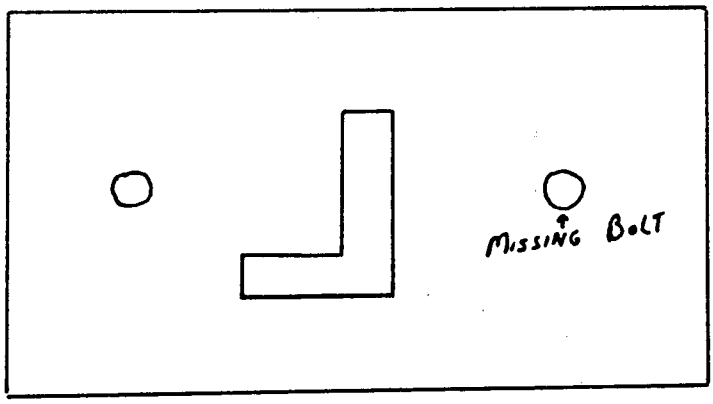
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP LOOP C 2" SEAL INJECT LINE PROCEDURE CPL IST-8 REV. 0

EXAMINER George A Morini II LEVEL II DATE 11-22-88

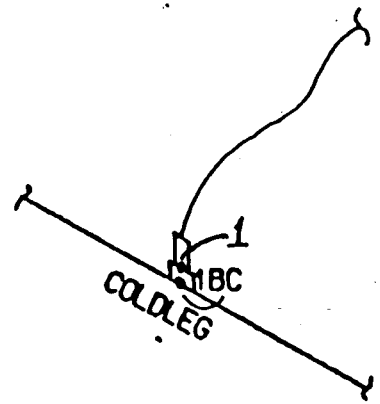
DETECTED BY U/T ____ P/T ____ M/T ____ V/T ✓ IDENT NO. HANGER G

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII [signature]
DATE 11-26-88

Richard B. Weber 11/26/88
[signature] 11/26/88



270

CPL-138 REV 3

MOD-959

H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: LP.8 2"X1 1/2" COLDLEG RTD		
LINE NO. 2-RC-80	CPL-138 REV. 3	

WESTINGHOUSE FORM 46762

SKETCH CPL-138

271

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
51	1BC				X									

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-138

SYST/COMP. LP. B 2"X1" 1/2" Coldleg RTD ByPass PROCEDURE CPL-ISI-11, Rev.0

EXAMINER Arnold A. Bolyin II (LEVEL II) DATE 12-11-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

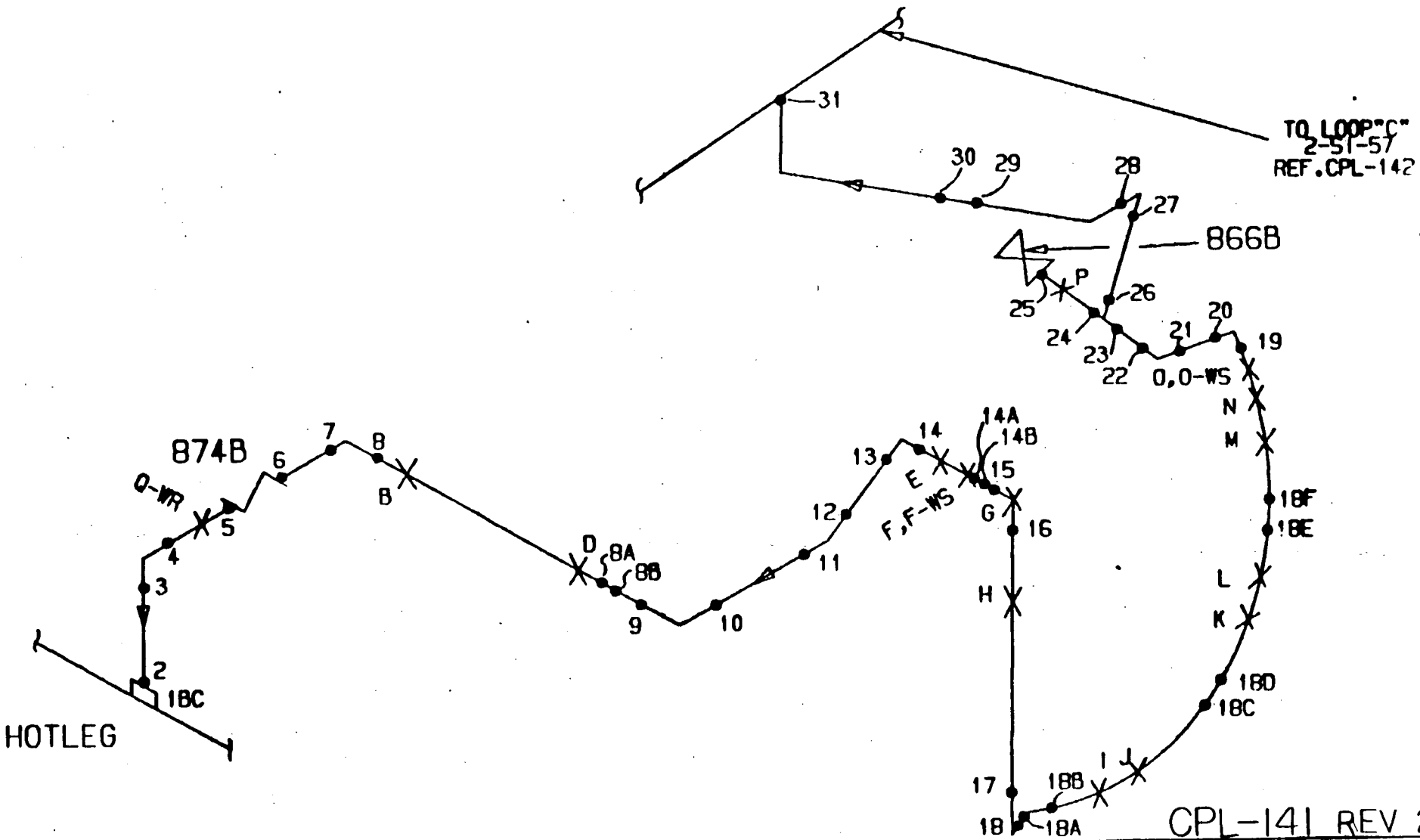
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
1BC	X			Temp. 66°F

ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
[illegible] 12/12/88

FORM 45935C



CPL-141 REV 2

H. B. ROBINSON S. E. PLANT	
UNIT NO. 2	
DESCRIPTION:	LP B 2" SIS HLEG HIGH HEAD INJ
LINE NO. 2-SI-56	CPL-141 REV. 2

CPL&I

273

SKETCH CPL-141

EXAMINATION SUMMARY
FOR

1989

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
52	13				X									
52	14				X									
52	18C						X							SEE TAB F
52	18D				X									
52	18E				X									
52	18F				X									
53	F-WS						X							SEE TAB F
53	O-WS				X									
54	B							X						
54	D							X						
54	E									X				SEE TAB F
54	F									X				SEE TAB F
54	G									X				SEE TAB F
54	H									X				SEE TAB F
54	I									X				SEE TAB F
54	J								X					
54	K							X						
54	L							X						
54	M								X					
54	N								X					
54	O							X						
54	P								X					
71	V866B (2)									X				SEE TAB F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-141

SYST/COMP. LOOP B 2" SIS HLEG HIGH HEAD INJ. PROCEDURE CPL-ISI-11 REV0

EXAMINER Robert Slemat II / Ralph Churchfield I (LEVEL II) DATE 11-23-88

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX 88G017	EQUIPMENT	
PENETRANT	MAGNAFLUX 85L045		
DEVELOPER	MAGNAFLUX 88B019	EXAM. MEDIUM	
REMOVER	MAGNAFLUX 88G017	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
13	X			TEMP. 67°F
14	X			TEMP. 67°F

ANII REVIEW
ANII [illegible]
DATE 11-26-88

Richard B. Weber 11/26/88
J. M. Black 11/26/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP. Lp B 2" SIS HLeg High Head PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Noel A. Bolyin II (LEVEL II) DATE 12-10-88

P/T		BATCH NOS.
CLEANER	MAGNA FLUX	88G017
PENETRANT	MAGNA FLUX	8SL045
DEVELOPER	MAGNA FLUX	88B019
REMOVER	MAGNA FLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
18C			X	Temp. 61°F, See Attached Surface Ind. Data Sheet.
18D	X			Temp. 61°F

ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

277

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

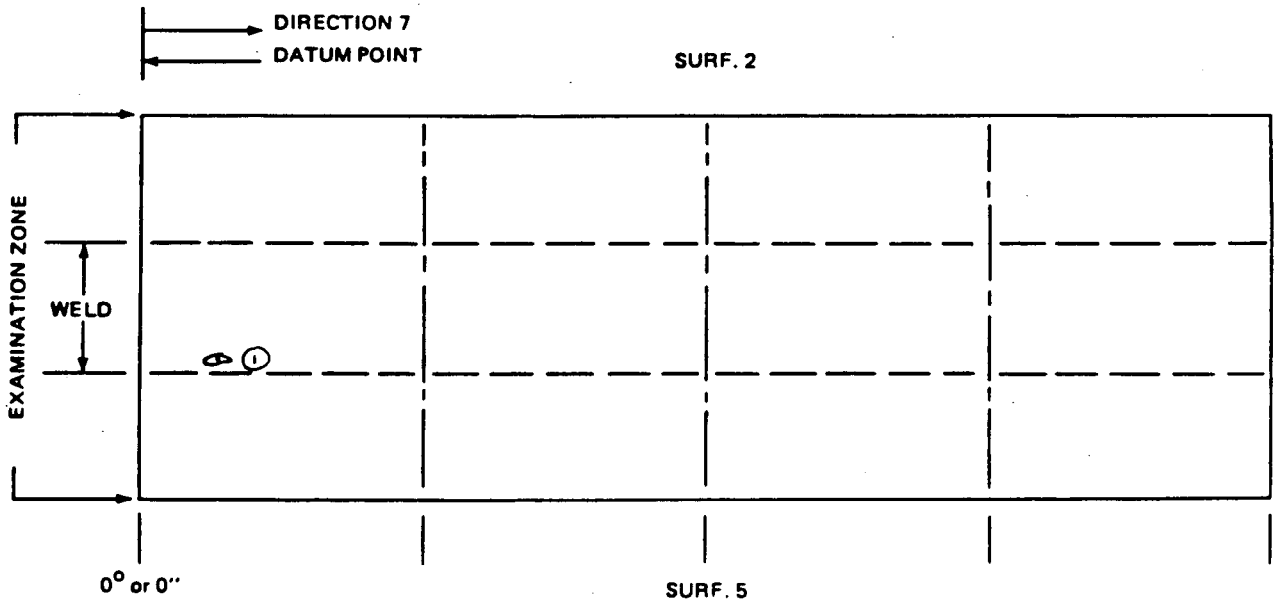
SYST/COMP LP B 2" SIS HLEG High HEAD PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Nmd A. Bollyn LEVEL II DATE 12-10-88

PT X MT WELD NO. 18C

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS ① 0.15" Rounded, 0.15" FROM C/L WELD ON COUPLER SIDE, LOCATED AT 2.8" CW FROM 0" DATUM POINT (Bleed-out FROM A PIN HOLE IN WELD)



ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
E.B. Cook 12/12/88

FORM 459328

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP. Lp B 2" SIS HLeg High Head PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Gary A Morris II LEVEL II DATE 12-11-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNA FLUX	85L045
DEVELOPER	MAGNA FLUX	88B019
REMOVER	MAGNA FLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
1BE	X			Temp. 70°F
1BF	X			Temp. 70°F

ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
Jim Black 12/12/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP. LPB 2" SIS HLEG High Head INT. PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Lonnel A. Bolfin II LEVEL II DATE 12-12-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
F-WS			X	Temp. 61°F, See Attached Surface Ind. Data Sheet
O-WS	X			Temp 66°F

ANII REVIEW
ANII
DATE 12-14-88

Richard B. Weber 12/13/88
[illegible] 12/13/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

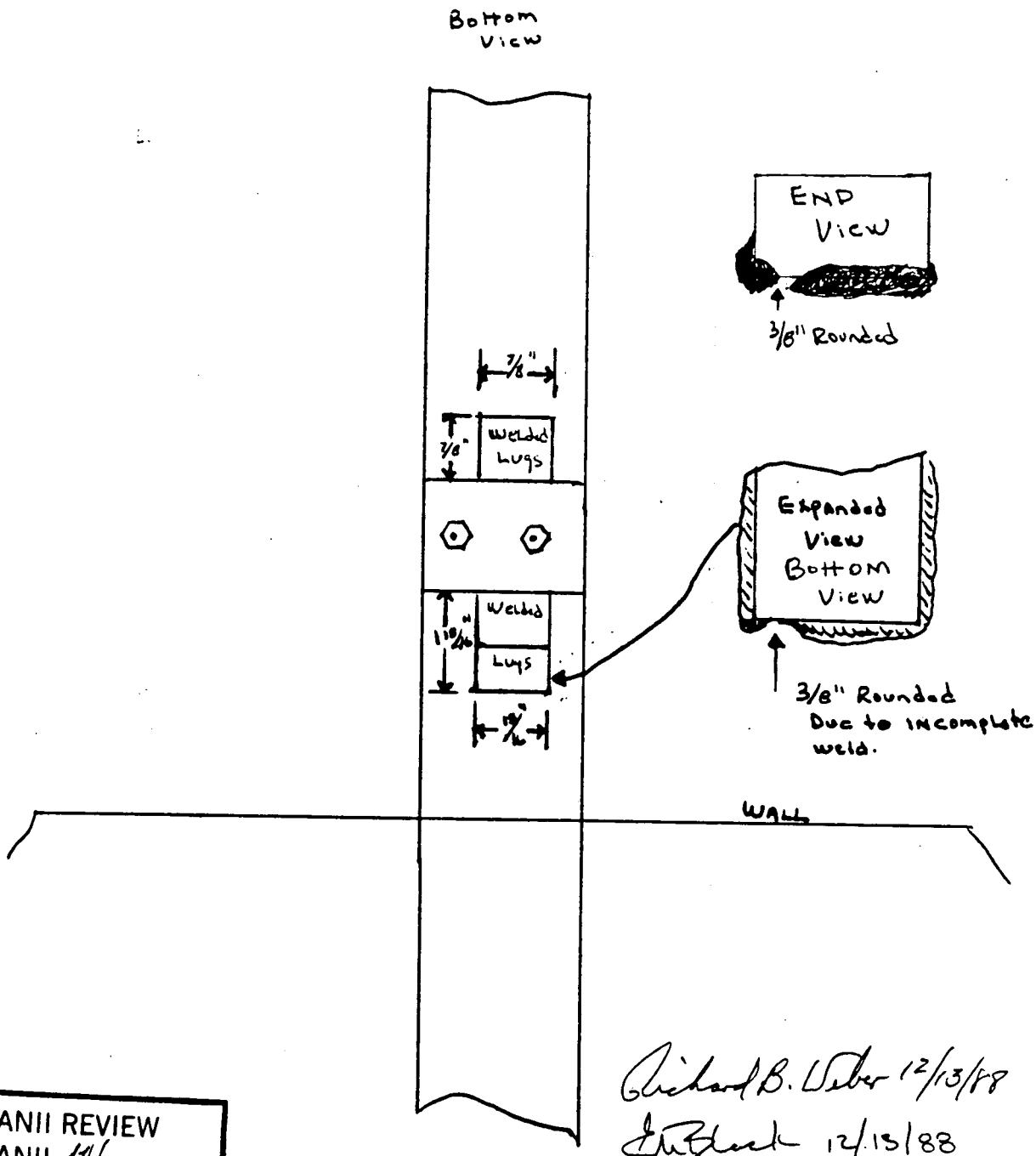
SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Lp.B 2" SIS HLeg. High Head Inj. PROCEDURE CPL-IST-11, Rev. 0

EXAMINER Arnold A. Bolgin II LEVEL II DATE 12-12-88

PT X MT WELD NO. F-WS



Richard B. Weber 12/13/88
[illegible] 12/13/88

ANII REVIEW
ANII [illegible]
DATE 12-14-88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Loop B 2" SIS HLEG High Head Inj PROCEDURE CPL-ISI-8, Rev 0

EXAMINER Arnold A. Bolyin II (LEVEL II) DATE 11-25-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
B	X			FLASHLIGHT MIRROR	VT-3
D	X			FLASHLIGHT MIRROR	VT-3

ANII REVIEW
ANII [illegible]
DATE 11-29-88

Richard B. Weber 4/27/88
[illegible] 11/28/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Loop B 2" SIS H. Leg High Head Inj. PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Arnold A. Bolyin II LEVEL II DATE 11-23-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
E			X	Flashlight	Vt-3, See Attached Ind. Sheet 5/8" Defl.
F			X	Flashlight	Vt-3, See Attached Ind. Sheet

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/25/88
Jim Black 11/26/88

FORM 45934B

283

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

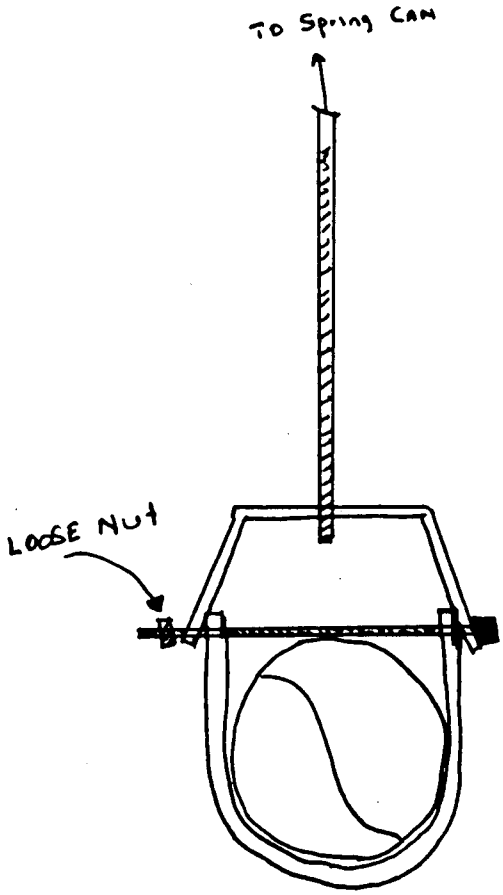
PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Loop B 2" SIS H.Leg High Head Inj. PROCEDURE CPL-1S1-8, Rev. 0

EXAMINER Donald A. Bolyn II LEVEL II DATE 11-23-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. E

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/25/88
Ch B Cook 11/26/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

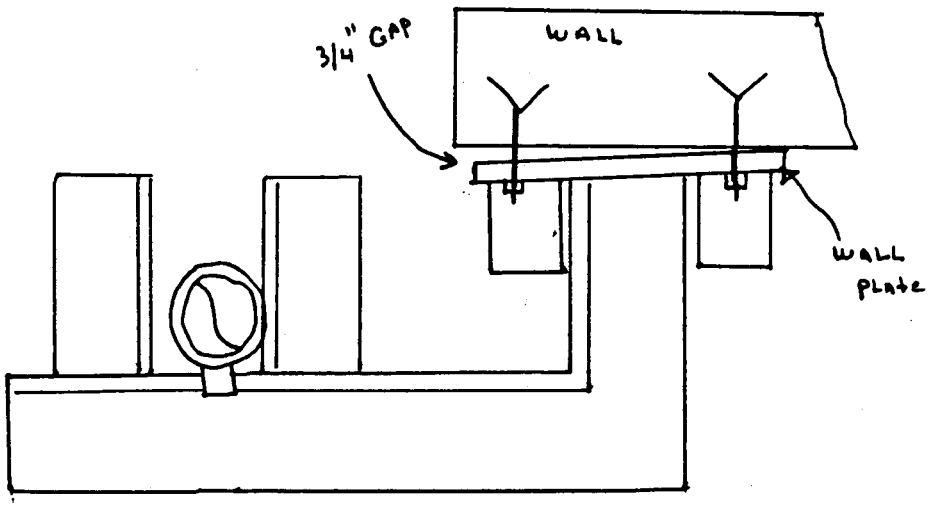
PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Loop B 2" SIS H.Leg High Head INJ. PROCEDURE CPL-1S1-8, Rev 0

EXAMINER Noel A. Bryan II LEVEL II DATE 11-23-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. F

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/25/88
Chu Black 11/26/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL- 141

SYST/COMP LP B 2" SIS HLEG High Head INJ. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER [illegible] LEVEL II DATE 11-29-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
G			X	MIRROR FLASHLIGHT	VT-3, 1 3/16" Defl., Insulated Pipe. See Attached Gen. Ind. Data Sheet.
H			X	MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached Gen. Ind. Data Sheet.
I			X	MIRROR FLASHLIGHT	VT-3, Insulated Pipe. See Attached Gen. Ind. Data Sheet.
J		X		MIRROR FLASHLIGHT	VT-3, Insulated Pipe., See Attached Gen. Ind. Data Sheet.
K	X			MIRROR FLASHLIGHT	VT-3, Insulated Pipe
L	X			MIRROR FLASHLIGHT	VT-3, Insulated Pipe
M		X		MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached Gen. Ind. Data Sheet.
N		X		MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached Gen. Ind. Data Sheet.
O	X			MIRROR FLASHLIGHT	VT-3
P		X		MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached Gen. Ind. Data Sheet.
Valve 866B			X	FLASHLIGHT	VT-2; 2 Studs and 4 Nuts Examined in Place, Evidence of Leakage from Valve Stem.

ANII REVIEW
ANII [illegible]
DATE 12-1-88

Richard B. Weber 11/30/88
JM Black 11/30/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

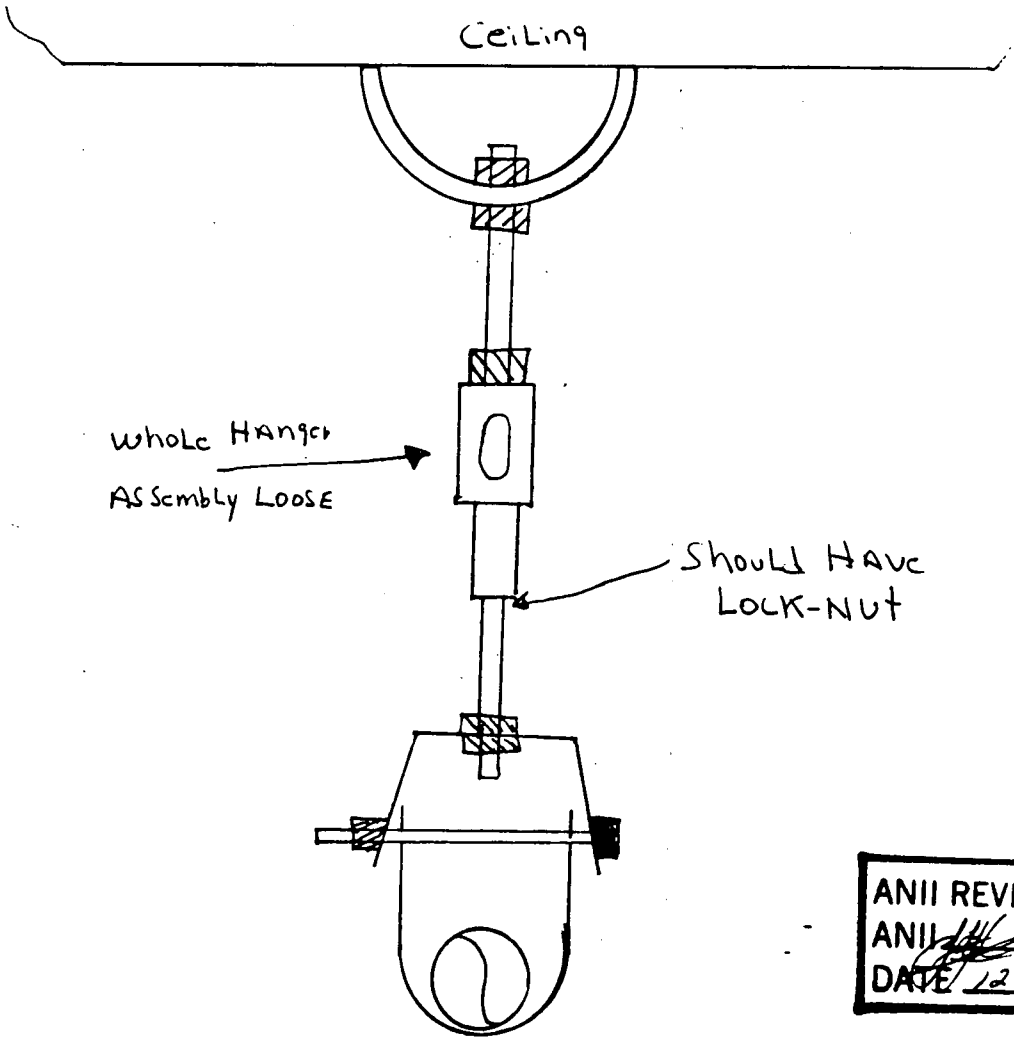
PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP LP B 2" SIS HLEG High HEAD INJ. Line PROCEDURE CPL-IST-8, Rev. 0

EXAMINER Nmrl A. Bolyn II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger G

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
J.M. Black 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

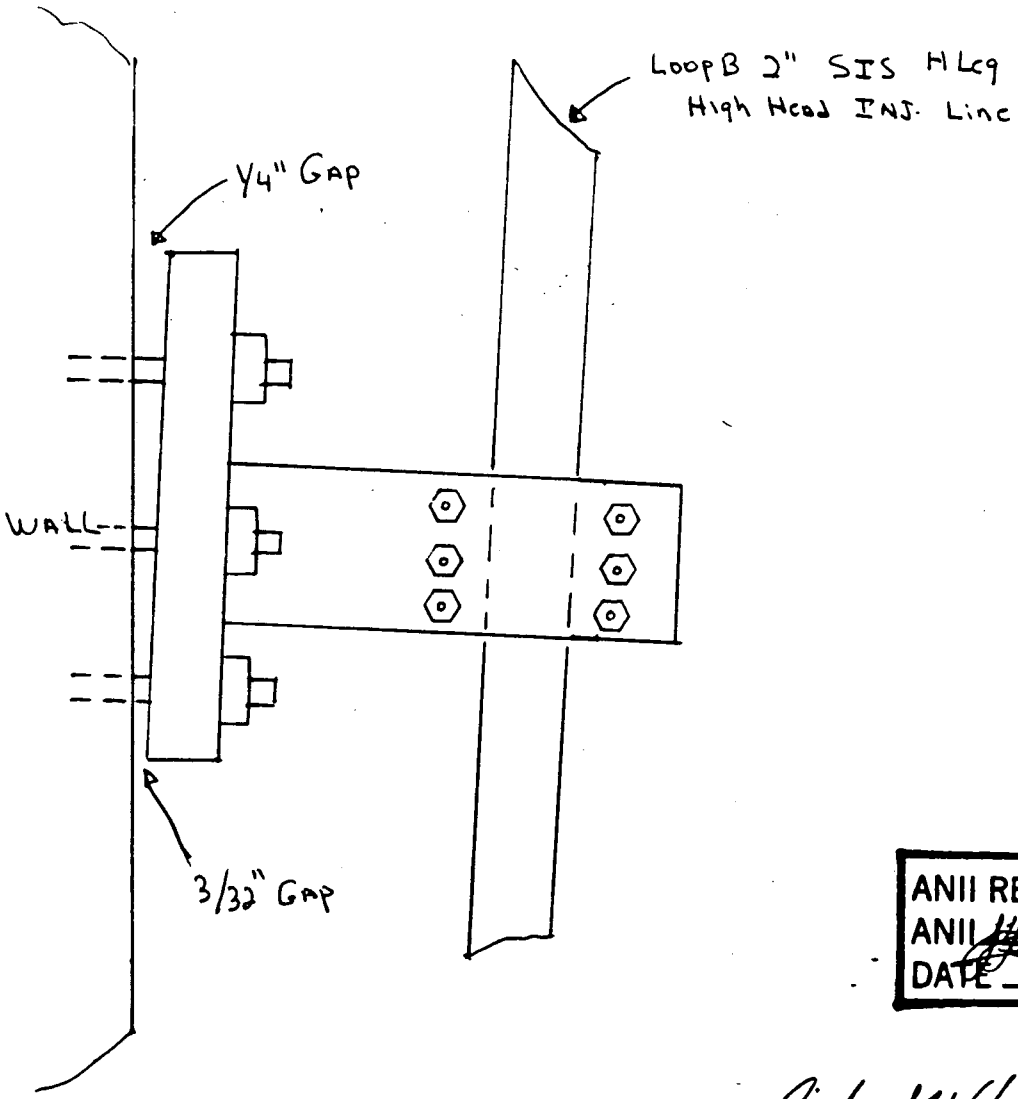
PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Loop B 2" SIS HLeg High Head INJ. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Harold H. Bolyin II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger H

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
Eu Black 11/30/88

288

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

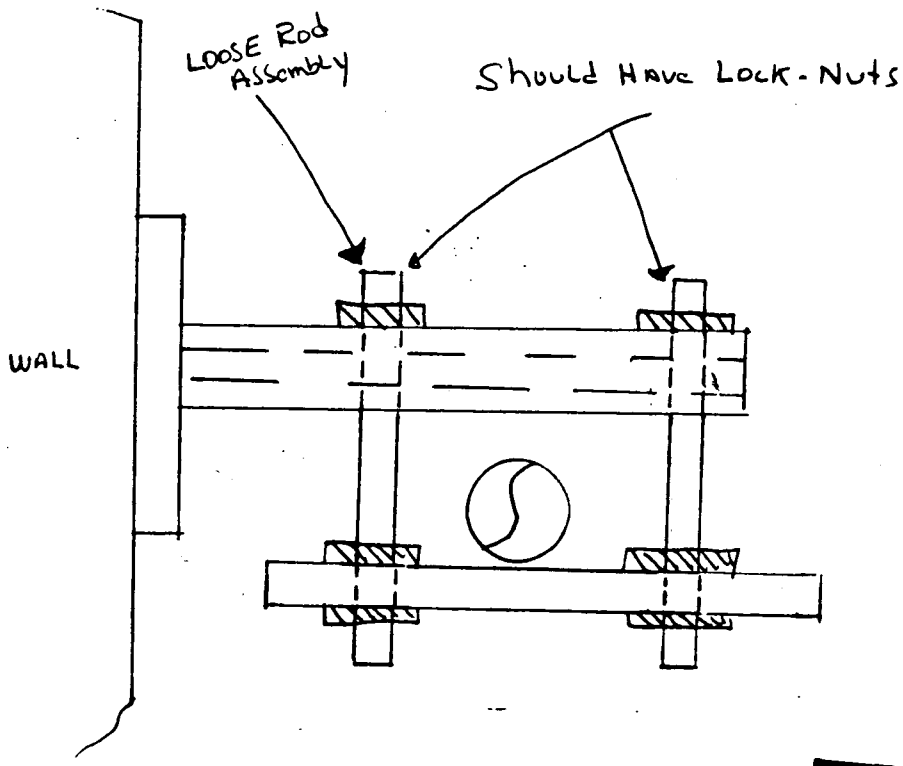
PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP LP B 2" SIS HLeg High Head INJ. Line PROCEDURE CPL-IST-8, Rev. 0

EXAMINER Nmla. Bolfin II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger I

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B Weber 11/30/88
Eric Black 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

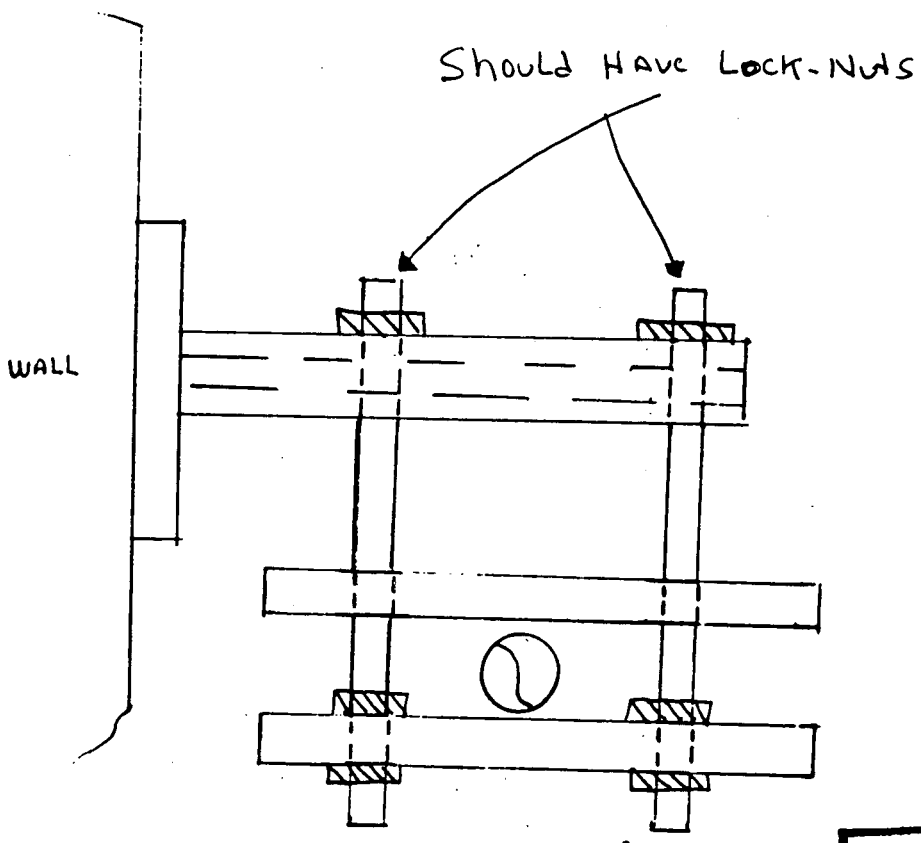
PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP LP B 2" SIS HLeg High Head INJ. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Nmel A. Bolin II DATE 11-29-88
LEVEL II

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger J

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
[illegible] 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

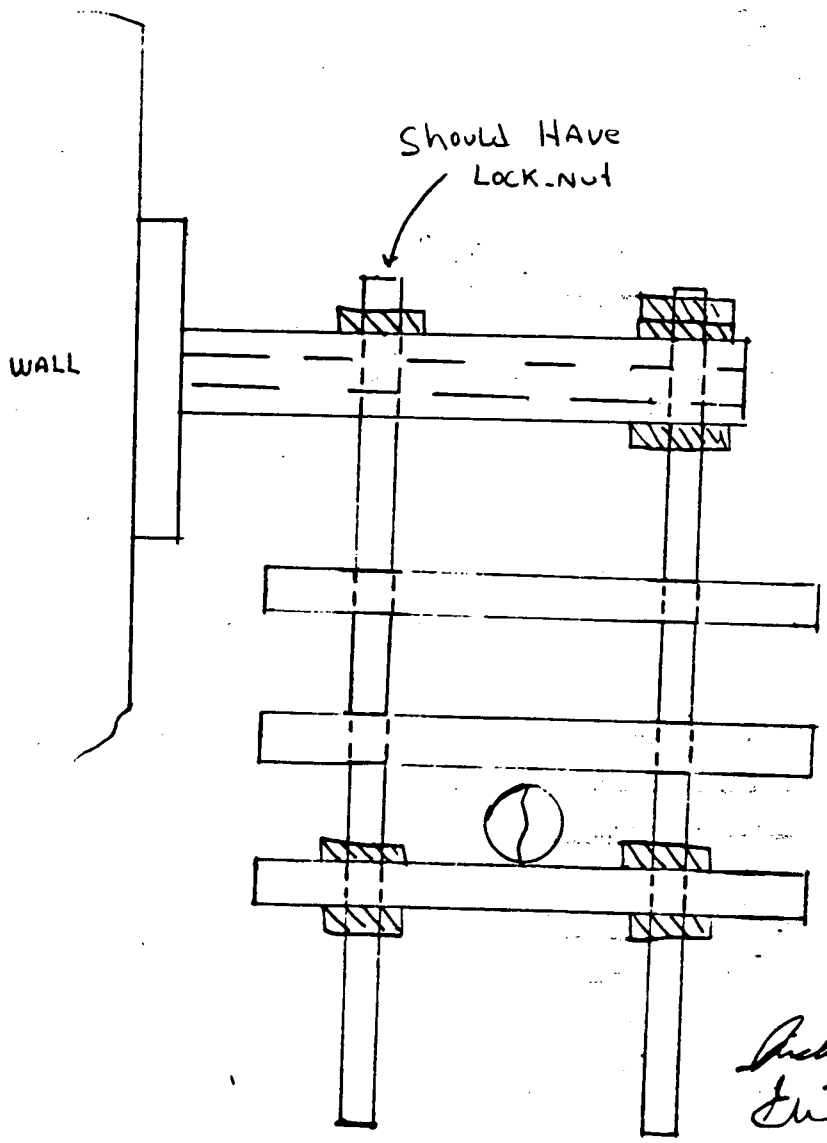
PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP LP B 2" SIS HLeg High Head INJ. Line PROCEDURE CPL-IST-B, Rev. 0

EXAMINER Arnold A. Bolyn II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger M

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
Eric Black 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

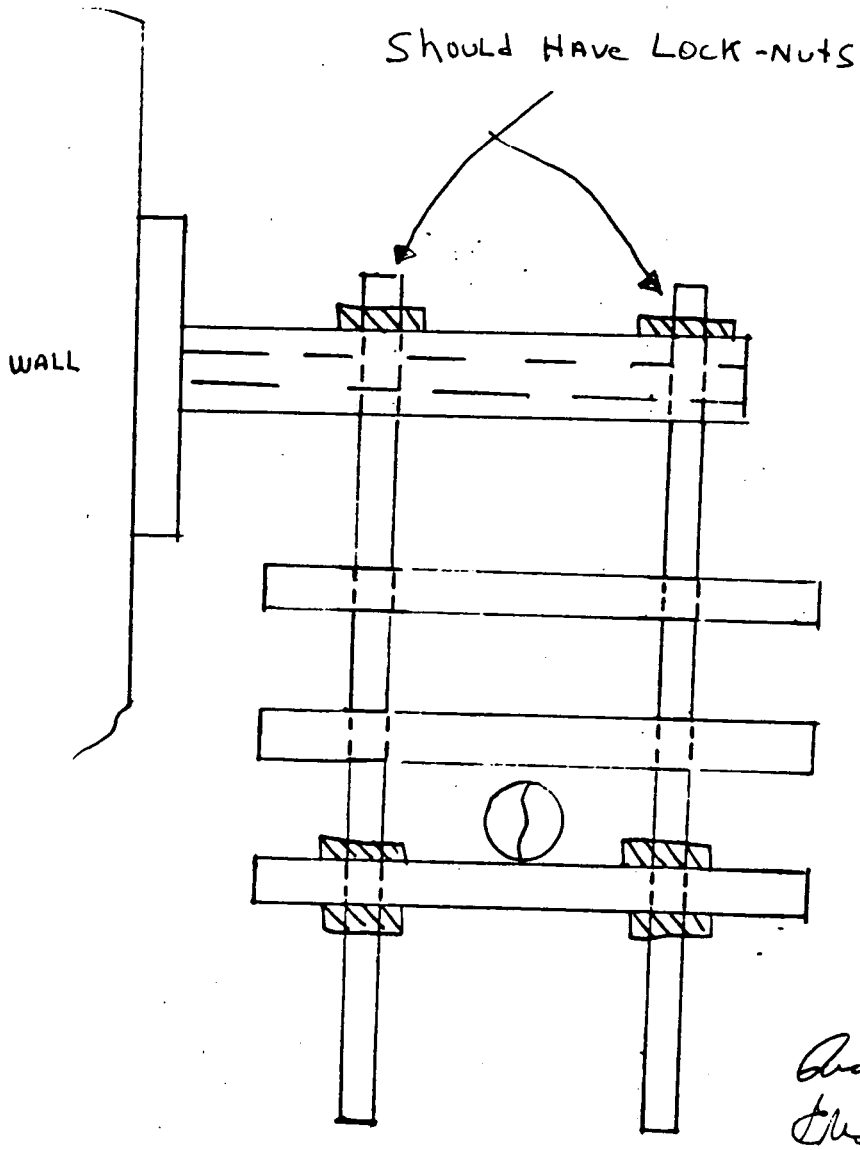
PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP LP B 2" SIS HLeg High Head INJ. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Arnold A. Bolin II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger N

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII RF
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
H. Black 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

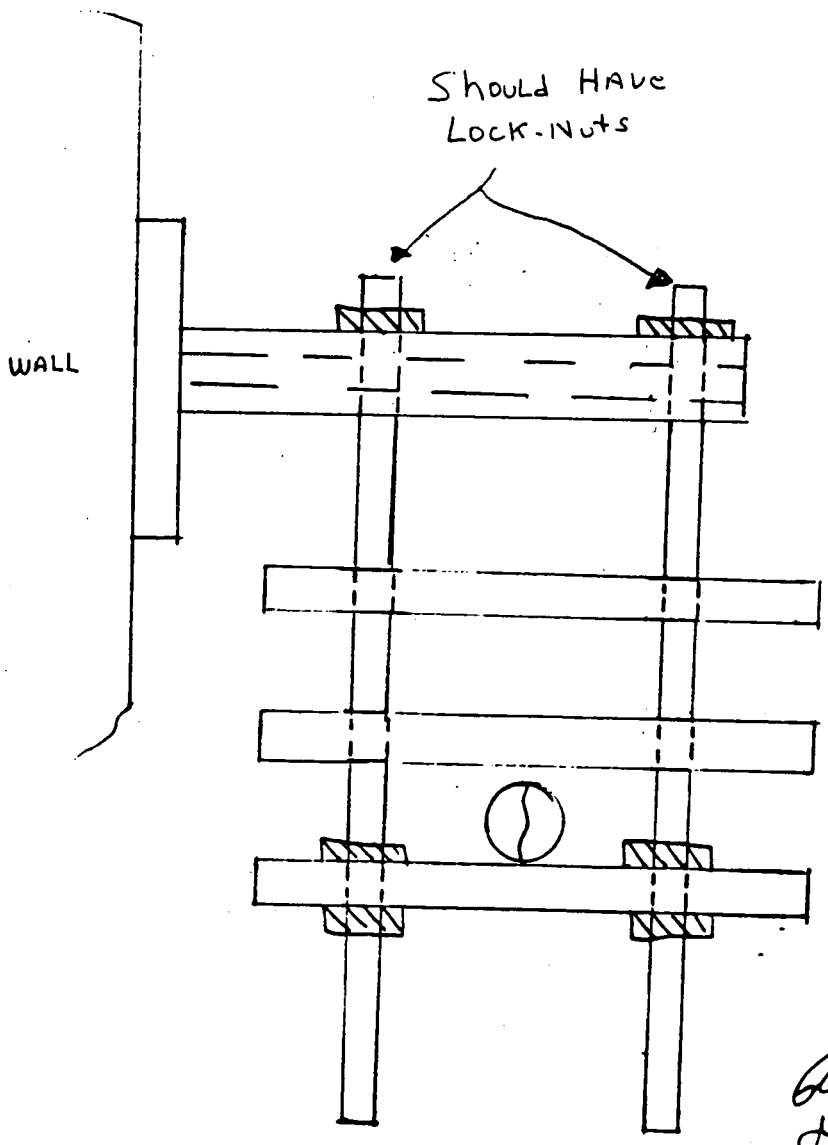
PLANT H. B. Robinson UNIT 2 SKETCH CPL. 141

SYST/COMP LP B 2" SIS HLeg High Head INJ. Line PROCEDURE CPL-IST. 8, Rev. 0

EXAMINER Mark A. Bolin II LEVEL II DATE 11-29-88

DETECTED BY U/T___ P/T___ M/T___ V/T X IDENT NO. Hanger P

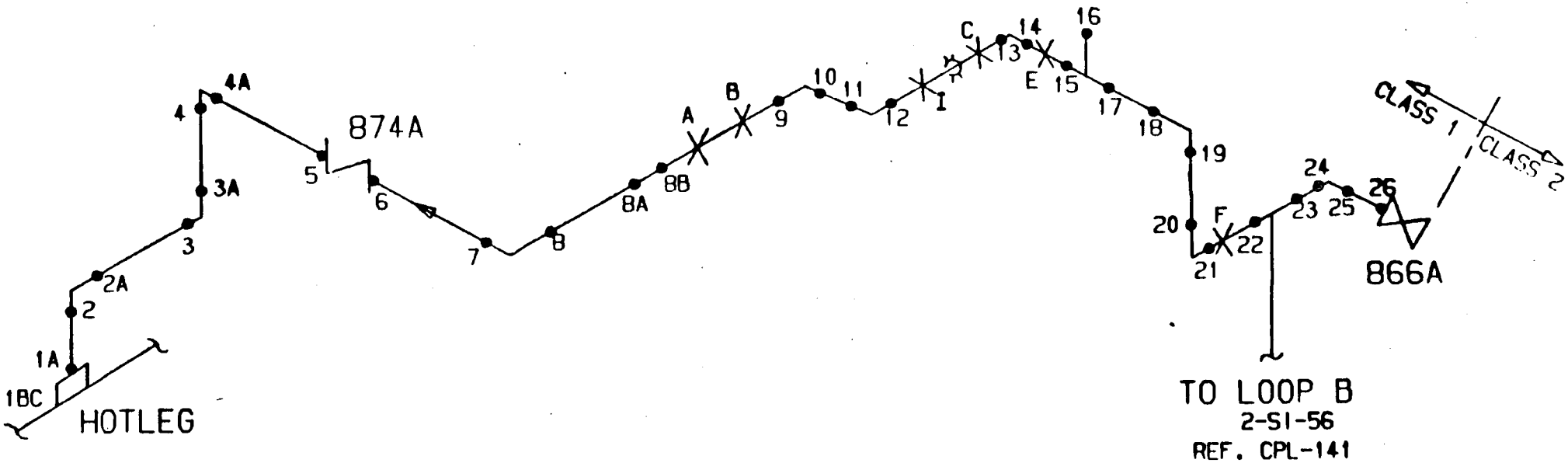
PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
Jim Black 11/30/88

SPRING HANGERS
F, I



293

CPL-142 REV 3

H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: LOOP C 2" HLEG HIGH HEAD INJ.		
LINE NO. 2-SI-57	CPL- 142 REV. 3	

SKETCH
CPL-142

EXAMINATION SUMMARY
FOR

1989

294

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
55	4				X									
55	10					X								
55	11				X									
55	12				X									
56	A							X						
56	B							X						
56	C							X						
56	E							X						
56	F							X						
56	I							X						
72	V866A (2)							x						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-142

SYST/COMP. LOOP C 2" H.LEG HIGH HEAD INJ. PROCEDURE CPL ISI-11 REV.0

EXAMINER Gary A Morin II Harry M Ackerman II (LEVEL II) DATE 11-21-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
4	X			TEMP - 70°F

ANII REVIEW
ANII
DATE 11-25-88

Richard B. Weber 11/22/88
11/23/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B ROBINSON UNIT 2 SKETCH CPL-142

SYST/COMP. LOOP "C" 2" H. LEG HIGH HEAD INJ. PROCEDURE CPL-IST-11 REV.0

EXAMINER Robert S Conant II / Ralph Churchfield I (LEVEL II) DATE 11-22-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
10		X		TEMP. 72°F SEE SURFACE INDICATION DATA SHEET

ANII REVIEW
ANII [signature]
DATE 11-26-88

Richard B Weber 11/23/88
[signature] 11/25/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-142

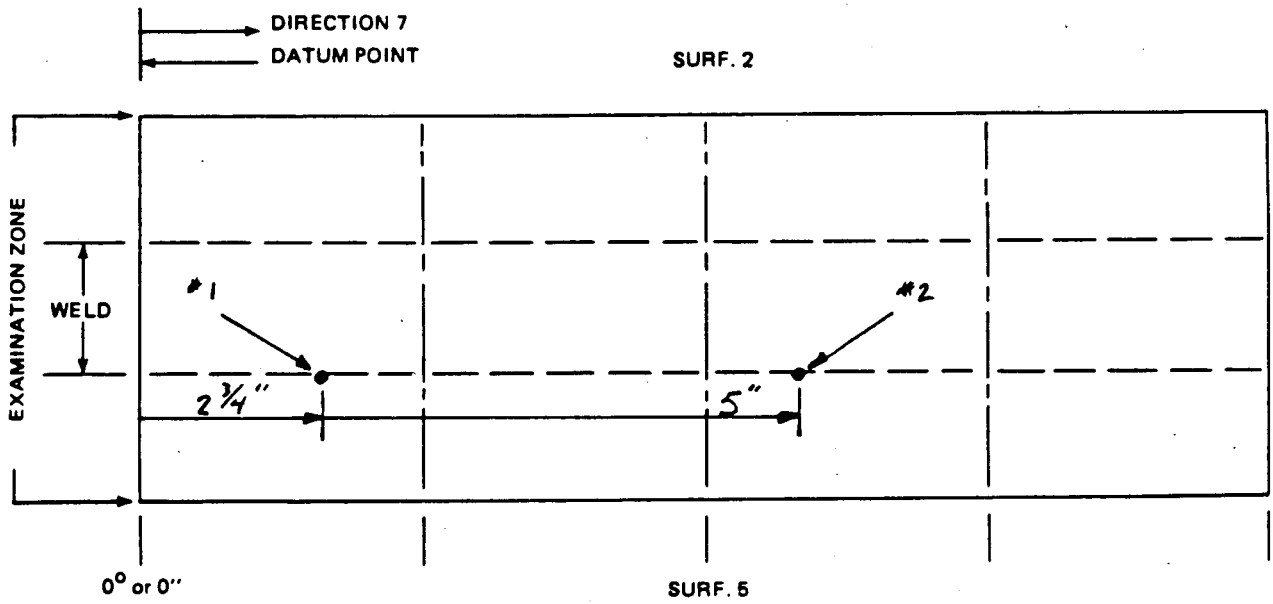
SYST/COMP LOOP "C" 2" H.LEG HIGH HEAD INJ. PROCEDURE CPL-ISI-11 REV. 0

EXAMINER [signature] LEVEL II DATE 11-22-88

PT X MT WELD NO. 10

VISUAL AIDS FLASHLIGHT, MIRROR, 6" RULE

REMARKS TWO 1/16" ROUNDED INDICATIONS OCCURING AT TOE ON 5 SIDE OF WELD #1 AT 2 3/4" FROM O #2 AT 5" FROM O



ANII REVIEW
ANII [signature]
DATE 11-26-88

Richard B. Weber 11/23/88
[signature] 11/25/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-142

SYST/COMP. LOOPC 2" H. LEG HIGH HEAD INJ. PROCEDURE CPL-ISI-11 REV 0

EXAMINER Robert S Cant II / Ralph Churchfield I (LEVEL II) DATE 11-22-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
11	X			TEMP. 72°F
12	X			TEMP. 72°F

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/23/88
CM Blanck 11/24/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-142

SYST/COMP LOOP C 2" H LEG HIGH HEAD INJ. PROCEDURE CPL ISI-8 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 11-21-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A	X			FLASHLIGHT	VT-3
B	X			FLASHLIGHT	VT-3
I	X			FLASHLIGHT	SPRING CAN SETTING 15/16" VT-3
C	X			FLASHLIGHT	VT-3
E	X			FLASHLIGHT	VT-3
F	X			FLASHLIGHT	SPRING CAN SETTING 367 LBS 7/8" VT-3

ANII REVIEW
ANII [illegible]
DATE 11-25-88

Richard B. Weber 11/23/88
[illegible] 11/23/88

FORM 45934B

300

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-142

SYST/COMP LOOP C 2" HT EG. HIGH HEAD INJ. PROCEDURE CPL-151-8 REV. 0

EXAMINER George A Morini II LEVEL II DATE 12-9-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
V866A	X			FLASHLIGHT	TWO STUDS & NUTS IN PLACE VT-1

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
L M Blank 12/9/88

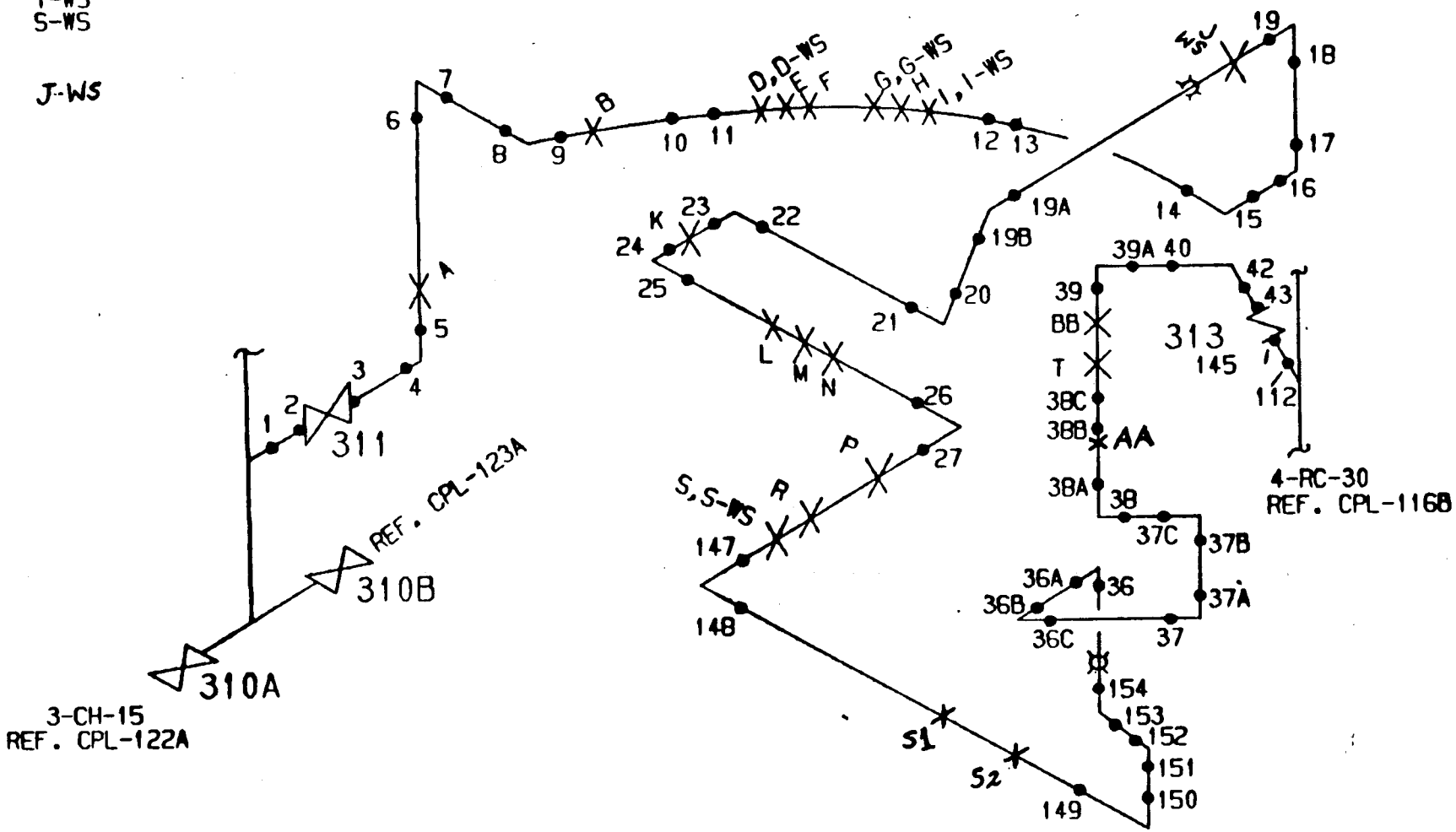
FORM 45934B

WELDED SUPPORT
D-WS
G-WS
I-WS
S-WS

J-WS

SPRING
T

SNUBBERS
B



CPL-143 REV 3

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: 2" AUXILIARY SPRAY LINE	
LINE NO. 2-CH-15B CPL-143 REV. 3	

301

WESTINGHOUSE FORM 46762

SKETCH CPL-143

302

EXAMINATION SUMMARY FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
57	20				X									
57	21				X									
57	22				X									
57	23				X									
57	36C				X									
57	37				X									
57	37A				X									
73	V311 (6)							X						

WESTINGHOUSE FORM 46762

SKETCH CPL-143

303

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
58	A							X						
58	B							X						
58	D							X						
58	E							X						
58	F							X						
58	G							X						
58	H							X						
58	I							X						
58	J							X						
58	K							X						
58	L							X						
58	M							X						
58	N							X						
58	P							X						
58	R							X						
58	S							X						
58	T									X				SEE TAB F
58	AA									X				SEE TAB F
58	BB									X				SEE TAB F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-143

SYST/COMP. 2" AUXILIARY SPRAY LINE PROCEDURE CPL IST-11 REV.0

EXAMINER Nancy M. Jackman II LEVEL II DATE 11-19-88

P/T		BATCH NOS.	M/T	
CLEANER	MAGNAFLUX	886017	EQUIPMENT	
PENETRANT	MAGNAFLUX	85L045		
DEVELOPER	MAGNAFLUX	88B019	EXAM. MEDIUM	
REMOVER	MAGNAFLUX	886017	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
20	X			TEMP - 70°F
21	X			TEMP - 70°F
22	X			TEMP - 70°F

ANII REVIEW
ANII
DATE 11-22-88

Richard B. Weber 11/20/88
J M Black 11/20/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-143

SYST/COMP. 2" AUXILIARY SPRAY LINE PROCEDURE CPL-ISI-11 REV.0

EXAMINER Gerry A Morin II / Ralph Churchfield I (LEVEL II) DATE 11-21-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
23	X			TEMP. 70° F

ANII REVIEW
ANII
DATE 11-25-88

Richard B. Weber 11/22/88
[illegible] 11/23/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP. 2" Auxiliary Spray Line PROCEDURE CPL-ISI-11, Rev.0

EXAMINER Nmel A. Bolyin II LEVEL II DATE 12-9-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
36C	X			Temp. 63°F
37	X			Temp. 63°F
37A	X			Temp. 63°F

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
Jim Blanck 12/9/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-143

SYST/COMP 2" AUXILIARY SPRAY LINE PROCEDURE CPL ISI-8 REV.0

EXAMINER [signature] LEVEL II DATE 11-19-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
V311	X			FLASHLIGHT	V9-1 6 STUDS + NUTS EXAMINED IN PLACE

ANII REVIEW
ANII [signature]
DATE 11-25-88

Richard B. Weber 11/23/88
[signature] 11/23/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP 2" Aux. Spray Line PROCEDURE CPL-IST-B, Rev. 0

EXAMINER Gerry A. Morris II LEVEL II Paul J. Kovallo-I DATE 11-25-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A	X			FLASHLIGHT	VT-3
B	X			FLASHLIGHT	VT-3
D	X			FLASHLIGHT	VT-3
E	X			FLASHLIGHT	VT-3
F	X			FLASHLIGHT	VT-3
G	X			FLASHLIGHT	VT-3
H	X			FLASHLIGHT	VT-3
I	X			FLASHLIGHT	VT-3
J	X			FLASHLIGHT	VT-3
K	X			FLASHLIGHT	VT-3
L	X			FLASHLIGHT	VT-3
M	X			FLASHLIGHT	VT-3
N	X			FLASHLIGHT	VT-3
P	X			FLASHLIGHT	VT-3
R	X			FLASHLIGHT	VT-3
S	X			FLASHLIGHT	VT-3
					NOTE. LINE INSULATED

ANII REVIEW
ANII [illegible]
DATE 11-29-88

Richard B. Weber 11/28/88
J. N. Bleak 11/28/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-ISI-8, Rev.0

EXAMINER Nmel A. Bolyn II LEVEL II DATE 12-8-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
AA			X	Flashlight Mirror	VT-3, See Attached General Indication Data Sheet.

ANII REVIEW
ANII [illegible]
DATE 12-10-88

Richard B Weber 12/9/88
[illegible] 12/9/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

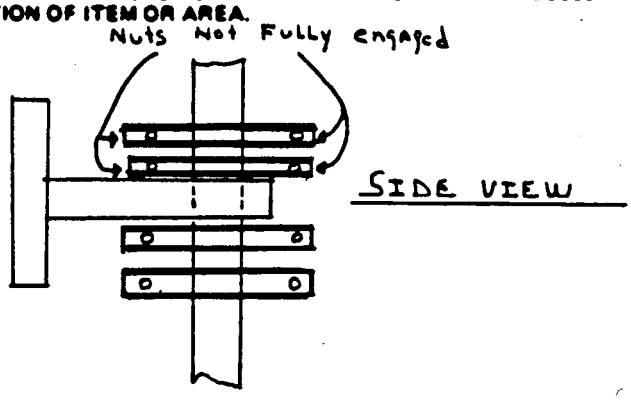
PLANT H.B. Robinson UNIT 2 SKETCH CPL-143

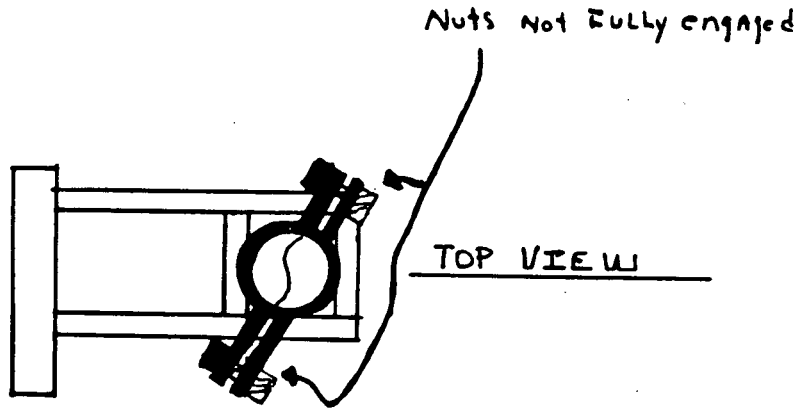
SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-ISI-8, Rev.0

EXAMINER Mark A. Bolgim II LEVEL II DATE 12-8-88

DETECTED BY UT___ PT___ MT___ VT X IDENT NO. Hanger AA

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.





ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
L.R. Blank 12/9/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Arnold Bolyn II LEVEL II DATE 11-22-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
BB			X	MIRROR FLASHLIGHT	VT-3, INSUL. Pipe, See Attach. Gen. Ind. Sheet
T			X	MIRROR FLASHLIGHT	VT-3, INSUL. Pipe, See Attach. Gen. Ind. Sheet
					Dual Spring Can. (1) 88 lbs / 2½" Defl.
					(2) OFF Scale on the High Side

ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
[illegible] 11/30/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

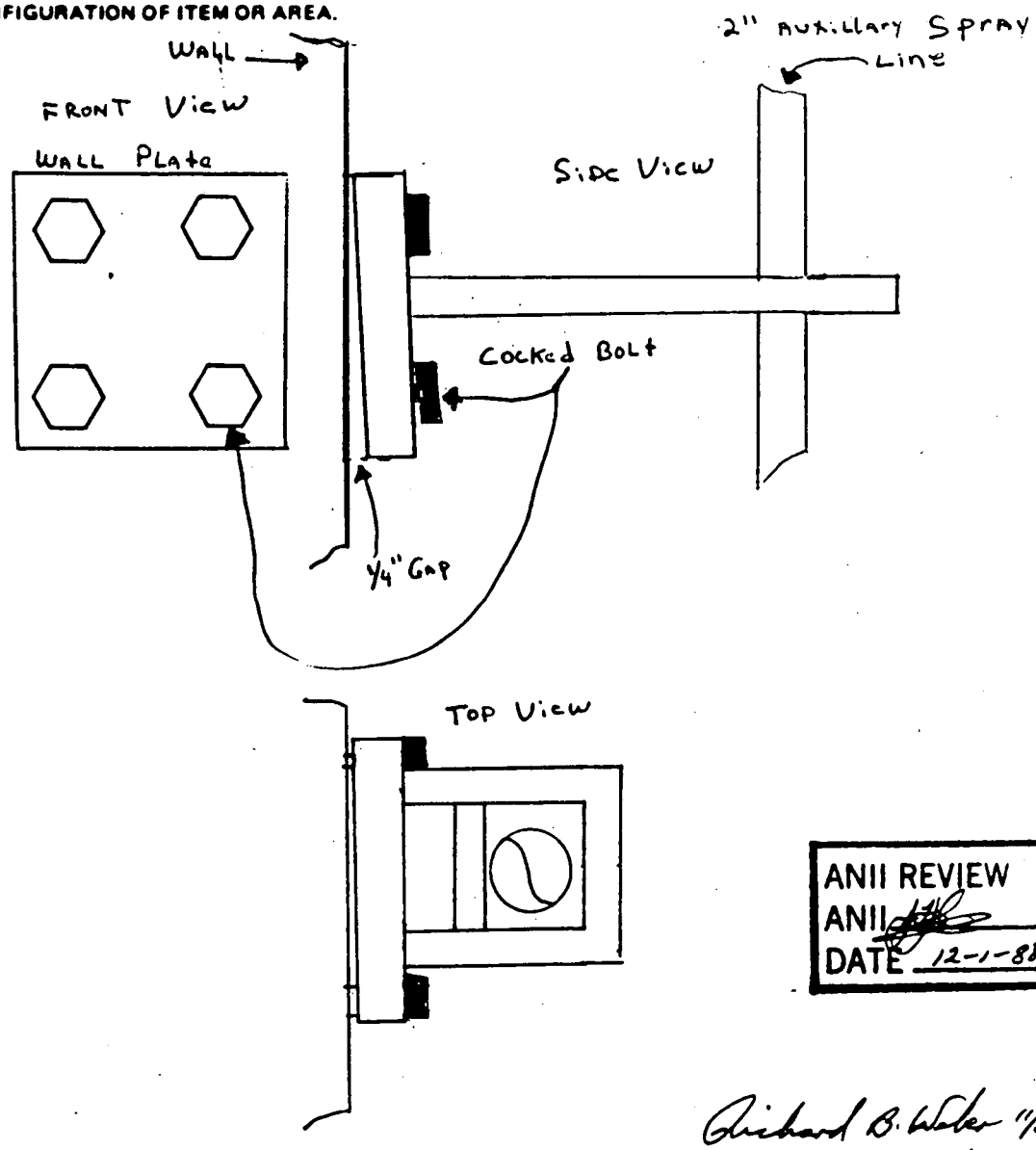
PLANT H.B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER [illegible] II LEVEL II DATE 11-22-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger BB

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII [illegible]
DATE 12-1-88

Richard B. Weber 11/30/88
[illegible] 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

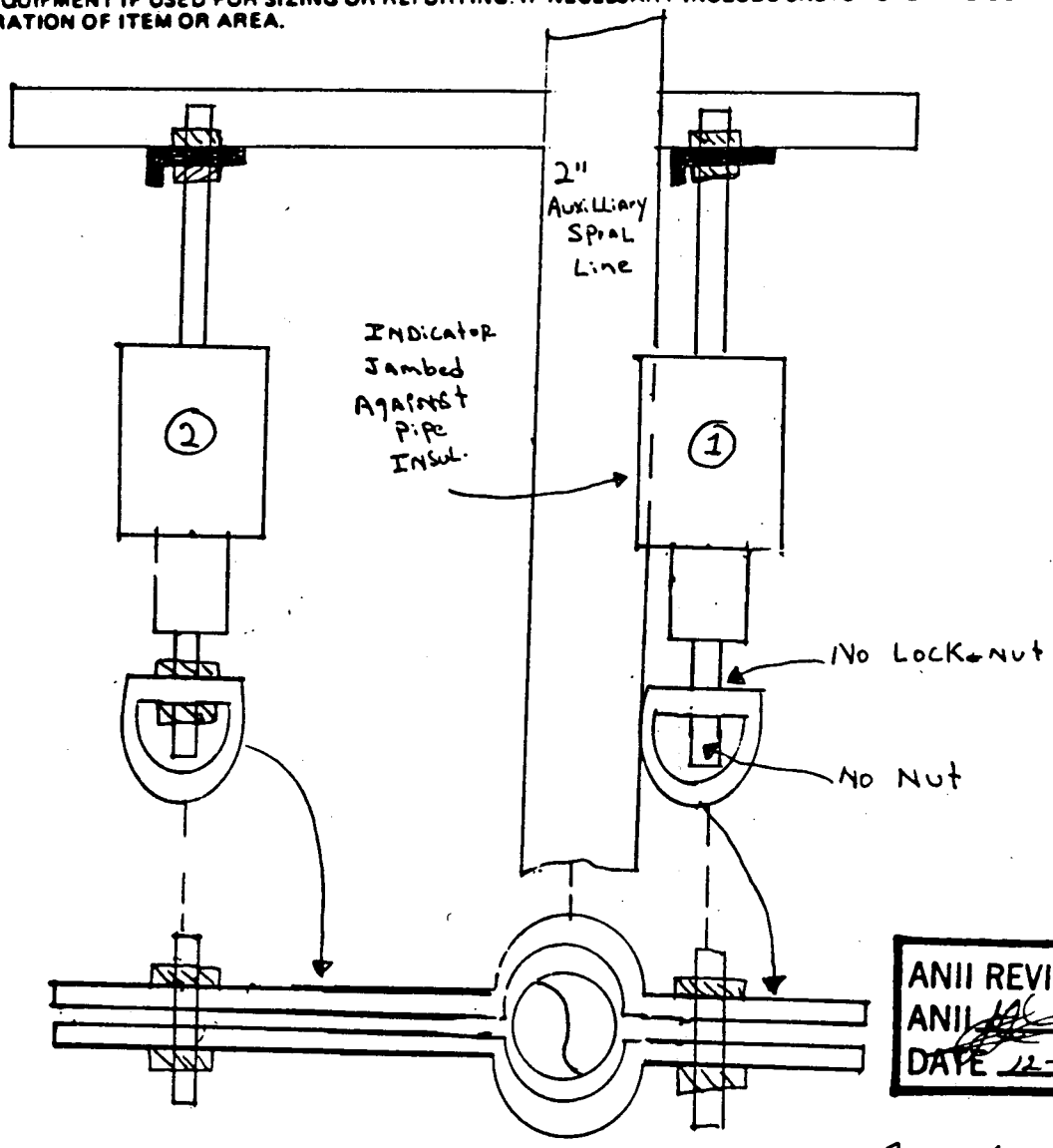
PLANT H.B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-IST-8, Rev. 0

EXAMINER Arnold A. Bolin II LEVEL II DATE 11-22-88

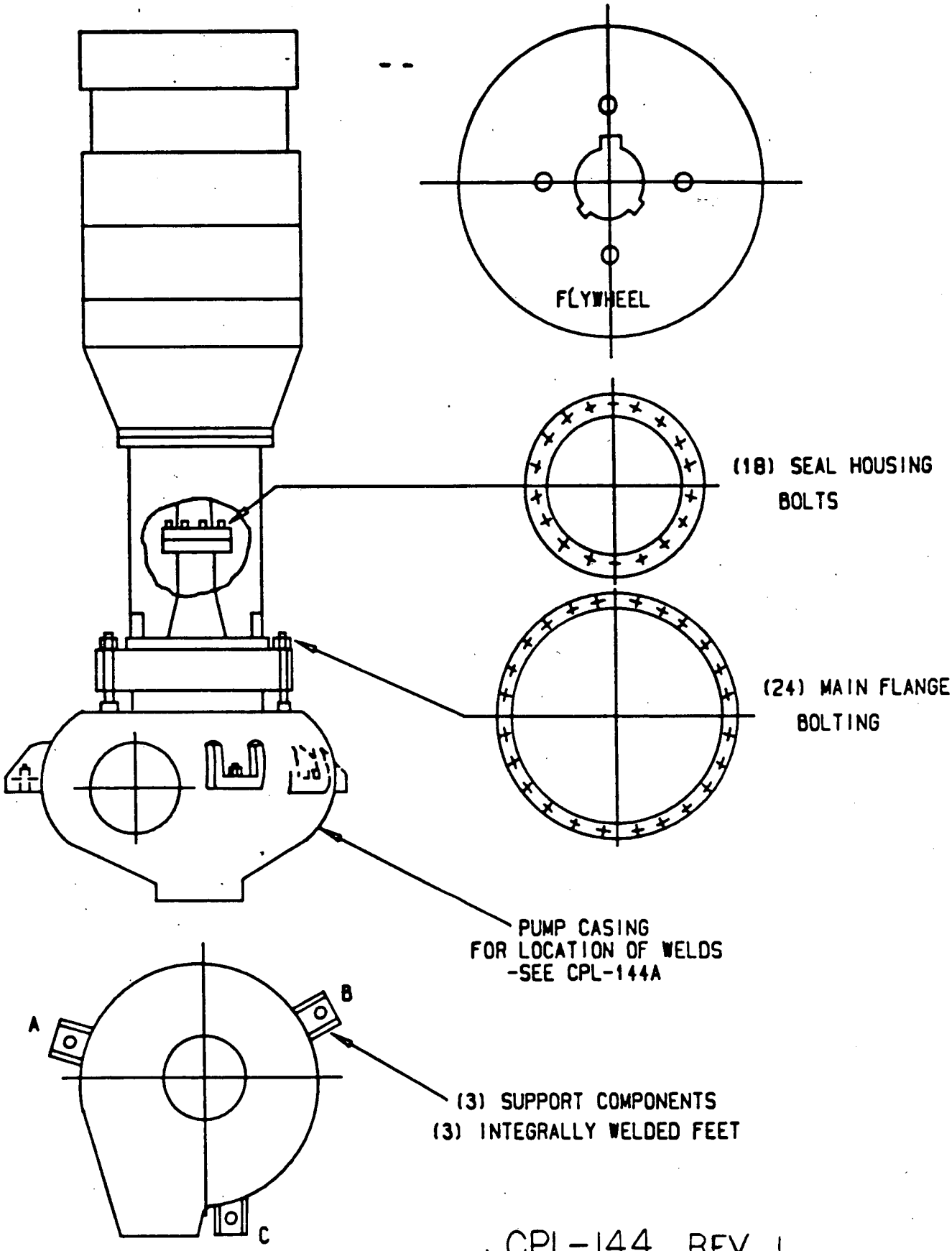
DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger T

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
E.M. Black 11/30/88



CPL-144 REV 1

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION REACT-COOLANT PUMPS A,B,&C	
LINE NO.	CPL-144 REV. 1

WESTINGHOUSE FORM 4G762

SKETCH CPL-144

EXAMINATION SUMMARY
FOR

1989

315

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
59	FLYWHEEL A	X												
59	FLYWHEEL B	X												
59	FLYWHEEL C	X												

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EXAMINATION DATA FOR RC PUMP FLYWHEELS

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-144

SYST/COMP. REACT-COOLANT PUMP FLYWHEELS PROCEDURE CPL IST-41 REV 0

EXAMINER Paul J. Kovallo II (LEVEL II) / Gary M. Ackerman I DATE 1-2-89

EQUIPMENT

INST. S/N SONIC MARK I #11226E

REP. RATE 3K

REJECT OFF

DAMPING MIN

FILTER HI

COUPLANT SONOTRACE 40 #8767

TRANSDUCERS

	PERIPHERY EXAM.	GAGE HOLE AND KEYWAY CORNER
SER. NO.	C29343	L83003
SIZE	0.75" DIA.	0.375" X 1.0"
FREQ.	2.25 MHz	2.25 MHz.
ANGLE	0°	0°

CALIBRATION

1. PERIPHERY – REAM BOLT HOLE REFLECTION — UPPER PLATE 60% FSH — LOWER PLATE 80% FSH — CAL. TIME/CHECK 0905/0930
2. KEYWAY CORNER – BORE BACK REFLECTION — ✓ (VERIFY 90% MIN.) — CAL. TIME/CHECK 0840/0900
3. RADIAL GAGE HOLE – REAM BOLT HOLE REFLECTION – NEAR 80% FSH — FAR 28% FSH — CAL. TIME/CHECK 0815/0835

	IDENT. NUMBER	UT RESULTS NI	NRI	RI	REMARKS
PERIPHERY	PUMP 1	X			PUMP "A" - FLYWHEEL EXAMINED IN PLACE.
	PUMP 2				
	PUMP 3				
	PUMP 4				
KEYWAY COR.	PUMP 1	X			PUMP "A" - FLYWHEEL EXAMINED IN PLACE.
	PUMP 2				
	PUMP 3				
	PUMP 4				
RADIAL GA. HOLE	PUMP 1	X			PUMP "A": FLYWHEEL EXAMINED IN PLACE. Richard C. Weber 1/3/89
	PUMP 2				
	PUMP 3				
	PUMP 4				

FORM 45956B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EXAMINATION DATA FOR RC PUMP FLYWHEELS

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-144

SYST/COMP. REACT. COOLANT PUMP FLYWHEELS PROCEDURE CPL IST-41 REV. 0

EXAMINER Paul J. Kovallo II, Harry M. Ackerman II LEVEL II DATE 1-1-89

EQUIPMENT

INST. S/N SONIC MARK I #11226E

REP. RATE 3K

REJECT OFF

DAMPING MIN

FILTER HI

COUPLANT SONOTRACE 40 #8767

TRANSDUCERS

	PERIPHERY EXAM.	GAGE HOLE AND KEYWAY CORNER
SER. NO.	C29343	L83003
SIZE	0.75" DIA	0.375" X 1.0"
FREQ.	2.25 MHz.	2.25 MHz.
ANGLE	0°	0°

CALIBRATION

1. PERIPHERY – REAM BOLT HOLE REFLECTION UPPER PLATE 65% FSH LOWER PLATE 80% FSH CAL. TIME/CHECK 1610/1645
2. KEYWAY CORNER – BORE BACK REFLECTION ✓ (VERIFY 90% MIN.) CAL. TIME/CHECK 1650/1710
3. RADIAL GAGE HOLE – REAM BOLT HOLE REFLECTION – NEAR 80% FSH FAR 80% FSH CAL. TIME/CHECK 1715/1735

	IDENT. NUMBER	UT RESULTS NI	NRI	RI	REMARKS
PERIPHERY	PUMP 1				PUMP "B". FLYWHEEL EXAMINED IN PLACE.
	PUMP 2	X			
	PUMP 3				
	PUMP 4				
KEYWAY COR.	PUMP 1				PUMP "B" - FLYWHEEL EXAMINED IN PLACE.
	PUMP 2	X			
	PUMP 3				
	PUMP 4				
RADIAL GA. HOLE	PUMP 1				PUMP "B". FLYWHEEL EXAMINED IN PLACE.
	PUMP 2	X			
	PUMP 3				
	PUMP 4				

Richard B. Weber 4/3/89

FORM 45956B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EXAMINATION DATA FOR RC PUMP FLYWHEELS

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL - 144

SYST/COMP. REACT-COOLANT PUMP FLYWHEEL PROCEDURE CPL IST-41 REV.0

EXAMINER [illegible] LEVEL II [illegible] I DATE 11-18-88

EQUIPMENT

INST. S/N #08018E

REP. RATE 3K

REJECT OFF

DAMPING MIN

FILTER OFF

COUPLANT SONOTRACE 40 #8767

TRANSDUCERS

	PERIPHERY EXAM.	GAGE HOLE AND KEYWAY CORNER
SER. NO.	H04313	L83003
SIZE	1.0" DIA	0.375" x 1.0"
FREQ.	2.25 MHz.	2.25 MHz.
ANGLE	0°	0°

CALIBRATION

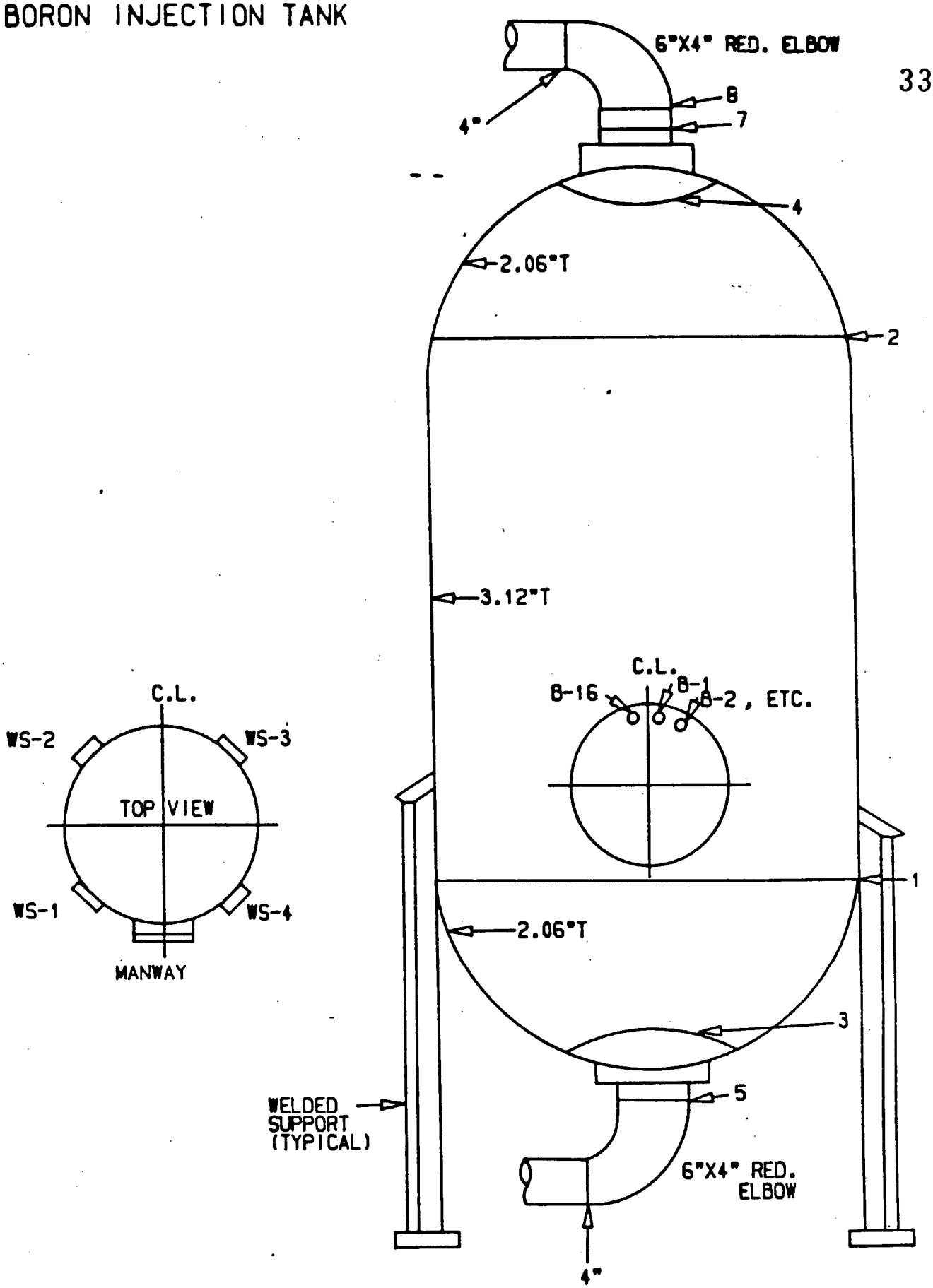
1. PERIPHERY – REAM BOLT HOLE REFLECTION UPPER PLATE 65% FSH LOWER PLATE 80% FSH CAL. TIME/CHECK 1600/1645
2. KEYWAY CORNER – BORE BACK REFLECTION ✓ (VERIFY 90% MIN.) CAL. TIME/CHECK 1430/1500
3. RADIAL GAGE HOLE – REAM BOLT HOLE REFLECTION – NEAR 80% FSH FAR 35% FSH CAL. TIME/CHECK 1510/1550

	IDENT. NUMBER	UT RESULTS NI	NRI	RI	REMARKS
PERIPHERY	PUMP 1				PUMP C FLYWHEEL EXAMINED IN PLACE
	PUMP 2				
	PUMP 3	X			
	PUMP 4				
KEYWAY COR.	PUMP 1				PUMP C FLYWHEEL EXAMINED IN PLACE
	PUMP 2				
	PUMP 3	X			
	PUMP 4				
RADIAL GA. HOLE	PUMP 1				PUMP C FLYWHEEL EXAMINED IN PLACE
	PUMP 2				
	PUMP 3	X			
	PUMP 4				

Richard B. Weber 11/29/88
[illegible] 11/21/88

FORM 45956B

BORON INJECTION TANK



CPL-202 REV 1

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION: BORON INJECTION TANK	
LINE NO.	CPL-202 REV. 1

C F & I

WESTINGHOUSE FORM 46762

SKETCH CPL-202

EXAMINATION SUMMARY
FOR

1989

333

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
90	BOLTS 1 THRU 16	X												

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EXAMINATION DATA FOR STUDS, BOLTS AND NUTS

PLANT H. B. Robinson UNIT 2 SKETCH CPL-202

SYST/COMP. Boron Injection Tank PROCEDURE CPL-IST-15 Rev. 0

EXAMINER Arnold A. Bolfin II LEVEL II DATE 12-7-88

EQUIPMENT

INST. S/N Sonic MK1 SN# 06210E

REP. RATE 200

REJECT OFF DAMPING Min.

FILTER OFF

COUPLANT Sonotrace 40 Batch# 8767

TRANSDUCER

SERIAL NUMBER F16320

SIZE 0.375"

FREQUENCY 5.0 MHZ

ANGLE 0°

CALIBRATION

STUDS AND BOLTS 4" DIA. AND GREATER

CALIBRATION BLOCK _____

CURVE "A" 1ST SIGNAL _____ % FSH

2ND SIGNAL _____ % FSH

CURVE "B" CURVE "A" PLUS (+) 12 DB

CALIBRATION SENSIT. _____ DB

CALIBRATION TIME _____

EXAM. SENSIT. _____ DB

NUTS; STUDS AND BOLTS LESS THAN 4" DIA.

BACK SURFACE 80 % FSH

CALIB. SENSIT. 34 DB

CAL. TIME Initial 2000 Final 2200 NAB. 12-7-88

EXAM. SENSIT. 40db

CAL. CHECKS 2130

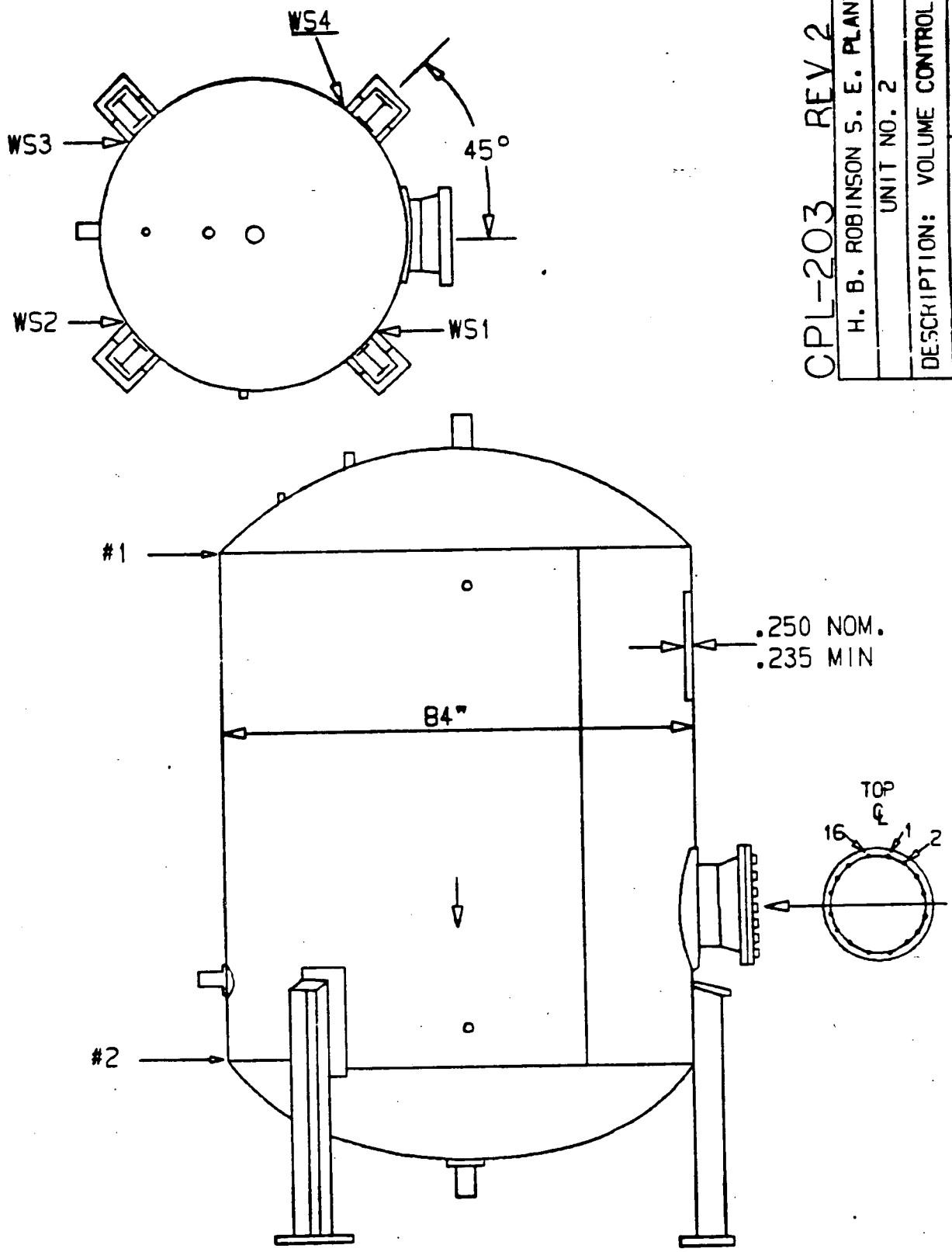
IDENT. NUMBER	UT RESULTS NI	NRI	RI	REMARKS
Manway	X			Examined in Place
Bolting B-1 Thru				
B-16				

ANII 12-11-88

Richard B. Walker 12/7/88

Jim Black 12/11/88

FORM 45955B



CPL-203 REV 2

H. B. ROBINSON S. E. PLANT

UNIT NO. 2

DESCRIPTION: VOLUME CONTROL TANK

TIME NO. N/A

WESTINGHOUSE FORM 46762

SKETCH CPL-203

EXAMINATION SUMMARY
FOR

1989

336

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
82	WS-3						X							NO CHANGE FROM LAST REPORT
														REEXAMINED WITH 2 HOUR DWELL TIME

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-203

SYST/COMP. VOLUME CONTROL TANK PROCEDURE CPL IST-11, REV.0

EXAMINER Gary L. Morini II (LEVEL II) Harry M. Johnson I DATE 11-17-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
WS 3			X	* SEE ATTACHED SURFACE INDICATION SHEET
				TEMP. 78° F.

ANII REVIEW
ANII [signature]
DATE 11-25-88

Richard B. Weber 11/20/88
[signature] 11/20/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

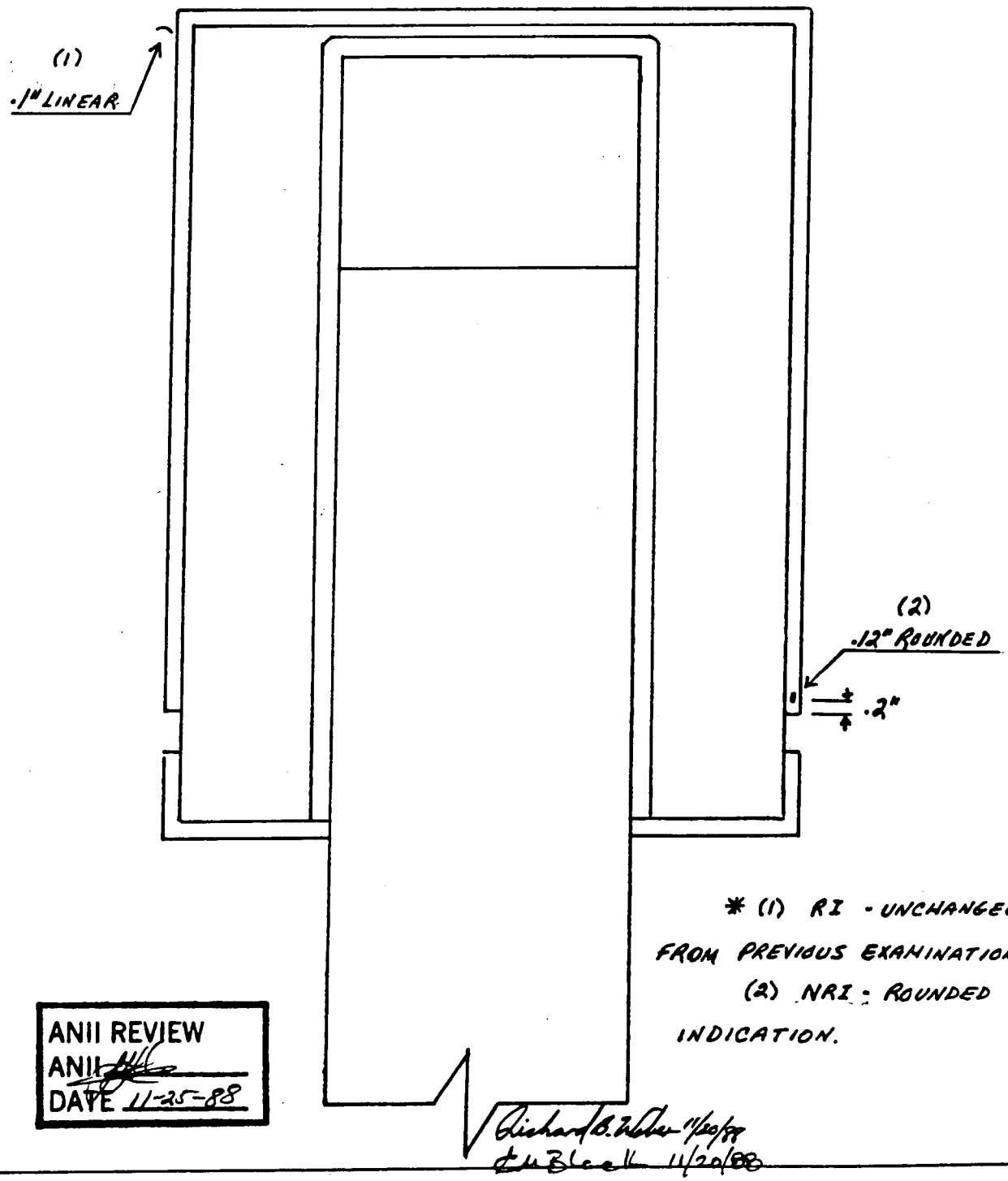
SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-203

SYST/COMP VOLUME CONTROL TANK PROCEDURE CPL IST-11 REV-0

EXAMINER George L. Morini II Doug M. Ackerman DATE 11-17-88
LEVEL II

PT ✓ MT WELD NO. WS 3



* (1) RI - UNCHANGED FROM PREVIOUS EXAMINATION
(2) NRI - ROUNDED INDICATION.

ANII REVIEW
ANII
DATE 11-25-88

Richard B. Weber 11/20/88
E.H. Black 11/20/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-203

SYST/COMP. VOLUME CONTROL TANK PROCEDURE CPL ISI-11 REV.0

EXAMINER Gary A Morini LEVEL II DATE 11-18-88

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX 88G017	EQUIPMENT	
PENETRANT	MAGNAFLUX 85L045		
DEVELOPER	MAGNAFLUX 88B019	EXAM. MEDIUM	
REMOVER	MAGNAFLUX 88G017	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
WS 3			X	INDICATIONS EXAMINED WITH 2 HOURS ELAPSED
				TIME BETWEEN PENETRANT REMOVAL AND
				DEVELOPER APPLICATION.
				* SEE ATTACHED SURFACE INDICATION DATA
				SHEET.
				TEMP. - 78°F

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Walker 11/20/88
J M Black 11/26/88

FORM 45935C

340

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

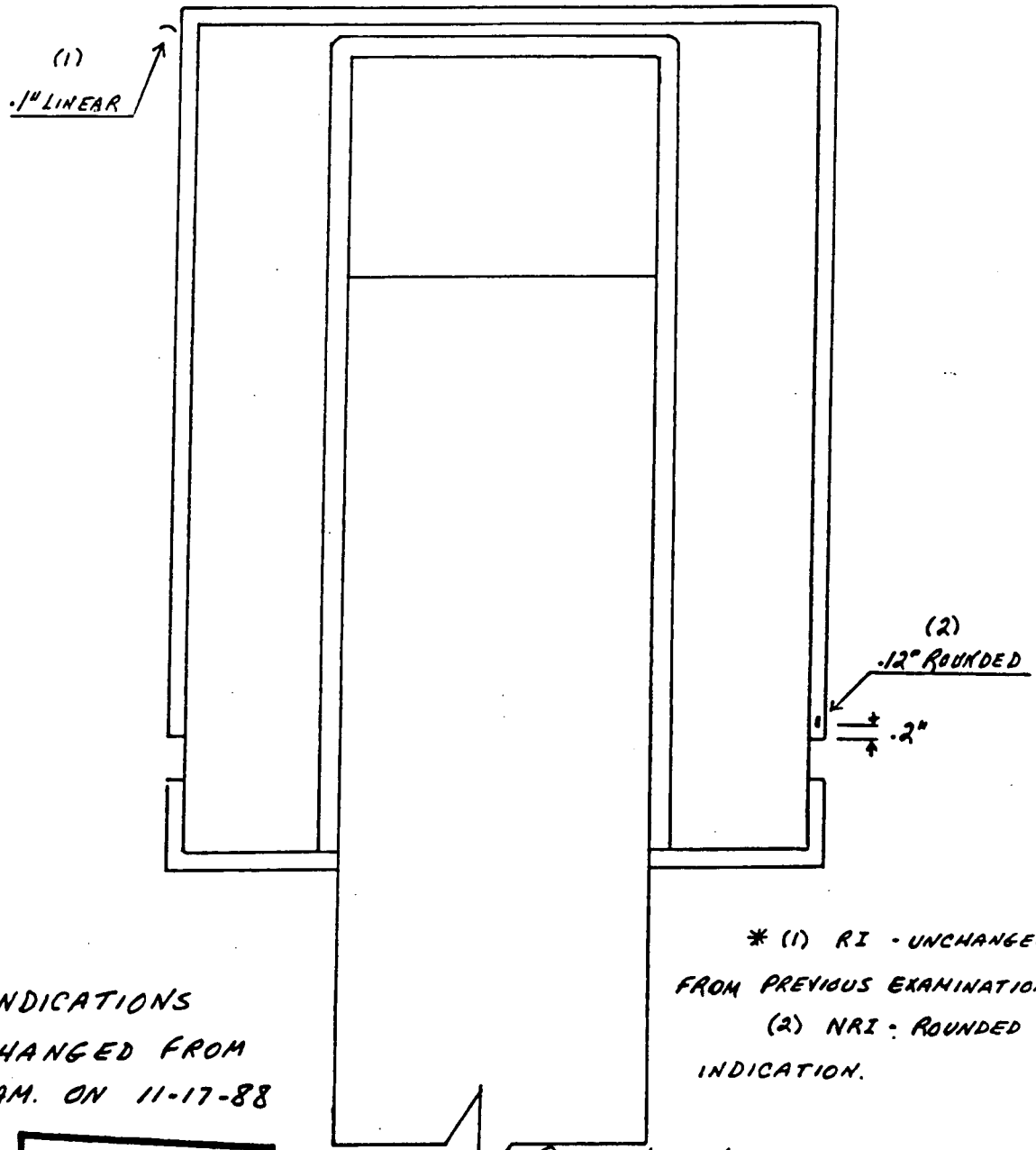
SURFACE INDICATION DATA

PLANT H.B ROBINSON UNIT 2 SKETCH CPL-203

SYST/COMP VOLUME CONTROL TANK PROCEDURE CPL ISI-11 REV.0

EXAMINER George A Marini LEVEL II DATE 11-18-88

PT ✓ MT WELD NO. WS 3



* (1) RI - UNCHANGED FROM PREVIOUS EXAMINATION
(2) NRI : ROUNDED INDICATION.

INDICATIONS UNCHANGED FROM EXAM. ON 11-17-88

ANII REVIEW
ANII
DATE 11-26-88

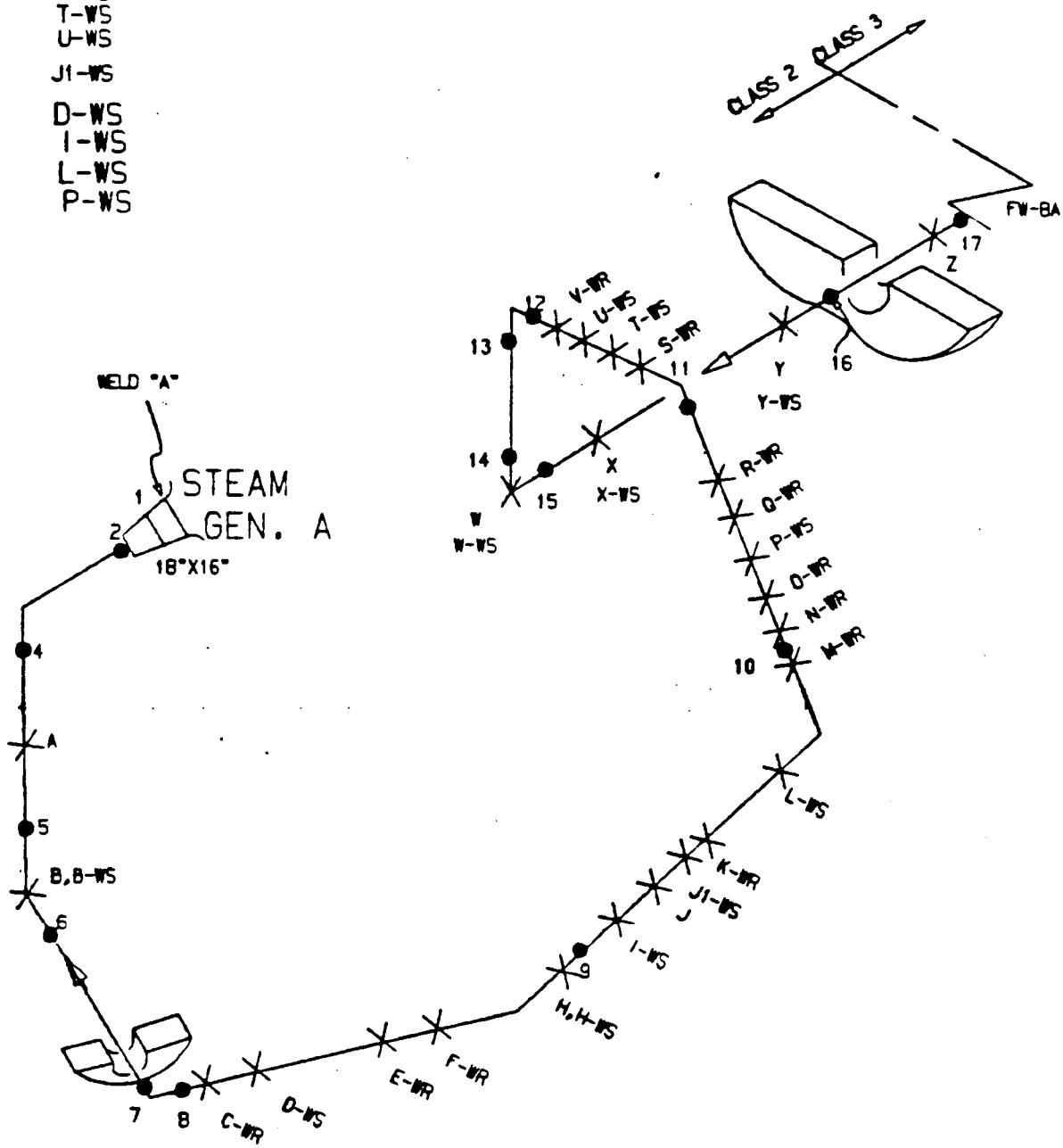
Richard B Weber 11/20/88
L M Black 11/26/88

SPRING HANGERS

B,D,I,L,P,T,W,

WELDED SUPPORT

B-WS
H-WS
V-WS
X-WS
Y-WS
T-WS
U-WS
J1-WS
D-WS
I-WS
L-WS
P-WS



CPL-215 REV 3

H.B. ROBINSON S.E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LOOP A 16" FEEDWATER	
LINE NO. 16-FDW-A | CPL- 215 REV. 3	

WESTINGHOUSE FORM 46762

SKETCH CPL-215

EXAMINATION SUMMARY
FOR

1989

342

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
83	L									X				SEE TAB F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-215

SYST/COMP LOOP 'A' FEED WATER PROCEDURE CPL-151-8 REV.0

EXAMINER [signature] III / Ralph Churchfield I LEVEL II DATE 11-27-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
L-WS			X	FLASH LIGHT	VT-3 SPRING SETTINGS 3600 BOTH
					CANS. PIPE CLAMP LOOSE, SEE
					INDICATION SHEET, INSULATED.

ANII REVIEW
ANII [signature]
DATE 11-29-88

Richard B. Weber 11/27/88
[signature] 11/28/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

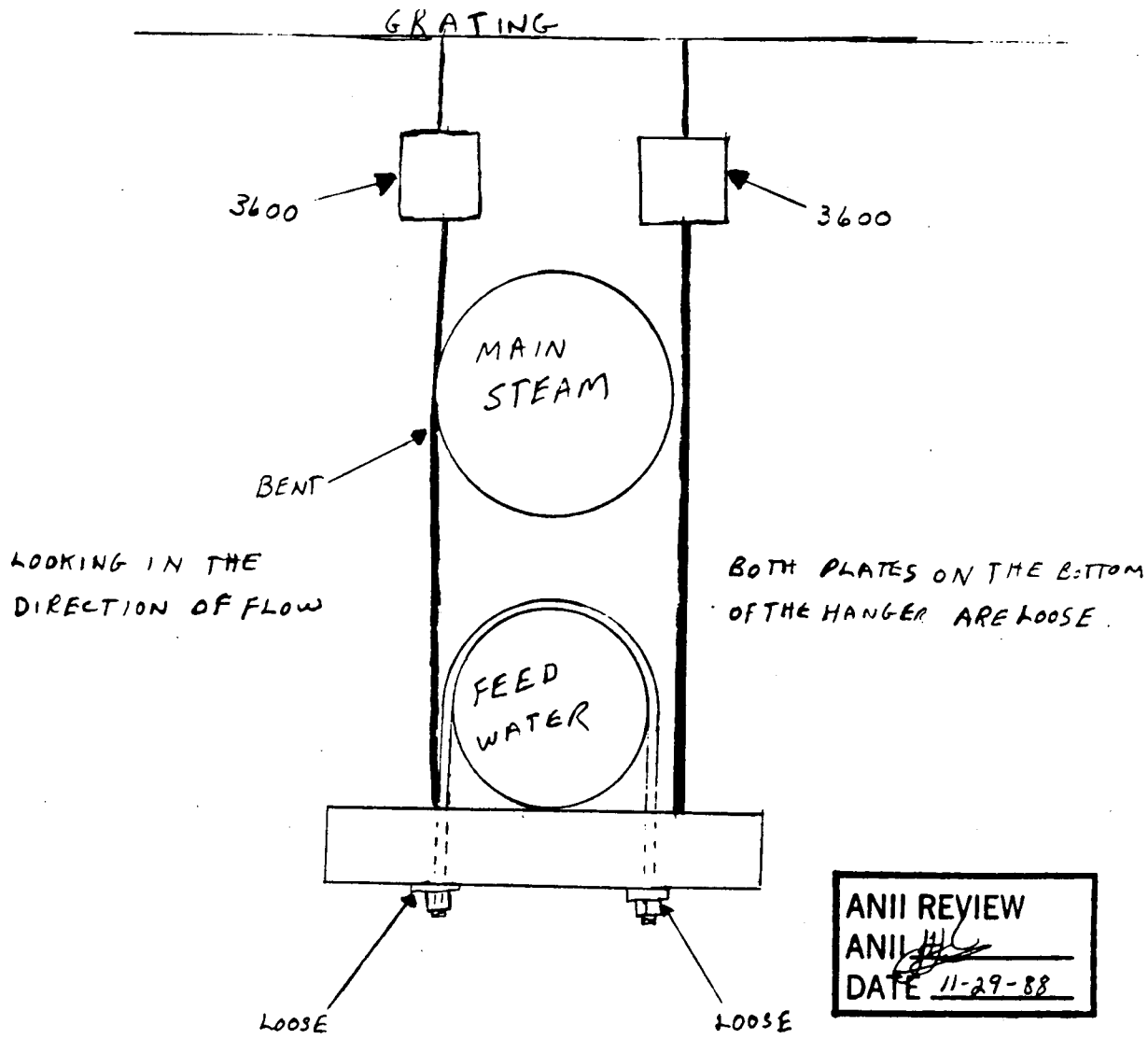
PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-215

SYST/COMP LOOP 'A' FEED WATER PROCEDURE CPL-151-8 REV. 0

EXAMINER [illegible] LEVEL II / Ralph Churchfield I DATE 11-27-88

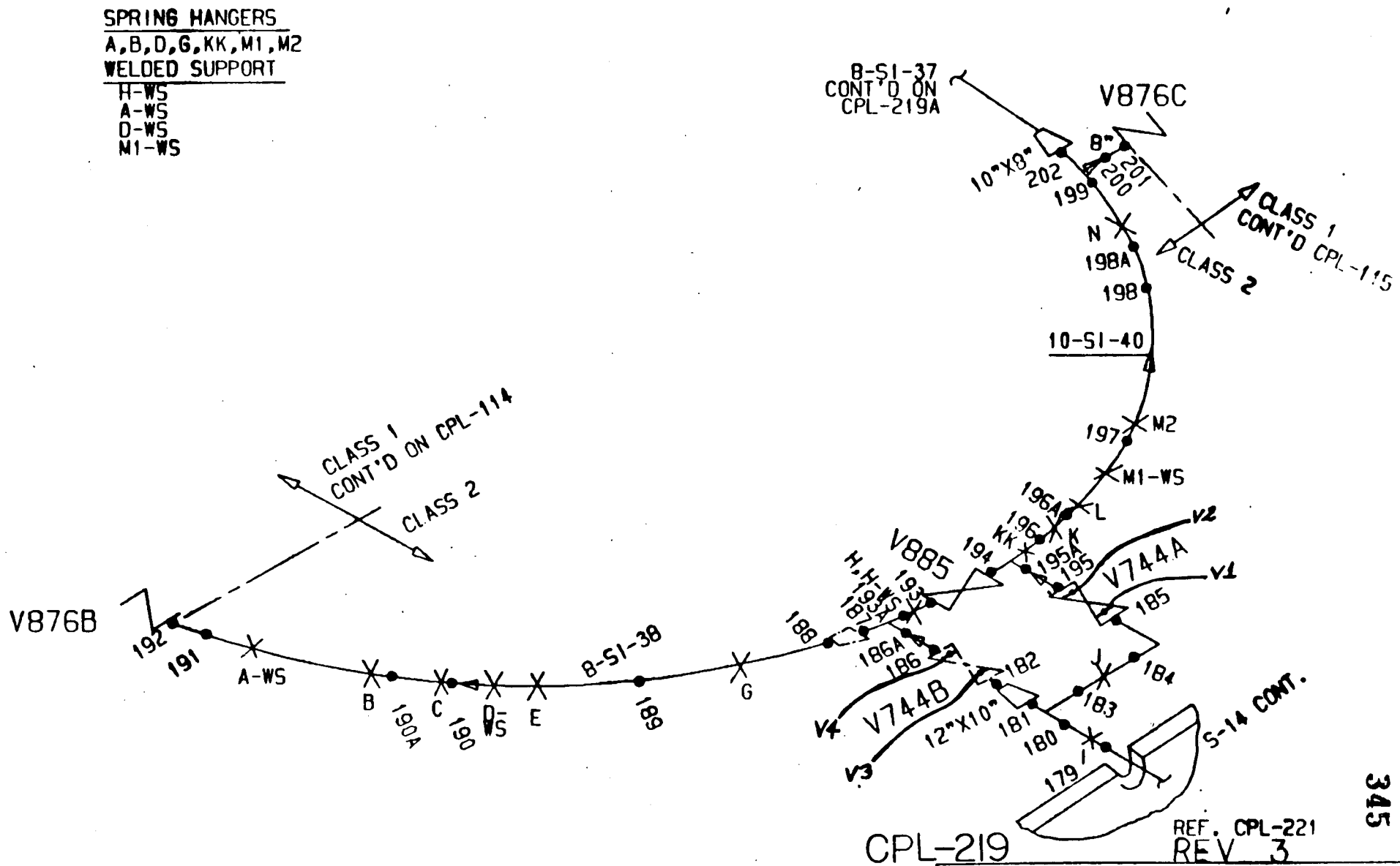
DETECTED BY U/T ____ P/T ____ M/T ____ V/T ✓ IDENT NO. L-WS

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII [illegible]
DATE 11-29-88

Richard B. Weber 11/27/88
[illegible] 11/28/88


SPRING HANGERS
A,B,D,G,KK,M1,M2
WELDED SUPPORT
H-WS
A-WS
D-WS
M1-WS
B-SI-37
CONT'D ON
CPL-219A
V876C
8"
10"X8"
202
201
200
199
N
198A
198
CLASS 1
CONT'D CPL-115
CLASS 2
10-SI-40
197
M2
M1-WS
196A
L
196
K
195A
195
V2
V744A
V1
185
184
183
182
181
180
179
S-14 CONT.
12"X10"
V885
194
193
188
186A
186
V4
V744B
V3
8-SI-38
189
G
E
D-WS
190
C
190A
B
A-WS
191
192
V876B
CLASS 1
CONT'D ON CPL-114
CLASS 2
REF. CPL-221
REV 3
CPL-219
345
H. B. ROBINSON S. E. PLANT
UNIT NO. 2
DESCRIPTION: SIS & RHR RETURN
LINE NO. 10-SI-40
CPL- 219 REV. 3
CPL&I

SKETCH CPL-219

346

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
84	188	X												TBA
84/91	186	X					X							TBA SEE TAB F
91	182				X									
92	V1						X							SEE TAB F
92	V2				X									
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-219
SYST/COMP.: SIS RHR RETURN		PROCEDURE: CPL ISI-206 REV. 0
EXAMINER (LEVEL II): Arnold A. Bolyn II, Paul J. Kovallo II		DATE: 11-27-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK 1 #08078E	S/N			F28235					F28235					INITIAL TIME: 2300 11-27-88
	SIZE			0.250"					0.250"					
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			60°					60°					
REP. RATE: 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1 T			80 %	2.0	1.1"	0.9"	1.3"	80 %	2.5	1.7"	1.4"	2.15"	
DAMPING: MIN	2 T			25 %	4.0	2.1"	1.85"	2.3"	10 %	5.0	4.75"	4.35"	4.95"	
FILTER: OFF	3 T			16 %	6.0	3.2"	2.85"	3.5"						FINAL TIME: 0020 11-28-88
LIN. CHECK: SAT														
SU CABLE: 6' BNC/MCD														CAL. BLOCK: CPL-58
COUPLANT: SONOTRACE #0 #8767	CAL. GAIN			56 db.					60 db.					THICKNESS: 0.890"
														TEMP.: 67°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
188	+11°F	No	YES	No	YES	No	REDUCER CONFIGURATION S SIDE, WELD CROWN 7+8 SCAN.	AS WELDED	X			SEE ATTACHED LIMITATION TO EXAM. SHEET. AND U.T IND. Data Sheet

ANII REVIEW
ANII [illegible]
DATE 12-4-88

Richard B. Weber 11/29/88
[illegible] 12/3/88

347

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON	UNIT: 2	SKETCH: CPL-219
SYST/COMP.: SIS & RHR RETURN		PROCEDURE: CPL-151-206, REV. 0
EXAMINER (LEVEL II): Paul J. Kovallo-II / Nmd A. Boffin II		DATE: 11-27-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 08018E	S/N			031238					031238					INITIAL TIME
	SIZE			.375"					.375"					2250 11-27-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	.8"	.7"	.9"	80%	2.1	1.05"	.8"	1.2"	
DAMPING: MIN	2T			40%	4.0	1.6"	1.5"	1.8"	50%	4.1	2.0"	1.75"	2.2"	
FILTER: OFF	3T			30%	6.0	2.5"	2.3"	2.65"						FINAL TIME
LIN. CHECK: SAT														0015 11-28-88
SU CABLE: 12' BNC-MCD														CAL. BLOCK: CPL-58
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			12 dB					17 dB					THICKNESS: .890"
														TEMP.: 67°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
188	+11°F	NO	YES	NO	YES	NO	REDUCER CONFIGURATION	AS WELDED	X			SEE ATTACHED
							5 SIDE, WELD CROWN 7 & 8					LIMITATION TO EXAM.
							SCAN					SHEET AND ULTRASONIC
												INDICATION DATA SHEET

ANII REVIEW
ANII [signature]
DATE 12-4-88

Richard B. Weber 11/29/88
[signature] 12/3/88

348

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT: H.B. ROBINSON
UNIT: 2
SKETCH: CPL-219
SYST/COMP: SIS & RHR RETURN
PROCEDURE: CPL-151-206, REV. 0
EXAMINER (LEVEL II): Paul J. Kovallo II / Mark A. Bryan II
DATE: 11-27-88
LINEARITY AND CAL. CHECK: SAT
CAL. BLOCK THICKNESS: .890"

WELD NUMBER	INDICATION LENGTH		MIN. 50%		MIN. 100%		PEAK			MAX. 100%		MAX. 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	* DAC AMPL.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	ANGLE	DIR.	SURF. 2	WELD	SURF. 5	
188	* 0°	360°	N/A	N/A	N/A	N/A	2.0	1.0"	45%	N/A	N/A	N/A	N/A	45°	2	.935"	NO BACK REFLECT.	1.11"	**

* NOTE: IND. WAS TRACKED AT LOWER LEVELS FOR 360° AROUND WELD.

** NOTE: I.D. GEOMETRY, SEE ATTACHED LIMITATION TO EXAMINATION SKETCH FOR PLOT OF U.T. IND.

ANII REVIEW
ANII [signature]
DATE 12-4-88

Richard B. Walker 11/29/88

[signature] 11/29/88

349

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT: H.B. Robinson
UNIT: 2
SKETCH: CPL-219
SYST/COMP: SIS + RHR Return
PROCEDURE: CPL-ISI-206, Rev.0
EXAMINER (LEVEL II): Arnold A. Bryan II Paul J. Kovallo-II
DATE: 11-27-88
LINEARITY AND CAL. CHECK: Sat.
CAL. BLOCK THICKNESS: 0.890"

WELD NUMBER	INDICATION LENGTH		MIN. 50%		MIN. 100%		PEAK			MAX. 100%		MAX. 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	+ DAC AMPL.	SWP.	IN. TO REF.	SWP.	IN. TO REF.	ANGLE	DIR.	SURF. 2	WELD	SURF. 5	
188	* 0°	360°	N/A	N/A	N/A	N/A	2.2	1.125"	25%	N/A	N/A	N/A	N/A	60°	2	0.935"	No Back Refl.	1.11"	* **

* Note: Ind. WAS Tracked At Lower Level's for 360° Around weld.

** Note: I.D. Geometry, See attached Limitations to Examination Sketch for Plots of U.T. Ind.

ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/29/88
[illegible] 11/29/88

350

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

PLANT H. B. Robinson UNIT 2 SKETCH CPL-219

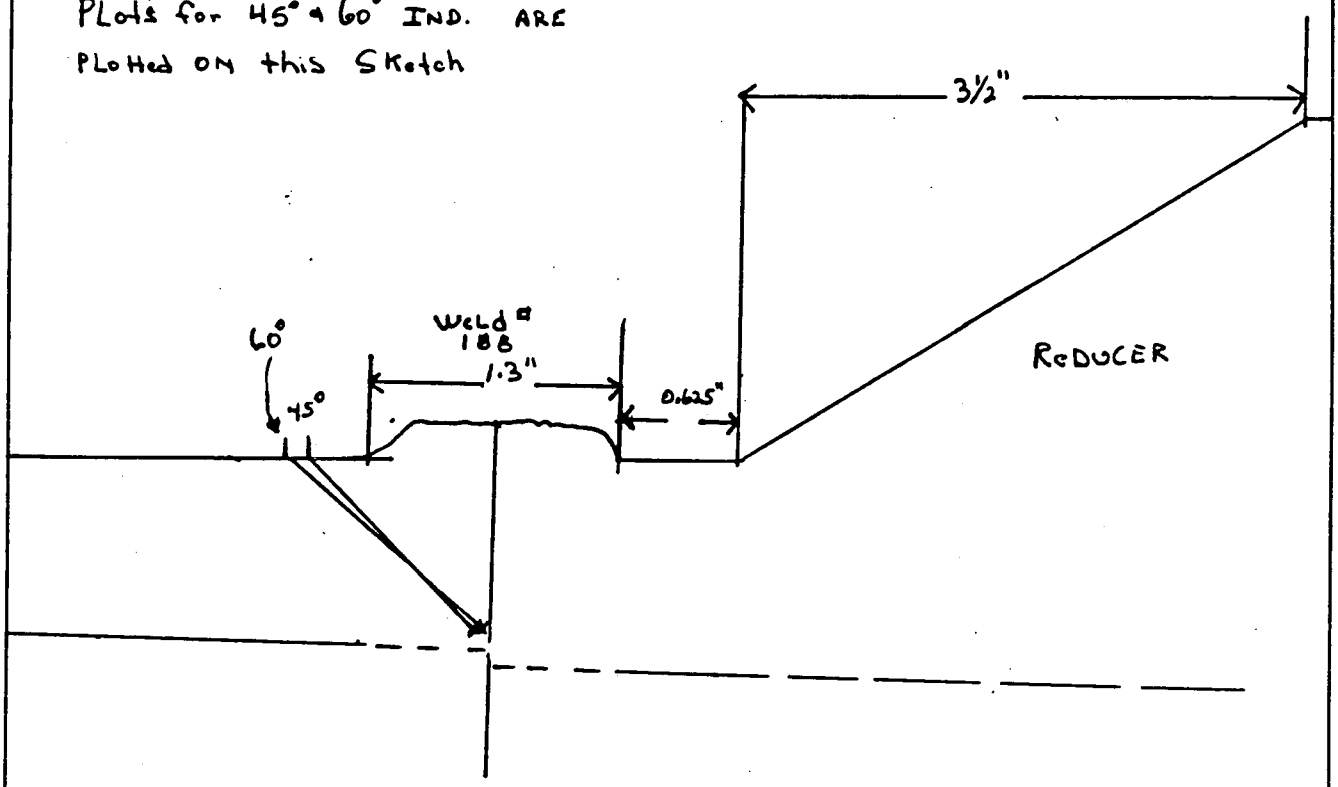
SYST/COMP SIS + RHR Return PROCEDURE CPL-ISI-206, Rev. 0

EXAMINER [illegible] II Paul J. Kovalle-II LEVEL II DATE 11-27-88

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): Weld # 188

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.

Plots for 45° + 60° IND. ARE
PLOTTED ON this Sketch



ANII REVIEW
ANII [illegible]
DATE 12-1-88

Richard B. Weber 11/29/88
[illegible] 12/3/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. Robinson	UNIT: 2	SKETCH: CPL-219
SYST/COMP.: SIS + RHR RETURN		PROCEDURE: CPL-ISI-206, Rev.0
EXAMINER (LEVEL II): Arnold A. Boyle II, Gary A Morin II		DATE: 12-12-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK 1 06210E	S/N	B03664		21137					21137					INITIAL TIME
	SIZE	0.5"		0.25"					0.25"					60° 0045 12-12-88
	FREQ.	2.25 MHZ		2.25 MHZ					2.25 MHZ					0° 0110 12-12-88
	ANGLE	0° PC		60°					60°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1/4 T	80%	2.0											
DAMPING: MIN.	3/4 T	40%	6.0											
	BACK REFL.		8.0											
FILTER: OFF	1 T			80%	2.0	1.5"	1.3"	1.85"	80%	2.3	2.6"	2.3"	2.95"	
LIN. CHECK: SAT.	2 T			25%	4.0	2.85"	2.65"	3.15"	10%	4.8	4.3"	3.95"	4.65"	FINAL TIME: 60° 0105 12-12-88
														0° 0125 12-12-88
SU CABLE: BNC-PC 6' BNC-MCD	3 T			15%	6.0	4.5'	4.25"	5.0						CAL. BLOCK: CPL-59
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN	51db		40db					42db					THICKNESS: 1.18"
														TEMP.: 66°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
186	+1°F	Y-A	yes	No	yes	yes	Value to Pipe Configuration	Rounded	X			
							0 and 5 scan					

ANII REVIEW
ANII [signature]
DATE 12-14-88

Richard B. Walker 12/14/88
[signature] 12/13/88

352

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. Robinson	UNIT: 2	SKETCH: CPL-219
SYST/COMP.: SIS + RHR RETURN		PROCEDURE: CPL-ISI-206, Rev. 0
EXAMINER (LEVEL II): Noel A. Boyd II, Gary A. Morris II		DATE: 12-12-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK 1 06210E	S/N			031238					031238					INITIAL TIME
	SIZE			0.375"					0.375"					0015 12-12-88
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	1.2"	0.95"	1.3"	80%	2.1	1.5"	1.3"	1.8"	
DAMPING: MIN.	2T			45%	4.0	2.1"	1.8"	2.25"	45%	4.2	2.8"	2.6"	3.0"	
FILTER: OFF	3T			30%	6.0	3.1"	2.9"	3.3"						FINAL TIME
LIN. CHECK: Sat.														0040 12-12-88
SU CABLE: 6' BNC-MCD														CAL. BLOCK: CPL-59
COUPLANT: Sonotrace 40 # 8767	CAL. GAIN			24db					30db					THICKNESS: 1.18"
														TEMP. 66°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
186	+1°F	NO	Yes	NO	Yes	NO	Value to Pipe Configuration	Rounded	X			
							5 SCAN					

ANII REVIEW
ANII [signature]
DATE 12-14-88

Richard B. Weber 12/12/88
[signature] 12/13/88

353

FORM 49001

354

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219

SYST/COMP. SIS & RHR RETURN PROCEDURE CPL IST-11 REV.0

EXAMINER Paul J. Kovallo-II LEVEL II Harry M Jekumo II DATE 12-11-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T	
EQUIPMENT	
EXAM. MEDIUM	
BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
182	X			TEMP. 65°F
186			X	TEMP. 65°F - SEE ATTACHED SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII [illegible]
DATE 12-14-88

Richard B. Weber 12/13/88
[illegible] 12/13/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219

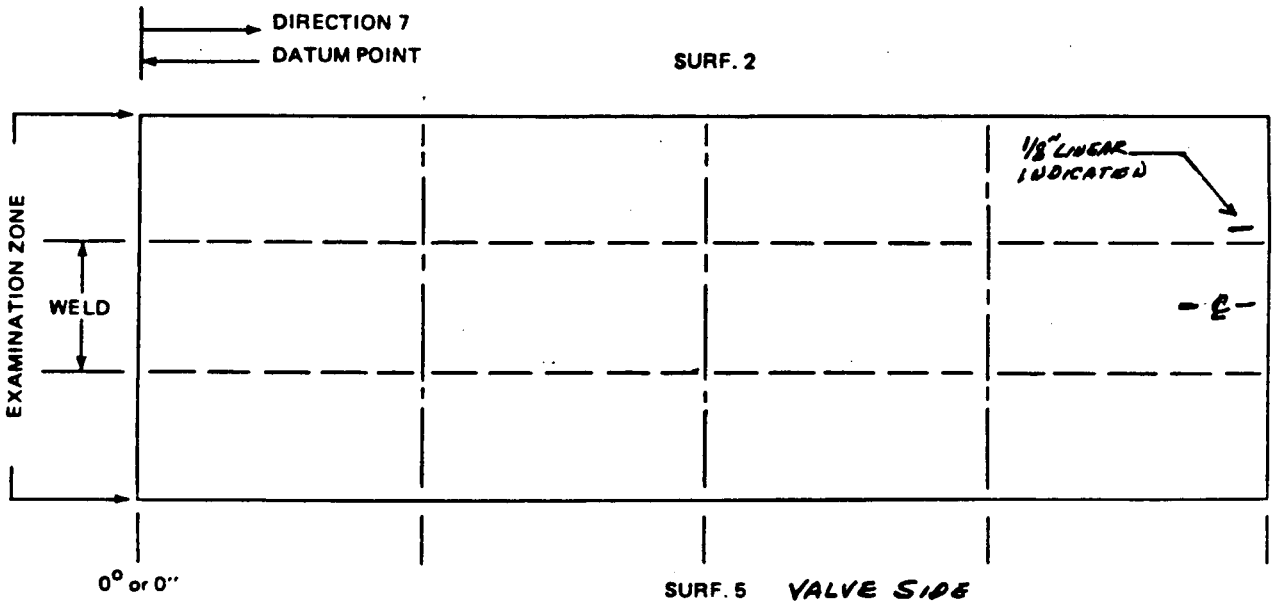
SYST/COMP SIS & RHR RETURN PROCEDURE CPL ISI-11 REV.0

EXAMINER Paul J. Kovallo-II Harry M. Johnson II LEVEL II DATE 12-11-88

PT ✓ MT WELD NO. 186

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS 1/8" LINEAR, 3/4" FROM ℄ OF WELD, 3/8" FROM 0° C.W.



ANII REVIEW
ANII [illegible]
DATE 12-14-88

Richard B Weber 12/13/88
J M Black 12/13/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT II SKETCH CPL-219

SYST/COMP. SIS + RHR RETURN PROCEDURE CPL-151-11 REV. 0

EXAMINER Gary M Ackerman II LEVEL II DATE 12-10-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
V1			X	VALVE V744A TEMP 63°F SEE INDICATION DATASHEET
V2	X			VALVE V744A TEMP 63°F

ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
Chr Blank 12/12/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

357

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219

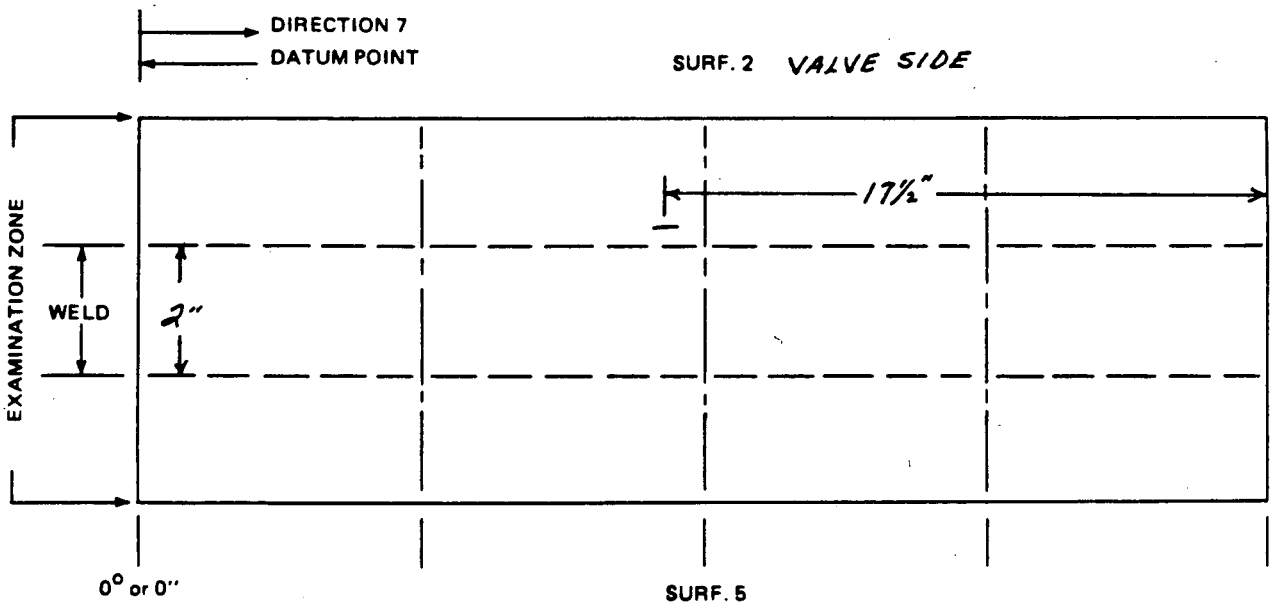
SYST/COMP SIS & RHR RETURN PROCEDURE CPL ISI-11 REV.0

EXAMINER Harry M. Ackerman II LEVEL II DATE 12-10-88

PT ✓ MT WELD NO. V744A-V1

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS INDICATION 3/16" LINEAR, 17½" C.C.W. FROM 0°; 1¼" FROM ℄ OF WELD.



ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
Jim Blunk 12-12-88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-219

SYST/COMP SIS + RHR RETURN PROCEDURE CPL-TBA-100, Rev. 0

EXAMINER Arnold A. Bolyin II LEVEL II DATE 12-12-88

EXAMINER Geoff Morrin II LEVEL II DATE 12-12-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	Sonic Mark 1	KBA	KBA	N/A	800886
S/N	06210E	B03664	031238	N/A	N/A
SIZE	N/A	0.5"	0.375"	N/A	N/A
FREQ.	N/A	2.25 MHz	2.25 MHz	N/A	N/A
ANGLE	N/A	0° P.C	45°	45° Wedge	N/A
COUPLANT: Sonotrace 4D			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD NUMBER	SURFACE 2°	SURFACE 5°	DIR 1° LOCATION	CALCULATED THICKNESS	DIR 1° LOCATION	CALCULATED THICKNESS	DIR. A	CALCULATED ANGLE	REMARKS
186	X	N/A	10°	1.20"	0"	1.22"	25/16	44°	Pipe to Valve Weld

ANII REVIEW
ANII
DATE 12-12-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B Weber 12/12/88
L H Blank 12/13/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219

SYST/COMP SIS & RHR RETURN PROCEDURE CPL-TBA-100, REV.0

EXAMINER Arnold A. Bohm II / Robert L. Cassat I LEVEL II DATE 11-16-88

EXAMINER Greg H. Mein II / Ralph Chandfield I LEVEL II DATE 11-16-88

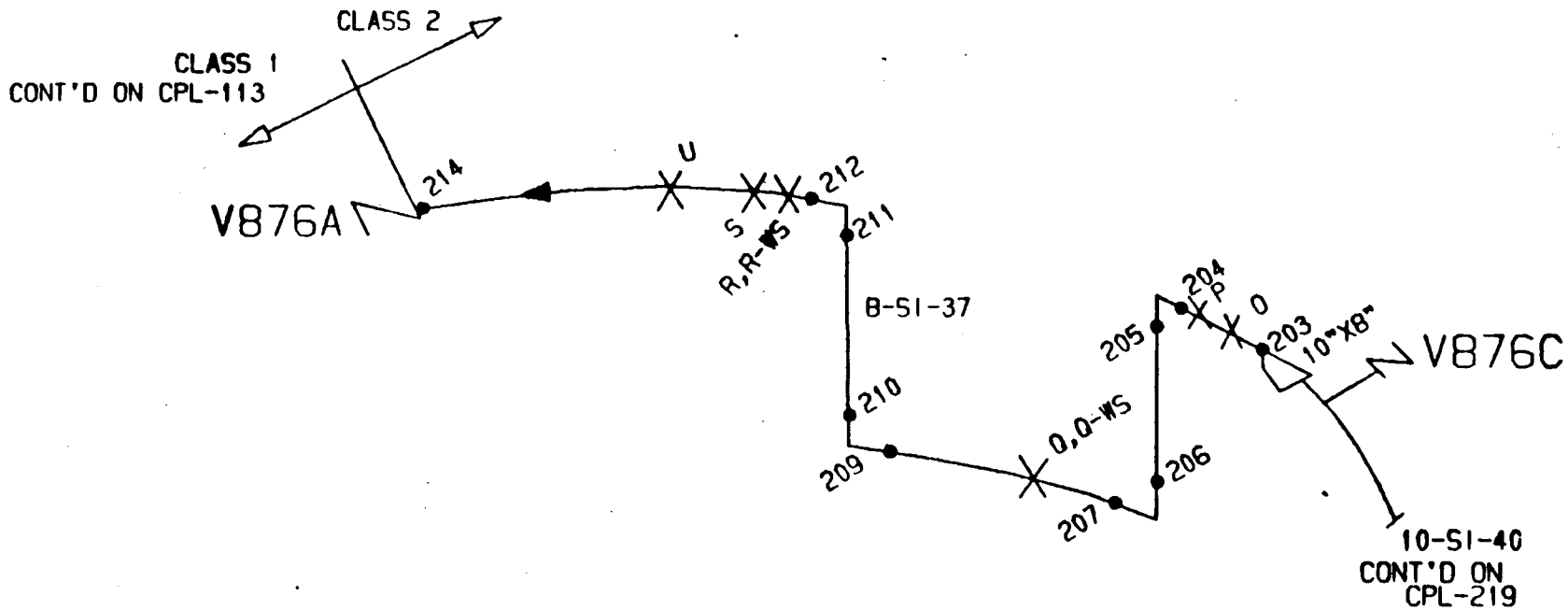
		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	# 800886
S/N	080786 / 080786	620209	62408	62410	N/A
SIZE	N/A	0.5"	0.25"	0.25"	N/A
FREQ.	N/A	5.0MHZ	2.25 MHZ	2.25 MHZ	N/A
ANGLE	N/A	0°	45°	45°	N/A
COUPLANT: SONOTRACE 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD IDENT	SURFACE 2°	SURFACE 5°	DIR "T" LOCATION	CALCULATED THICKNESS	DIR "T" LOCATION	CALCULATED THICKNESS	DIR. B	CALCULATED ANGLE	REMARKS
188	X	N/A	21"	.940"	1.0"	.950"	1.9"	45°	
									ANII REVIEW ANII [illegible] DATE 11-22-88
									11-22-88

Richard B. Weber 11/20/88
[illegible] Block 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

WELDED SUPPORT
Q-WS
R-WS



366

CPL-219A REV 3

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: SIS & RHR RETURN	
LINE NO. B-SI-37 CPL-219A REV. 3	

WESTINGHOUSE FORM 46762

SKETCH CPL-219A

EXAMINATION SUMMARY
FOR

1989

367

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
85	203	X												TBA
85	209	X												TBA
														TBA THICKNESS AND BEAM ANGLE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-219 A.
SYST/COMP.: SIS + RHR RETURN		PROCEDURE: CPL ISI-206 REV.0
EXAMINER (LEVEL II): Arnold A. Byers II / Robert L. Grant I		DATE: 11-19-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I #08078E	S/N			F28235					F28235					INITIAL TIME: 0358 11-19-88
	SIZE			0.250"					0.250"					
	FREQ.			2.25 MHz					2.25 MHz					
	ANGLE			60°					60°					
REP. RATE: 1K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80 %	2.0	1.1"	.9"	1.3"	80 %	2.4"	1.7"	1.4"	2.15"	
DAMPING: MIN	2T			28 %	4.0	2.1"	1.85"	2.3"	10 %	5.0"	4.75"	4.35"	4.95"	
FILTER: OFF	3T			18 %	6.0	3.2"	2.85"	3.5"						FINAL TIME: 0500 11-19-88
LIN. CHECK: SAT														
SU CABLE: 12' BNC/MCD														CAL. BLOCK: CPL-58
COUPLANT: SONOTRACE 40 #8767	CAL. GAIN			36 db					41 db					THICKNESS: 0.890"
														TEMP.: 80°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
203	+20°F	NO	YES	NO	YES	NO	REDUCER CONFIGURATION, S SIDE	AS WELDED	X			
							WELD CROWN, 7+8 SCAN					

ANII REVIEW
ANII [signature]
DATE 11-22-88

Richard B. Weber 11/20/88
J. M. Black 11/21/88

368

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT	UNIT	SKETCH
H.B. ROBINSON	2	CPL-219A

SYST/COMP.	PROCEDURE
SIS + RHR RETURN	CPL ISI-206 REV. 0

EXAMINER (LEVEL II)	DATE
Paul J. Kovallo II / Ralph Churchfield I	11-19-88

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N SONIC MARK I # 08018E	S/N			031238					031238					INITIAL TIME
	SIZE			0.375"					0.375"					0325 11-19-88
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			45°					45°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	50% DAC LOCATIONS		
REJECT OFF	1 T			80%	2.0	.8"	.7"	.9"	80%	2.1	1.05"	.8"	1.2"	
DAMPING MIN	2 T			40%	4.0	1.6"	1.5"	1.8"	45%	4.1	2.0"	1.75"	2.2"	
FILTER OFF	3 T			30%	6.0	2.5"	2.3"	2.65						FINAL TIME
LIN. CHECK SAT														0450 11-19-88
SU CABLE 12' BNC / MCD														CAL. BLOCK CPL-58
COUPLANT SONOTRACE 40 # 8767	CAL. GAIN			46 db					51 db					THICKNESS 0.890"
														TEMP. 80°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
203	+20°F	NO	YES	NO	YES	NO	REDUCER CONFIGURATION, 5 SIDE WELD CROWN, 7+8 SCANS	AS WELDED	X			

ANII REVIEW
ANII [signature]
DATE 11-22-88

Richard B. Weber 11/22/88
[signature] 11/24/88

369

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON	UNIT: 2	SKETCH: CPL-219A	
SYST/COMP.: SIS + RHR RETURN		PROCEDURE: CPL ISI 206 REV. 0	
EXAMINER (LEVEL II): George A Morini II		DATE: 12-16-88	

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: Sonic MK I	S/N			041775					041775					INITIAL TIME
	SIZE			.5" DIA.					.5" DIA.					1530 12-16-88
	FREQ.			2.25 MHZ					2.25 MHZ					
06210 E	ANGLE			45°					45°					
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	.89"	.7"	1.0"	80%	2.1	1.05"	.8"	1.3"	
DAMPING: MIN.	2T			60%	4.0	1.65"	1.5"	1.8"	70%	4.2	1.9"	1.7"	2.2"	
	3T			30%	6.0	2.45"	2.25"	2.65"						
FILTER: OFF														FINAL TIME
LIN. CHECK: SAT														1548 12-16-88
SU CABLE: 12' BNC-MCD														CAL. BLOCK CPL 58
COUPLANT: SONOTRACE 40 8767	CAL. GAIN			27 dB					36 dB					THICKNESS .9"
														TEMP. 64°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
209	46°F	NO	YES	YES	YES	NO		ROUNDED	X			

ANII REVIEW
ANII [illegible]
DATE 12-19-88

Richard B. Weber 12/19/88
[illegible] 12/19/88

370

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H B ROBINSON	UNIT: 2	SKETCH: CPL-219A	
SYST/COMP.: SIS + RHR RETURN		PROCEDURE: CPL 151.206 REV.0	
EXAMINER (LEVEL II): George A Morini II		DATE: 12.16.88	

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MK I 06210E	S/N			041775					041775					INITIAL TIME: 1550 12 16 88
	SIZE			.5" DIA.					.5" DIA					
	FREQ.			2.25 MHZ					2.25 MHZ					
	ANGLE			60°					60°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0	1.25"	1.1"	1.45"	80%	2.6	.9"	.8"	1.05"	
DAMPING: MIN	2T			30%	4.0	2.5"	2.19"	2.8"	70%	4.9	2.7"	2.45"	3.2"	
	3T			15%	6.0	3.75"	3.4"	4.1"						
FILTER: OFF														
LIN. CHECK: SAT.														FINAL TIME: 1610 12.16.88
SU CABLE: 12BNC-MCD														CAL. BLOCK: CPL 58
COUPLANT: SONOTRACE 40 8767	CAL. GAIN			39dB					49dB					THICKNESS: .9"
														TEMP.: 64°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
209	+6°F	NO	YES	YES	YES	NO		ROUNDED	X			

ANII REVIEW
ANII [signature]
DATE 12-19-88

Richard B. Walker 12/19/88
[signature] 12/19/88

371

FORM 49001

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219A

SYST/COMP SIS & RHR RETURN PROCEDURE CPL-TBA-100, REV. 0

EXAMINER [illegible] / Ralph Churchfield I LEVEL II DATE 11-15-88

EXAMINER LEVEL II DATE 11-15-88

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	PANAMETRICS	# 800886
S/N	080786/080786	G20209	62408	62410	N/A
SIZE	N/A	0.5"	0.25"	0.25"	N/A
FREQ.	N/A	5.0 MHZ	2.25 MHZ	2.25 MHZ	N/A
ANGLE	N/A	0°	45°	45°	N/A
COUPLANT: SONOTRACE 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM	SURFACE 2°	SURFACE 5°	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. T* LOCATION	CALCULATED THICKNESS	DIR. B	CALCULATED ANGLE	REMARKS
203	X	N/A	9"	0.900"	0"	0.920"	1.95"	47°	

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard S. Weber 11/20/88
[illegible] 11/21/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-219A

SYST/COMP SIS & RHR RETURN PROCEDURE CPL TBA-100 REV 0

EXAMINER George A Morris II LEVEL II DATE 12-16-88

EXAMINER _____ LEVEL II DATE _____

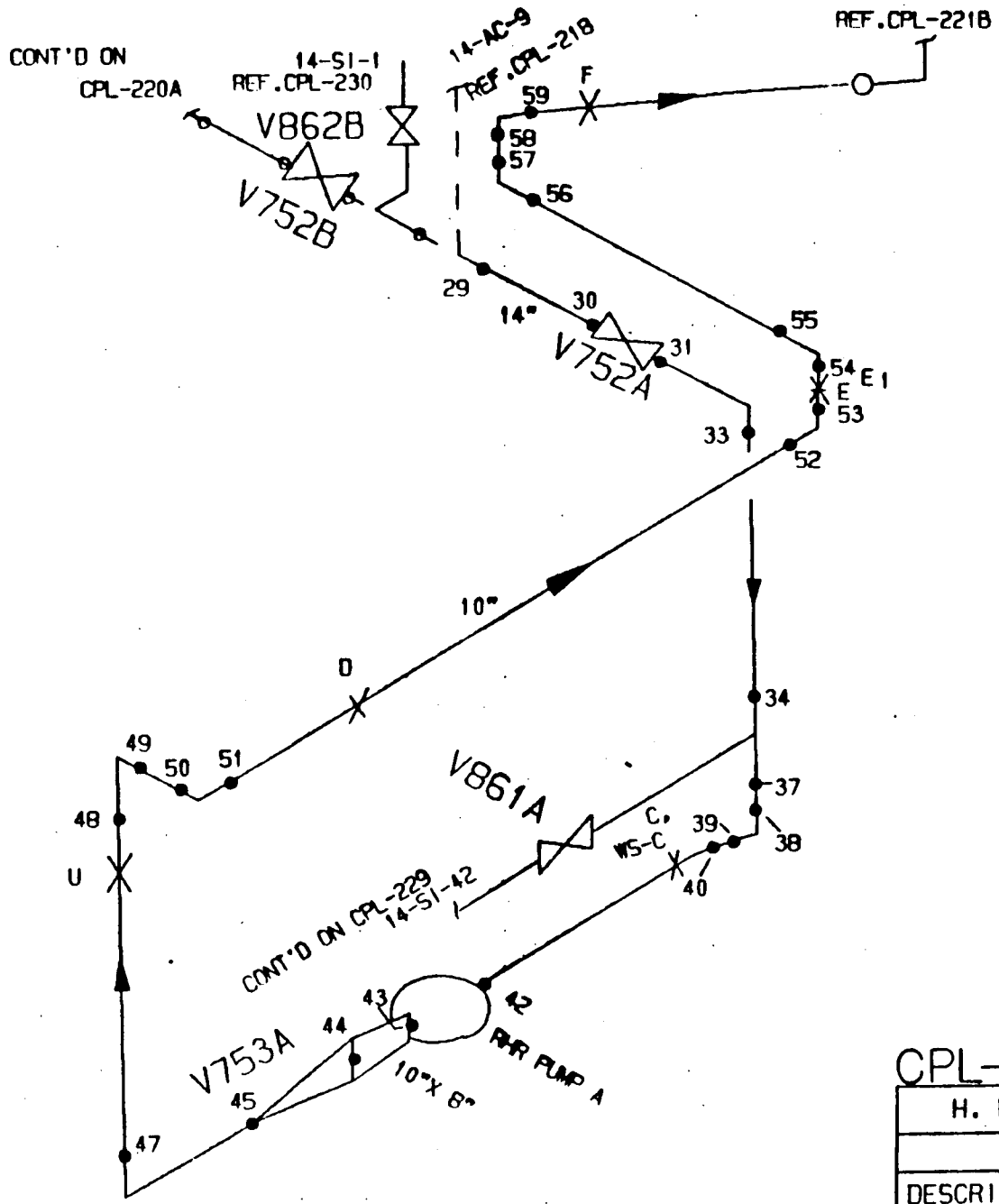
		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	Sonic MK I	KB-A	KB-A	KB-A	*800286
S/N	06210E	K18421	041775	80437	N/A
SIZE	N/A	.25" Dia	.5" Dia	.5" Dia	N/A
FREQ.	N/A	5.0MHZ	2.25MHZ	5MHZ	N/A
ANGLE	N/A	0°	45°	45°	N/A
COUPLANT:	SONOTRACE 40		BATCH 8767		

WELD IDENT	SURFACE 2°	SURFACE 5°	MINIMUM DIR. 2° LOCATION	MINIMUM CALCULATED THICKNESS	MAXIMUM DIR. 2° LOCATION	MAXIMUM CALCULATED THICKNESS	ANGLE DIR. 0	ANGLE CALCULATED ANGLE	REMARKS
209	N/A	X	10"	.905	0"	.910	2.125"	49°	

ANII REVIEW
ANII [signature]
DATE 12-19-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B Webb 12/19/88
[signature] 12/19/88



SPRING HANGERS
D
SNUBBERS
C
WELDED SUPPORTS
C-WS

374

CPL-220 REV 3

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LP.A-14" RESID.HEAT REMOVAL	

SKETCH CPL-220

375

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
86	42						X							SAME AS LAST REPORT
86	43						X							SAME AS LAST REPORT

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-220

SYST/COMP. LOOP "A" 14" RHR PROCEDURE CPL-ISI-11 REV.0

EXAMINER Robert L Cassat II Paul J. Kovalle-II (LEVEL II) DATE 11-30-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
42			X	TEMP. 68°F SEE SURFACE INDICATION DATA SHEET *
43			X	TEMP. 68°F SEE SURFACE INDICATION DATA SHEET *
				* NOTE: P.T. IN AREAS OF PREVIOUS INDICATIONS MONITORED.

ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
[illegible] 12/3/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-220

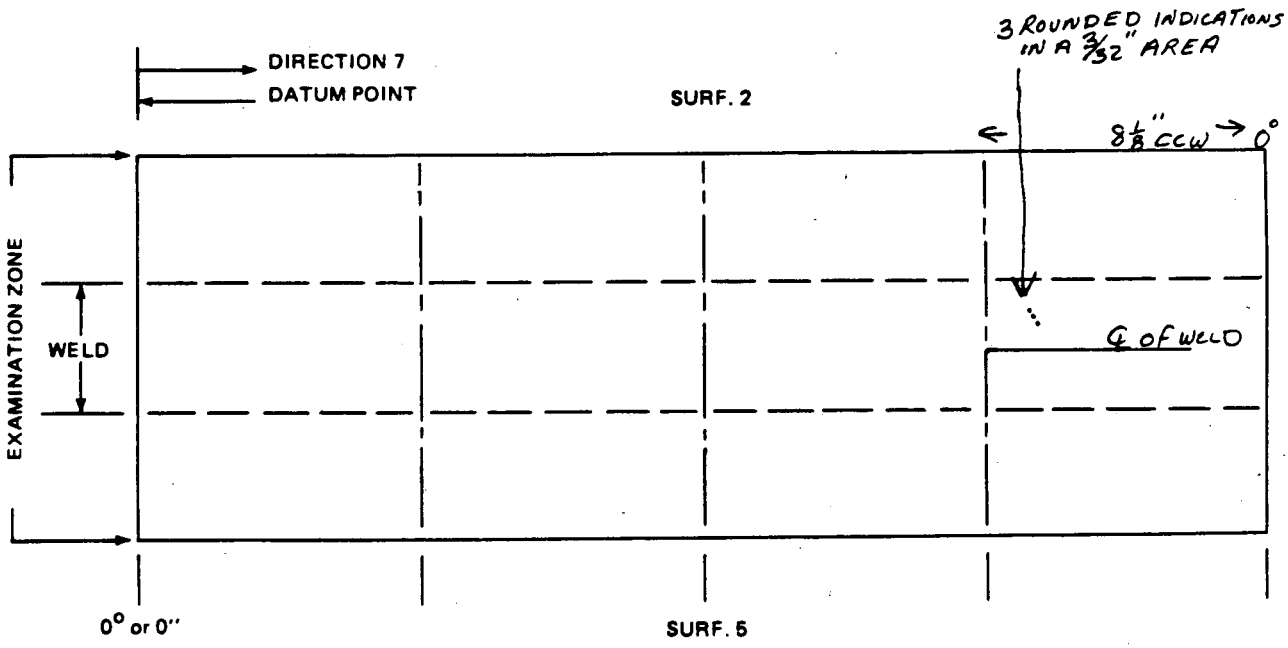
SYST/COMP LOOP A 14" RHR PROCEDURE CPL-ISI-11, REV 0

EXAMINER Paul J. Kovalle II LEVEL II DATE 11-30-88

PT ✓ MT _____ WELD NO. 42

VISUAL AIDS FLASHLIGHT

REMARKS SIZE OF INDICATION APPEARS UNCHANGED



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
Jim Black 12/3/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-220

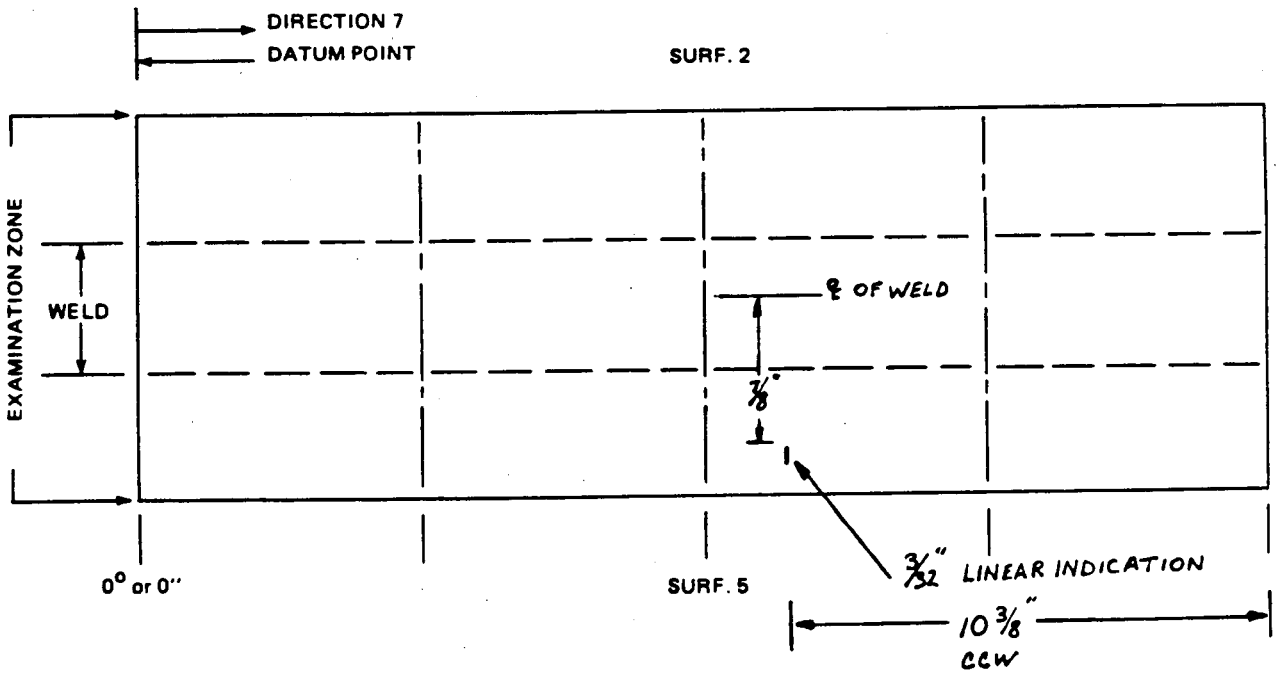
SYST/COMP LOOP "A" 14" RHR PROCEDURE CPL-IST-11 REV. 0

EXAMINER Robert L Cassat II DATE 11-30-88
LEVEL II

PT ✓ MT _____ WELD NO. 43

VISUAL AIDS FLASHLIGHT

REMARKS AREA OF INDICATION APPEARS UNCHANGED



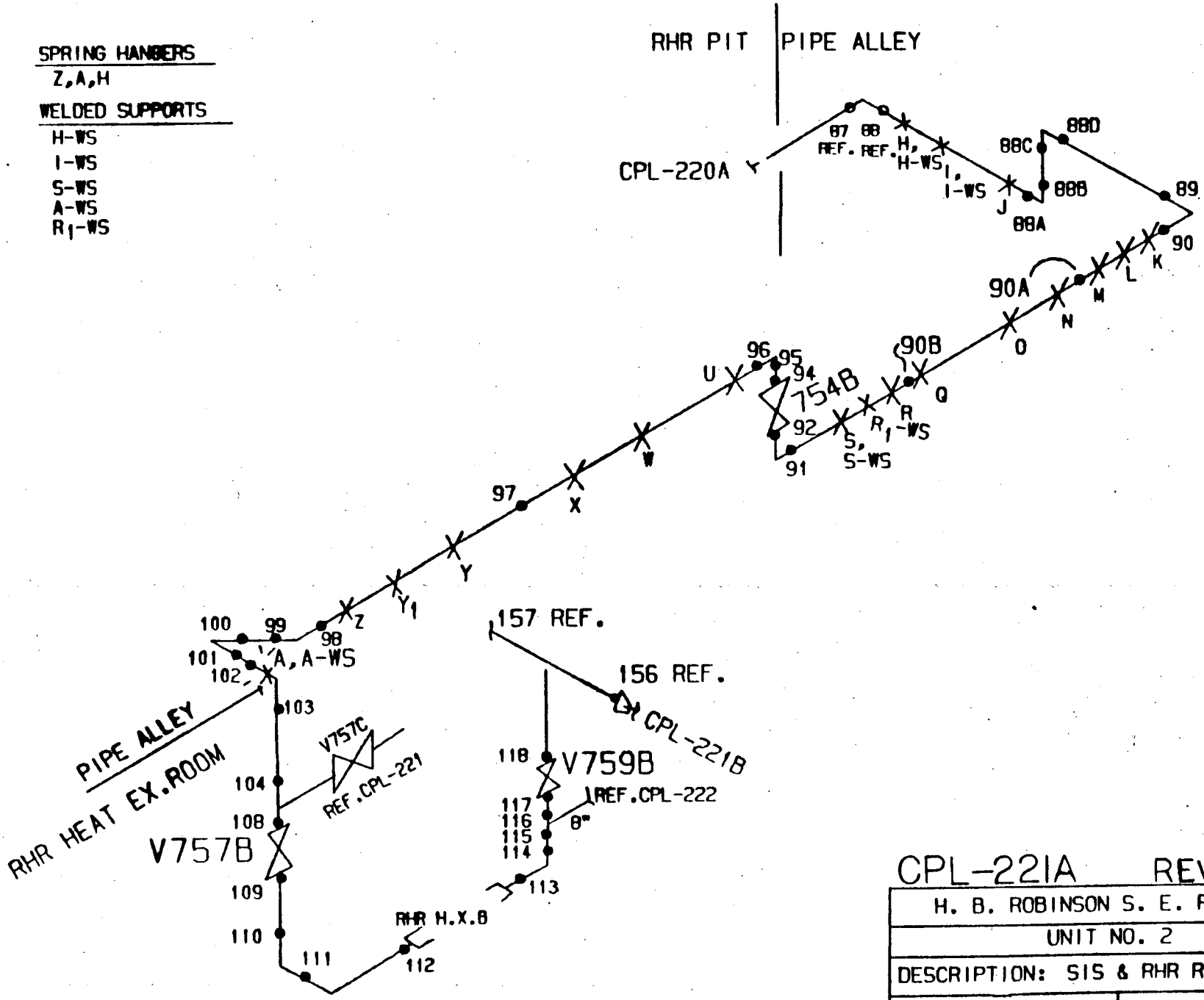
ANII REVIEW
ANII [illegible]
DATE 12-4-88

Richard B. Weber 11/30/88
[illegible] 12/3/88

FORM 459328

SPRING HANGERS
Z,A,H

WELDED SUPPORTS
H-WS
I-WS
S-WS
A-WS
R_1-WS



CPL-221A REV 3

H. B. ROBINSON S. E. PLANT	
UNIT NO. 2	
DESCRIPTION: SIS & RHR RETURN	
LINE NO. 10-AC-1	CPL-221A REV 3

CD-&-

379

WESTINGHOUSE FORM 46762

SKETCH CPL-221A

EXAMINATION SUMMARY
FOR

1989

380

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
87	K							X						
87	N							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221A

SYST/COMP SIS + RHR RETURN PROCEDURE CPL IST-8 REV.0

EXAMINER [illegible] LEVEL II [illegible] III DATE 11-16-88

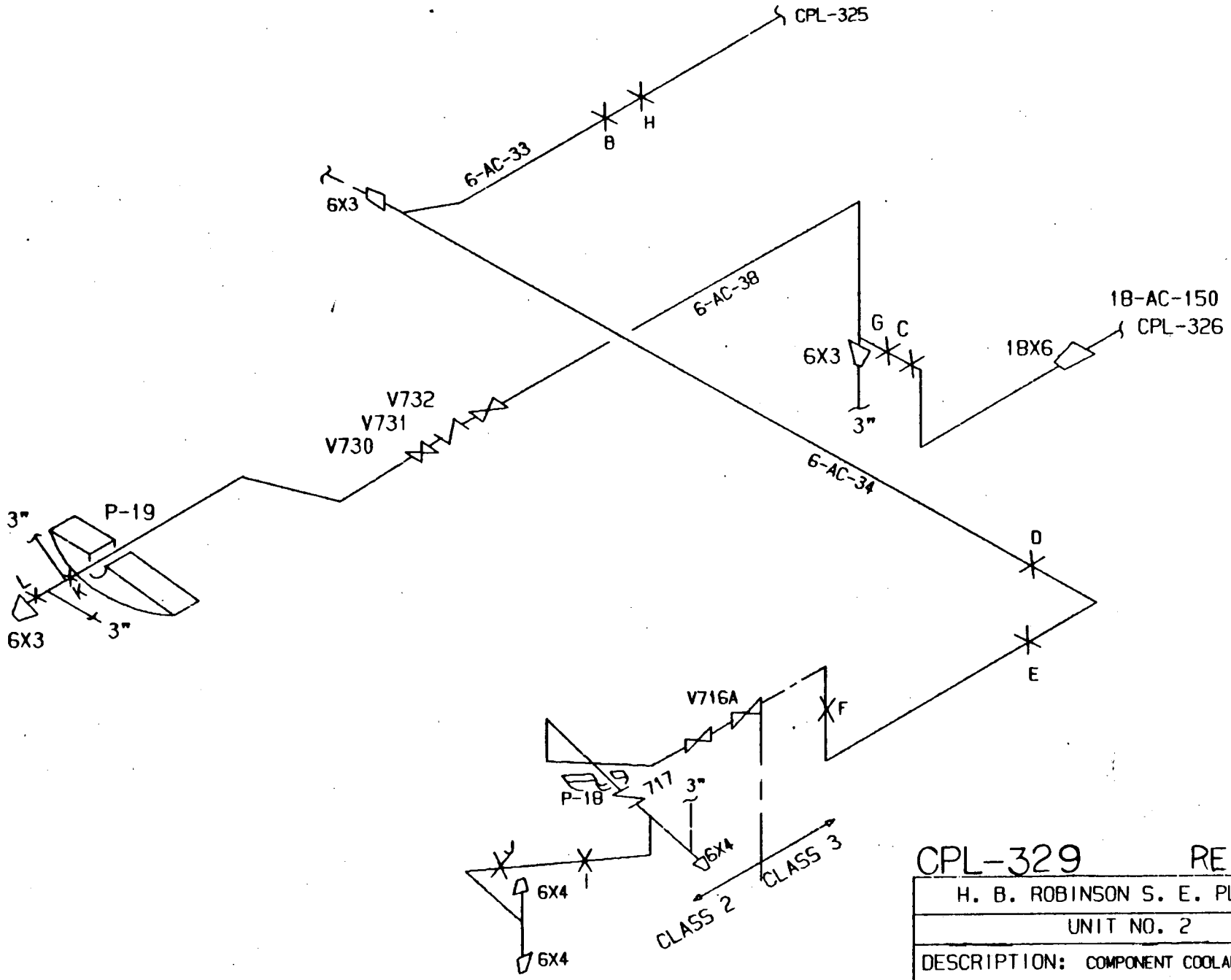
IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
N	X			FLASHLIGHT	MONITOR INDICATIONS FROM
K	X			FLASHLIGHT	PREVIOUS OUTAGE. VT-3

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11/20/88

FORM 45934B

NO EXAMINATIONS THIS OUTAGE



382

CPL-329 REV 3

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: COMPONENT COOLANT SYSTEM			
LINE NO. 6-AC-38	CPL- 329 REV.	3	

WESTINGHOUSE FORM 46762

SKETCH CPL-329

EXAMINATION SUMMARY
FOR

1989

383

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
88	A									X				SEE TAB F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-329

SYST/COMP COMPONENT COOLANT SYSTEM PROCEDURE CPL-ISI-8 REV. 0

EXAMINER Gerry A Morini II John A Lewis I DATE 11-25-88
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
A			X	FLASHLIGHT	VERIFIED HANGER NOT IN PLACE
					VT-3

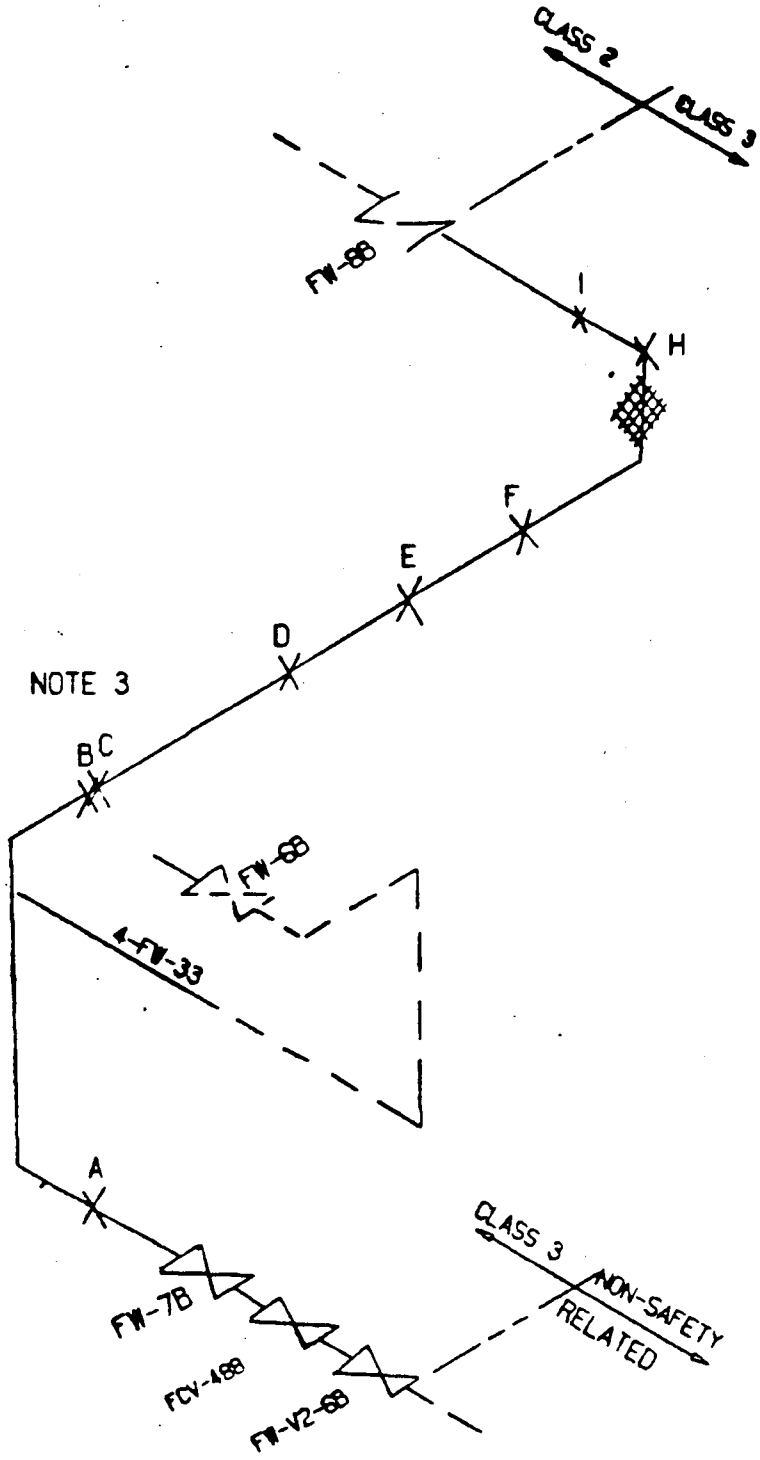
ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/25/88
[illegible] 11/26/88

FORM 45934B

SPRING HANGERS
B
SNUBBERS
F

385



CPL-333 REV 3

H.B. ROBINSON S.E. PLANT		C
UNIT NO. 2		P
DESCRIPTION: FEEDWATER SYSTEM		&
LINE NO. 16-FW-10	CPL-333 REV. 3	L

SKETCH CPL-333

386

EXAMINATION SUMMARY
FOR

1989

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT NI	UT NRI	UT RI	PT NI	PT NRI	PT RI	VT NI	VT NRI	VT RI	NI	NRI	RI	REMARKS
89	B							X						

WESTINGHOUSE FORM 46

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-333

SYST/COMP FEEDWATER PROCEDURE CPL-ISI-8 REV. 0

EXAMINER Gary A. Moini II Paul J. Kowalski I LEVEL II DATE 11-15-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
B	X			FLASHLIGHT	SPRING CAN 4860 SETTING V.I.3

ANII REVIEW
ANII
DATE 11-22-88

Richard B. Weber 11/20/88
Jim Black 11/20/88

FORM 45934B

MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. _____

PAGE 1 OF 1

PROJECT: RNP JOB NO.: N/A UNIT 1☐ 2☑ 3☐ 4☐ PSI☐ ISI☑

SYSTEM: SERVICE WATER | COMPONENT NAME: NORTH-SERVICE WATER STRAINER | COMPONENT ID NO.: STRAINER SUPPORT-W2 | S/N: N/A

CLASS: 3 | LOCATION/ISOMETRIC: ISO # CPL-313A 6190800 - INTAKE STRUCTURE

PROCEDURE: NDEP-613 REV.: 10 | METHOD VT-1☐ VT-2☐ VT-3☑ VT-4☐

REPLICATION: YES☐ NO☑ | DIRECT☑ REMOTE☐ | VIDEO RECORDING NO: N/A

EQUIPMENT USED: FLASHLIGHT, 12' TAPE, MIRROR

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC SNUBBER
☐ MECHANICAL SNUBBER
☑ RIGID SUPPORT
☐ CONSTANT LOAD
☐ SHOCK ABSORBER
☐ SPRING LOADED

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT		✓				
DEBRIS		✓				
CORROSION	✓					BOLT IN PEDESTALS CORRODED.
EROSION	✓					BOLT IN PEDESTALS ERODED.
STRUCTURAL INTEGRITY		✓				
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓				BOLTS ARE SINGLE NUTTED. DRAWING INDICATES DOUBLE.
SETTING OF COMPONENT SUPPORTS	N	A				ACTUAL: N/A DISPOSITION: N/A REQUIRED:
FREEDOM OF MOTION	N	A				SNUBBER SETTINGS
RESISTANCE TO MOVEMENT	N	A				PIN - TO - PIN N
CLEARANCE OF MOVING PARTS		✓				STROKE A
ARC STRIKES/GOUGES *	✓					OTHER

COMMENTS/NOTES: * BOLT IN PEDESTALS ARE GOUGED, MISSING THREADS.
NOTE: SINGLE NUTS DO NOT HAVE FULL THREAD ENGAGEMENT.
BD 3-28-89

1 EXAMINER: Bill Julley LEVEL: II DATE: 3-28-89

2 EXAMINER: Joe A. Johnson LEVEL: II DATE: 3-29-89

SATISFACTORY☑ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☐ REPORTABLE INDICATIONS☐

REVIEWED BY: Richard B. Weber LEVEL: N/A DATE: 4/3/89

REVIEWER COMMENTS/NOTES:

John Johnson ANII 4-3-89

QA NDE ISI 5, Revision 2 5/87

MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. _____

PAGE 1 OF 1

PROJECT: RNP JOB NO.: N/A UNIT 1☒ 2☑ 3☐ 4☐ PSI☑ ISI☐

SYSTEM: SW | COMPONENT NAME: NORTH-SERVICE WATER STRAINER | COMPONENT ID NO.: STRAINER SUPPORT W1 | S/N: N/A

CLASS: 3 | LOCATION/ISOMETRIC: ISO. # CPL-313A 690800, INTAKE STRUCTURE

PROCEDURE: NDEP-613 REV.: 8 | METHOD VT-1☐ VT-2☐ VT-3☑ VT-4☐

REPLICATION: YES☐ NO☑ | DIRECT☑ REMOTE☐ | VIDEO RECORDING NO: N/A

EQUIPMENT USED: FLASHLIGHT, 12' TAPE, MIRROR

TYPE OF COMPONENT SUPPORT:
- ☐ HYDRAULIC SNUBBER
- ☐ MECHANICAL SNUBBER
- ☑ RIGID SUPPORT
- ☐ CONSTANT LOAD
- ☐ SHOCK ABSORBER
- ☐ SPRING LOADED

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT		✓				
DEBRIS		✓				
CORROSION	✓					BOLT IN PEDESTALS CORRODED.
EROSION	✓					BOLT IN PEDESTALS ERODED.
STRUCTURAL INTEGRITY	✓					SOUTHWEST CONCRETE SUPPORT IS CRACKED IN-HALF.
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)	✓					SOUTHWEST CONCRETE SUPPORT IS CRACKED IN-HALF. BOLTS ARE SINGLE NUTTED, DRAWING INDICATES DOUBLE.
SETTING OF COMPONENT SUPPORTS	N	A				ACTUAL: N/A DISPOSITION: N/A REQUIRED:
FREEDOM OF MOTION	N	A				SNUBBER SETTINGS
RESISTANCE TO MOVEMENT	N	A				PIN - TO - PIN N
CLEARANCE OF MOVING PARTS		✓				STROKE A
ARC STRIKES/GOUGES *	✓					OTHER

COMMENTS/NOTES: * BOLT IN PEDESTALS ARE GOUGED, MISSING THREADS.
NOTE: SINGLE NUTS DO NOT HAVE FULL THREAD ENGAGEMENT.
BD 7-18-88.

1 EXAMINER: Bill Dullaghan LEVEL: II DATE: 7-18-88

2 EXAMINER: LEVEL: DATE:

SATISFACTORY☐ UNSATISFACTORY☑ NO REPORTABLE INDICATIONS☐ REPORTABLE INDICATIONS☑

REVIEWED BY: John W. Rus LEVEL: II DATE: 7-18-88

REVIEWER COMMENTS/NOTES: Richard B. Weber 7/18/88

John Hancock ANII 8-2-88

QA NDE ISI 5, Revision 2 5/87

MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. _____

PAGE 1 OF 1

PROJECT: RNP | JOB NO.: N/A | UNIT 1☐ 2☑ 3☐ 4☐ | PSI☑ ISI☐

SYSTEM: SW | COMPONENT NAME: RIGID SUPPORT | COMPONENT ID NO.: SW-13-H6 (W) | S/N: N/A

CLASS: 3 | LOCATION/ISOMETRIC: ISO.# CPL-313A-HANGER W SW-13-H6 - NORTH-INTAKE STRUCTURE

PROCEDURE: NDEP 613 REV.: 8 | METHOD VT-1☐ VT-2☐ VT-3☑ VT-4☐

REPLICATION: YES☐ NO☑ | DIRECT☑ REMOTE☐ | VIDEO RECORDING NO: N/A

EQUIPMENT USED: FLASHLIGHT, 12' TAPE, MIRROR.

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC SNUBBER
☐ MECHANICAL SNUBBER
☑ RIGID SUPPORT
☐ CONSTANT LOAD
☐ SHOCK ABSORBER
☐ SPRING LOADED

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT		✓				
DEBRIS		✓				
CORROSION		✓				
EROSION		✓				
STRUCTURAL INTEGRITY		✓				
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓				
SETTING OF COMPONENT SUPPORTS		N/A				ACTUAL: N/A REQUIRED: N/A DISPOSITION: N/A
FREEDOM OF MOTION		N/A				SNUBBER SETTINGS
RESISTANCE TO MOVEMENT		N/A				PIN - TO - PIN N
CLEARANCE OF MOVING PARTS		✓				STROKE A
ARC STRIKES/GOUGES		✓				OTHER

COMMENTS/NOTES:

1 EXAMINER: Bill Sullegh LEVEL: II DATE: 7-18-88

2 EXAMINER: LEVEL: DATE:

SATISFACTORY☑ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☐ REPORTABLE INDICATIONS☐

REVIEWED BY: Joe A Johnson LEVEL: II DATE: 7-18-88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 7/18/88

John Jurcsak ANII 8-2-88

QA NDE ISI 5, Revision 2 5/87

MATERIALS QUALITY SECTION

VISUAL EXAMINATION DATA SHEET FOR COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. _____

PAGE 1 OF 1

PROJECT: RNP JOB NO.: N/A UNIT 1☒ 2☒ 3☐ 4☐ PSI☒ ISI☐ (BD 7-18-88)

SYSTEM: SW | COMPONENT NAME: SOUTH-SERVICE WATER STRAINER | COMPONENT ID NO.: STRAINER SUPPORT N4 | S/N: N/A

CLASS: 3 | LOCATION/ISOMETRIC: ISO. # 313 L-190800, INTAKE STRUCTURE

PROCEDURE: NDEP 6.3 REV.: 8 | METHOD VT-1☐ VT-2☐ VT-3☒ VT-4☐

REPLICATION: YES☐ NO☒ | DIRECT☒ REMOTE☐ | VIDEO RECORDING NO: N/A

EQUIPMENT USED: FLASHLIGHT, 12' TAPE, MIRROR

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC SNUBBER
☐ MECHANICAL SNUBBER
☒ RIGID SUPPORT
☐ CONSTANT LOAD
☐ SHOCK ABSORBER
☐ SPRING LOADED

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT		✓				
DEBRIS		✓				
CORROSION		✓				
EROSION		✓				
STRUCTURAL INTEGRITY		✓				
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓				NORTHWEST PEDESTAL SUPPORT BOLT IS TRIPLE NUTTED. DRAWING INDICATES DOUBLE.
SETTING OF COMPONENT SUPPORTS		N/A				ACTUAL: N/A DISPOSITION: N/A REQUIRED: N/A
FREEDOM OF MOTION		N/A				SNUBBER SETTINGS
RESISTANCE TO MOVEMENT		N/A				PIN - TO - PIN N
CLEARANCE OF MOVING PARTS		✓				STROKE A
ARC STRIKES/GOUGES		✓				OTHER

COMMENTS/NOTES:

1 EXAMINER: [signature] LEVEL: II DATE: 7-18-88

2 EXAMINER: LEVEL: DATE:

SATISFACTORY☒ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☐ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Rice LEVEL: II DATE: 7-18-88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 7/18/88

[signature] ANII 8-2-88

QA NDE ISI 5, Revision 2 5/87

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 2 of 3

PAGE 1 OF 1

PROJECT: RNP JOB NO.: ~~N/A~~ 88-ALTO 1 UNIT 1☐ 2☑ 3☐ 4☐ PSI☐ ISI☑

SYSTEM: RHR	COMPONENT NAME: RIGID SUPPORT	COMPONENT ID NO.: "6"	S/N: N/A
CLASS: 2	LOCATION/ISOMETRIC: PIPE ALLEY - CPL-218 R/3		
PROCEDURE: NDEP 613 REV.: 6	METHOD VT-1☐ VT-2☐ VT-3☑ VT-4☐		
REPLICATION: YES☐ NO☑	DIRECT☑ REMOTE☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: FLASHLIGHT, MIRROR	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC SNUBBER ☐ MECHANICAL SNUBBER ☑ RIGID SUPPORT ☐ CONSTANT LOAD ☐ SHOCK ABSORBER ☐ SPRING LOADED		

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT		✓				
DEBRIS		✓				
CORROSION		✓				
EROSION		✓				
STRUCTURAL INTEGRITY		✓				
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓				
SETTING OF COMPONENT SUPPORTS		N/A				ACTUAL: N/A DISPOSITION: N/A REQUIRED: N/A
FREEDOM OF MOTION		N/A				SNUBBER SETTINGS
RESISTANCE TO MOVEMENT		N/A				PIN - TO - PIN N
CLEARANCE OF MOVING PARTS		✓				STROKE A
ARC STRIKES/GOUGES		✓				OTHER

COMMENTS/NOTES: HANGER CLAMP INSULATED.

1 EXAMINER: Bill Mullaghan LEVEL: II DATE: 5-17-88

2 EXAMINER: ~~John W. Rum~~ N/A LEVEL: ~~II~~ N/A DATE: ~~5/18/88~~ N/A

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☑ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Rum LEVEL: II DATE: 5/24/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 5/24/88

ANII - John Hassell 5-31-88

QA NDE ISI 5, Revision 2 5/87

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 1 of 3

PAGE 1 OF 1

PROJECT: RNP JOB NO.: ~~N/A~~ 88-AEID1 UNIT 1☐ 2☑ 3☐ 4☐ PSI☐ ISI☑

SYSTEM: RHR	COMPONENT NAME: RIGID SUPPORT	COMPONENT ID NO.: SUPPORT F-E-WS	S/N: N/A
CLASS: 2	LOCATION/ISOMETRIC: PIPE ALLEY - CPL-218 R/3		
PROCEDURE: NDEP 613 REV.: 6	METHOD VT-1☐ VT-2☐ VT-3☑ VT-4☐		
REPLICATION: YES☐ NO☑	DIRECT☑ REMOTE☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: FLASHLIGHT, MIRROR	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC SNUBBER ☐ MECHANICAL SNUBBER ☑ RIGID SUPPORT	☐ CONSTANT LOAD ☐ SHOCK ABSORBER ☐ SPRING LOADED	

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT		✓				
DEBRIS		✓				
CORROSION		✓				
EROSION		✓				
STRUCTURAL INTEGRITY		✓				
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓				
SETTING OF COMPONENT SUPPORTS		N/A				ACTUAL: N/A DISPOSITION: N/A REQUIRED: N/A
FREEDOM OF MOTION		N/A				SNUBBER SETTINGS
RESISTANCE TO MOVEMENT		N/A				PIN - TO - PIN N
CLEARANCE OF MOVING PARTS		✓				STROKE A
ARC STRIKES/GOUGES		✓				OTHER

COMMENTS/NOTES:

1 EXAMINER: Bill Sullivan LEVEL: II DATE: 5-17-88

2 EXAMINER: ~~John W. Russ~~ N/A LEVEL: ~~II~~ N/A DATE: ~~5/18/88~~ N/A

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☑ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Russ LEVEL: II DATE: 5/24/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 5/24/88

ANII - John Hurand 5-31-88

QA NDE ISI 5, Revision 2 5/87

VISUAL EXAMINATION DATA SHEET FOR COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 3 of 3

PAGE 1 OF 1

PROJECT: RNP

JOB NO.: ~~N/A~~ 88-AEID1 8/24/88

UNIT 1☐ 2☑ 3☐ 4☐ PSI☐ ISI☑

SYSTEM: RHR	COMPONENT NAME: RIGID SUPPORT	COMPONENT ID NO.: SUPPORT "H"	S/N: N/A
CLASS: 2	LOCATION/ISOMETRIC: PIPE ALLEY - CRL - 218 4/3		
PROCEDURE: NDEP613 REV.: 6	METHOD VT-1☐ VT-2☐ VT-3☑ VT-4☐		
REPLICATION: YES☐ NO☑	DIRECT☑ REMOTE☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: FLASHLIGHT, MIRROR	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC SNUBBER ☐ MECHANICAL SNUBBER ☑ RIGID SUPPORT	☐ CONSTANT LOAD ☐ SHOCK ABSORBER ☐ SPRING LOADED	

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT		✓				
DEBRIS		✓				
CORROSION		✓				
EROSION		✓				
STRUCTURAL INTEGRITY		✓				
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓				
SETTING OF COMPONENT SUPPORTS		N/A				ACTUAL: N/A DISPOSITION: N/A REQUIRED: N/A
FREEDOM OF MOTION		N/A				SNUBBER SETTINGS
RESISTANCE TO MOVEMENT		N/A				PIN - TO - PIN N
CLEARANCE OF MOVING PARTS		✓				STROKE A
ARC STRIKES/GOUGES		✓				OTHER

COMMENTS/NOTES:

1 EXAMINER: Bill Gulley LEVEL: II DATE: 5-17-88

2 EXAMINER: ~~John W. Rum~~ N/A LEVEL: ~~II~~ N/A DATE: ~~5/18/88~~ N/A

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☑ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Rum LEVEL: II DATE: 5/24/88

VIEWER COMMENTS/NOTES:

Richard B Weber 5/24/88

ANII — [signature] 5-31-88

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 89-AAAR 1

PAGE 1 OF 1

PROJECT: RNP JOB NO.: 89-AAAR1 UNIT 1☐ 2☑ 3☐ 4☐ PSI☐ ISI☑

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
Reactor Coolant System	Spring Can Hanger	C10-H4	C10-H.4

CLASS: 1 LOCATION/ISOMETRIC: CPL-108 Pressurizer Surge Line - Location A

PROCEDURE: 89-AAAR1 REV.: N/A METHOD VT-1☐ VT-2☐ VT-3☑ VT-4☐

REPLICATION: YES☐ NO☑ DIRECT☑ REMOTE☐ VIDEO RECORDING NO: N/A

EQUIPMENT USED: flashlight

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC SNUBBER ☐ CONSTANT LOAD
☐ MECHANICAL SNUBBER ☐ SHOCK ABSORBER
☐ SUPPORT ☑ SPRING LOADED

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT N/A						
DEBRIS N/A						
CORROSION N/A						
EROSION N/A						
STRUCTURAL INTEGRITY N/A						
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓	✓			
SETTING OF COMPONENT SUPPORTS N/A						ACTUAL: DISPOSITION: REQUIRED:
FREEDOM OF MOTION N/A						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT N/A						PIN - TO - PIN
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES: Inspection performed on 12-30-88 by ISI group identified a Root Chuck nut not fully engaged. NR-89-AAAR1 was written to install a new nut & bolt. Inspection performed on nut & bolt only.

1 EXAMINER: Jill A Johnson LEVEL: II DATE: 1-16-89

2 EXAMINER: LEVEL: DATE:

SATISFACTORY☑ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☐ REPORTABLE INDICATIONS☐

REVIEWED BY: Richard B. Weber LEVEL: N/A DATE: 1/19/89

REVIEWER COMMENTS/NOTES:

ANII REVIEW
ANII
DATE 1-17-89

QA NDE ISI 5, Revision 2 5/87

MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 89-AAAS1

PAGE 1 OF 1

PROJECT: RHP JOB NO.: 89-AAAS1 UNIT 1☐ 2☑ 3☐ 4☐ PSI☐ ISI☑

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
Reactor Coolant System		CPL-1CS-Hanger C	N/A

CLASS: 1 LOCATION/ISOMETRIC: 12-RC-10

PROCEDURE: NDEP-613 REV.: 9 METHOD VT-1☐ VT-2☐ VT-3☑ VT-4☐

REPLICATION: YES☐ NO☑ DIRECT☑ REMOTE☐ VIDEO RECORDING NO: N/A

EQUIPMENT USED: flashlight

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC SNUBBER
☐ MECHANICAL SNUBBER
☑ SUPPORT
☐ CONSTANT LOAD
☐ SHOCK ABSORBER
☐ SPRING LOADED

CONDITION		YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT	N/A						
DEBRIS	N/A						
CORROSION	N/A						
EROSION	N/A						
STRUCTURAL INTEGRITY		✓		✓			
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)			✓	✓			
SETTING OF COMPONENT SUPPORTS	N/A						ACTUAL: DISPOSITION: REQUIRED:
FREEDOM OF MOTION	N/A						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT	N/A						PIN - TO - PIN
CLEARANCE OF MOVING PARTS	N/A						STROKE
ARC STRIKES/GOUGES	N/A						OTHER

COMMENTS/NOTES: Inspection performed on 12.30.88 by ISI group identified a RHT clevis nut and the top pipe clamp nut not fully engaged. WR-89-AAAS1 was written to install new bolts & nuts. VT-3 inspection performed on new nuts and bolts.

1	EXAMINER: [signature]	LEVEL: II	DATE: 1.31.89
2	EXAMINER:	LEVEL:	DATE:

SATISFACTORY☑ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☐ REPORTABLE INDICATIONS☐

REVIEWED BY: Richard B. Weber LEVEL: N/A DATE: 2/2/89

REVIEWER COMMENTS/NOTES:

ANII REVIEW
ANII [signature]
DATE 2-2-89

QA NDE ISI 5, Revision 2 5/87

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 89-AAAT1

PAGE 1 OF 1

PROJECT: RNP JOB NO.: 89-AAAT1 UNIT 1☐ 2☑ 3☐ 4☐ PSI☐ ISI☑

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
Reactor Coolant System	Spring Can Hanger	C-10-H1	N/A

CLASS: 1 LOCATION/ISOMETRIC: CPL-108 Pressurizer Surge Line Location F

PROCEDURE: 89-AAAT1 REV.: N/A METHOD VT-1☐ VT-2☒ 1-16-89 VT-3☑ VT-4☐

REPLICATION: YES☐ NO☑ DIRECT☑ REMOTE☐ VIDEO RECORDING NO: N/A

EQUIPMENT USED: flashlight

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC SNUBBER
☐ MECHANICAL SNUBBER
☐ SUPPORT
☐ CONSTANT LOAD
☐ SHOCK ABSORBER
☑ SPRING LOADED

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT N/A						
DEBRIS N/A						
CORROSION N/A						
EROSION N/A						
STRUCTURAL INTEGRITY N/A						
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓	✓			
SETTING OF COMPONENT SUPPORTS N/A						ACTUAL: DISPOSITION: REQUIRED:
FREEDOM OF MOTION N/A						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT N/A						PIN - TO - PIN
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES: Inspection performed on 12-30-88 by ISI group identified the Top pipe clamp nut not fully engaged. WR-89-AAAT1 was written to install a new nut & bolt. Inspection performed on nut & bolt only.

1	EXAMINER: J. A. Johnson	LEVEL: II	DATE: 1-16-89
2	EXAMINER:	LEVEL:	DATE:

SATISFACTORY☑ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☐ REPORTABLE INDICATIONS☐

REVIEWED BY: Richard B. Weber LEVEL: N/A DATE: 1/17/89

REVIEWER COMMENTS/NOTES:

ANII REVIEW
ANII [signature]
DATE 1-17-89

QA NDE ISI 5, Revision 2 5/87

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR/A 88-AHT81 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-875A	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 1	LOCATION/ISOMETRIC: CPL-110 Rev. 3	
PROCEDURE: NDEP 611 REV: 6	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* Anchor Darling Assembly Dwg. 11542

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: John W. Rust LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY ☐

NO REPORTABLE INDICATIONS ☑ ✓ 12/28/88 REPORTABLE INDICATIONS ☐

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 12/28/88

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR+A 88-AHGI1 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-875D	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 1	LOCATION/ISOMETRIC: CPL-110 Rev. 3	
PROCEDURE: NDEP 611 REV: 6	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE.		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: John W. Rum LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY ☐

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS ☐

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 12/28/88

QA NDE ISI 6 Rev. 0 10/85

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR4A 88-ALES1 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-875B	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 1	LOCATION/ISOMETRIC: CPL-111 Rev. 2	
PROCEDURE: NDEP 611 REV: 6	METHOD VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY ☐

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS ☐

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard O. Weber 12/28/88

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR+A 88-ALF01 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-875 E	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 2	LOCATION/ISOMETRIC: CPL-111 REV. 2	
PROCEDURE: NDEP 611 REV: 6	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS YES	CRACKS NO	CORROSION YES	CORROSION NO	THREAD DAMAGE YES	THREAD DAMAGE NO	MISALIGNMENT YES	MISALIGNMENT NO	WEAR YES	WEAR NO	OTHER YES	OTHER NO	*COMMENTS BELOW SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [signature]
DATE 12-28-88

1 EXAMINER: Bill Lullight LEVEL: II DATE: 12-16-88

2 EXAMINER: John W. Ryan LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY ☐

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS ☐

REVIEWED BY: [signature] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard O. Weber 12/28/88

QA NDE IS16 Rev. 0 10/85

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR&A 88-ALFA1 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-875C	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 1	LOCATION/ISOMETRIC: CPL-112 Rev. 3	
PROCEDURE: NDEP 611 REV: 6	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY N/A

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS N/A

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 12/28/88

QA NDE 1516 Rev. 0 10/85

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. 88-AAXL 2(WELA) UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE ST-875F	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 1	LOCATION/ISOMETRIC: CPL-112 Rev. 3	
PROCEDURE: NDEP 611 REV: 6	METHOD VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: John W. Ryan LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY ☐ N/A

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS ☐ N/A

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard S. Weber 12/28/88

QA NDE 1S1 6 Rev. 0 10/85

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR4A 88-AHTC1 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION | COMPONENT NAME: VALVE SI-876A | COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS

CLASS: CLASS 1 | LOCATION/ISOMETRIC: CPL-113 Rev. 2

PROCEDURE: NDEP 611 REV: 6 | METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐

REPLICATION: YES☐ NO☒ | DIRECT☒ REMOTE☐ | VIDEO RECORDING NO: N/A

EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542

ANII REVIEW
ANII [signature]
DATE 12-28-88

1 EXAMINER: [signature] LEVEL: II DATE: 12-16-88

2 EXAMINER: [signature] LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY ☐

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS ☐

REVIEWED BY: [signature] LEVEL: N/A DATE: 12/20/88

REVIEWER COMMENTS/NOTES:

[signature] 12/20/88

QA NDE 1S1 6 Rev. 0 10/85

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. 88-ALFF2 (WR&A) UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-876B	COMPONENT ID NO.: BONNET STUDS, NUTS & WASHERS
CLASS: CLASS 1	LOCATION/ISOMETRIC: CPL-114 Rev. 3	
PROCEDURE: NDEP 611 REV: 6	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		*COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING.
ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [illegible]
DATE 12-28-88

1 EXAMINER: Bill [illegible] LEVEL: II DATE: 12-16-88

2 EXAMINER: John W. Rury LEVEL: II DATE: 12-16-88

SATISFACTORY ☑ UNSATISFACTORY N/A

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS N/A

REVIEWED BY: [illegible] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

Richard B. Weber 12/28/88

QA NDE ISI 6 Rev. 0 10/85

CP&L

Carolina Power & Light Company

REPORT NO. N/A

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR NUTS, BOLTS, STUDS & WASHERS

PROJECT RNP JOB NO. WR&A 88-ALF62 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: SAFETY INJECTION	COMPONENT NAME: VALVE SI-876C	COMPONENT ID NO.: BONNET STUDS, NUTS + WASHERS
CLASS: CLASS I	LOCATION/ISOMETRIC: CPL-115 Rev. 2	
PROCEDURE: NDEP 611 REV: 6	METHOD VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: FLASHLIGHT, MIRROR, 12' TAPE		

ITEM NUMBER	CRACKS		CORROSION		THREAD DAMAGE		MISALIGNMENT		WEAR		OTHER		* COMMENTS BELOW	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	SAT.	UNSAT.
* BONNET STUDS 11542-2-1		✓		✓		✓		✓		✓			✓	
* BONNET NUTS 11542-2-10		✓		✓		✓		✓		✓			✓	
* BONNET STUD WASHERS 11542-2-01		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

* ANCHOR DARLING ASSEMBLY DWG. 11542.

ANII REVIEW
ANII [signature]
DATE 12-28-88

1 EXAMINER: [signature] LEVEL: II DATE: 12-16-88

2 EXAMINER: [signature] LEVEL: II DATE 12-16-88

SATISFACTORY ☑ UNSATISFACTORY ☐ N/A

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS ☐ N/A

REVIEWED BY: [signature] LEVEL: N/A DATE: 12/28/88

REVIEWER COMMENTS/NOTES:

[signature] 12/28/88

QA NDE ISI 6 Rev. 0 10/85

H.B. ROBINSON

SUMMARY OF
RECORDED INDICATIONS

1988

SKETCH REFERENCE	METHOD/ITEM IDENTIFICATION			⊗ EVALUATION *	UTILITY DISPOSITION			REFERENCE
	VOLUMETRIC	SURFACE	VISUAL		ACCEPT	CORRECT	MONITOR	
CPL-132			II	1-A		✓		88-AMLJ1
CPL-132			JJ	1-A	✓			88-AMNS1
CPL-133			I	1-A		✓		88-AMLL1
CPL-133			K	1-A		✓		88-AMLM1
CPL-134		16A		2		✓		88-AMNW1
CPL-134			G	1-A		✓		88-AMNT1
CPL-141		18C		2	✓			IWB-3514-3
CPL-141		F-WS		2-3-A	✓			
CPL-141			E	1-A	✓			88-AMLP1
CPL-141			F	1-A	✓			88-AMNX1
CPL-141			G	1-A		✓		88-AMLN1
CPL-141			H	1-A	✓			88-AMNY1
CPL-141			I	1-A	✓			88-AMLQ1
CPL-141			V866B	1-A	✓			88-AMJU1
CPL-143			AA	1-A		✓		88-AMQE1
CPL-143			BB	1-A	✓			89-AAWT1
CPL-143			T	1-A		✓		88-AMLR1
CPL-203		WS-3		5	✓			IWB-3516-2
CPL-215			L-WS	1-A		✓		88-AMHJ1
CPL-219		186		2	✓			IWB-3514-3
CPL-219		V1		1-A		✓		E. CALC. #89-01 89-AAAU1
CPL-220		42		5	✓			IWB-3514-3
CPL-220		43		5	✓			IWB-3514-3
CPL-329			A	8	✓			REMOVED

*1. NOT ACCEPTABLE
2. ACCEPTABLE
3. NOT SERVICE INDUCED
4. UNDER INVESTIGATION
5. PRIOR EXISTING
6. ACCEPTANCE LIMITS NOT SPECIFIC
7. OUTSIDE EXAMINATION ZONE
8. FOR INFORMATION ONLY
9. MORE PREP. REQUIRED
10. N/A - NOT APPLICABLE

RECOMMENDATIONS
A. CORRECT
B. FURTHER INVESTIGATION
C. FUTURE MONITORING
D. SUPPLEMENTARY EXAMINATION

NOTE: UTILITY MUST REVIEW ALL ⊗ EVALUATIONS TO DETERMINE NECESSARY DISPOSITION.

⊗/COORD./DESIGNEE [signature] 1-17-89 DATE

[signature] 3/9/89
FOR UTILITY DATE

FORM 48494A

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-107 B

SYST/COMP. REACTOR COOLANT SYSTEM C PROCEDURE CPL-151-11, REV. 0

EXAMINER Paul J. Kovalle-II LEVEL II Robert L Cassat II DATE 11-21-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
4 DM	X			TEMP. 89°F
5 DM			X	TEMP. 89°F. SEE ATTACHED SURFACE INDICATION DATA SHEET

ANII REVIEW
ANII [signature]
DATE 11-26-88

Richard B. Weber 11/23/88
[signature] 11/26/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-107 B

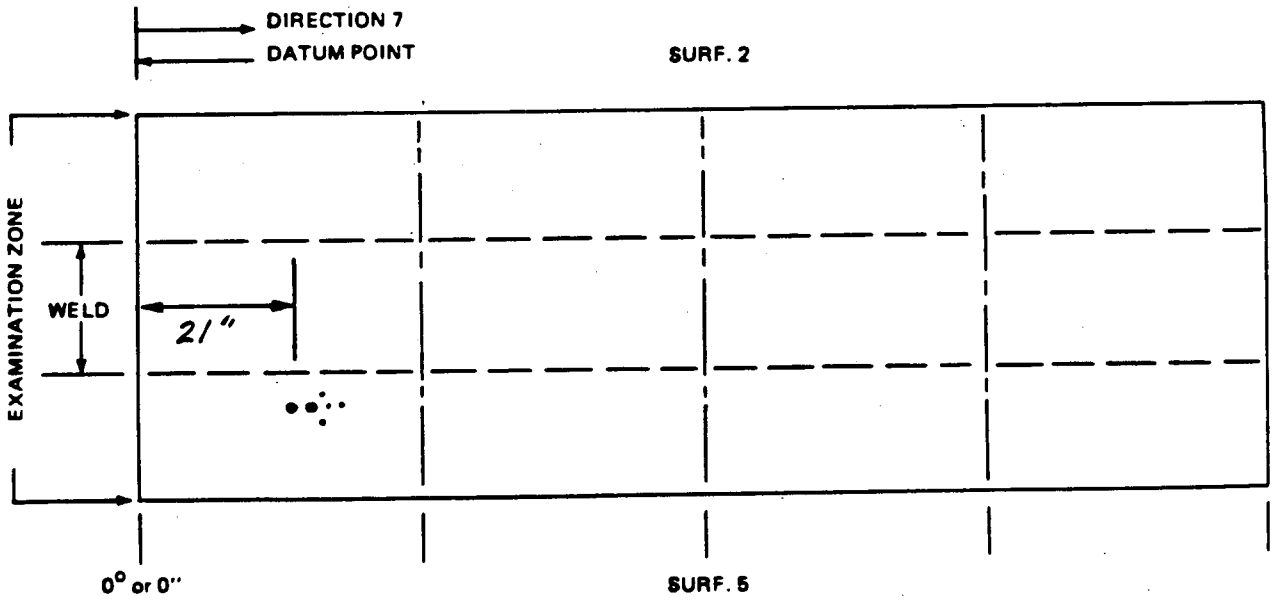
SYST/COMP REACTOR COOLANT SYSTEM "C" PROCEDURE CPL-IST-11 REV. 0

EXAMINER [signature] LEVEL II DATE 11-21-88

PT X MT WELD NO. 5 DM

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS APPROX. SIX ROUNDED INDICATIONS SEPARATED BY LESS THAN 1/8", CONTAINED WITHIN AN AREA 3/16" BY 1/2". LOCATED 21" FROM 0. 1/2" ABOVE TOE OF WELD ON THE 5 SIDE.



ANII REVIEW
ANII [signature]
DATE 11-26-88

Richard B. Weber 11/26/88
[signature] 11/26/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-108

SYST/COMP. 14" + 12" PRESS. SURGE LINE PROCEDURE CPL IST-11 REV.0

EXAMINER Henry A Morin II Harry M Jackman II LEVEL II DATE 11-26-88

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX 88G017	EQUIPMENT	
PENETRANT	MAGNAFLUX 85L045		
DEVELOPER	MAGNAFLUX 88B019	EXAM. MEDIUM	
REMOVER	MAGNAFLUX 88G017	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
1 BC			X	SEE ATTACHED INDICATION DATA SHEET
1 A	X			
2	X			
				TEMP. FOR ABOVE WELDS - 80°F

ANII REVIEW
ANII [signature]
DATE 11-29-88

Richard B. Weber 11/29/88
Eric Black 11/28/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-108

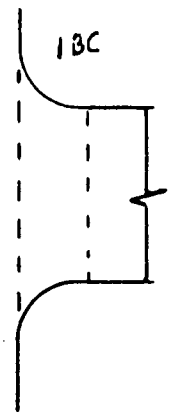
SYST/COMP 14" & 12" PRESS. SURGE LINE PROCEDURE CPL ISI-11 REV.0

EXAMINER Gerry A Morris II Larry M Jackman II LEVEL II DATE 11-26-88

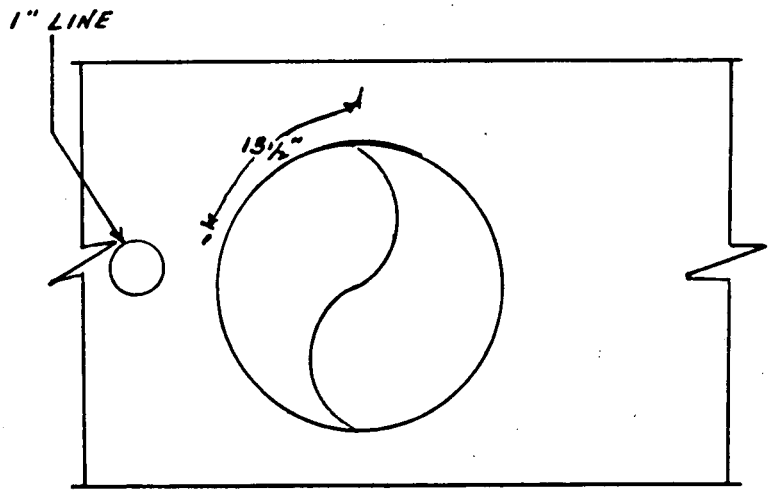
DETECTED BY U/T ____ P/T ✓ M/T ____ V/T ____ IDENT NO. 1 BC

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

SIDE VIEW



FRONT VIEW



ANII REVIEW
ANII
DATE 11-29-88

(1) INDICATION LENGTH 5/64", 7/8" FROM NOZZLE WELD ON R.C PIPE 13½" FROM 0°.

Richard B. Weber 11/29/88
J W Black 11/28/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT II SKETCH CPL-108

SYST/COMP PRESSURIZER SURGE LINE PROCEDURE CPL-151-8 REV. 0

EXAMINER [illegible] III, [illegible] I DATE 12-30-88
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A			X	FLASH LIGHT	ROOF CLEVIS NUT NOT FULLY ENGAGED
B - WR	X			FLASH LIGHT	
C			X	FLASH LIGHT	ROOF CLEVIS NUT AND TOP PIPE CLAMP
					NUT NOT FULLY ENGAGED
D - WR	X			FLASH LIGHT	
E	X			FLASH LIGHT	
F			X	FLASH LIGHT	TOP PIPE CLAMP NUT NOT FULLY ENGAGED
G - WR	X			FLASH LIGHT	
					A VT-3 EXAMINATION WAS PERFORMED
					ON THE ENTIRE SURGE LINE. THE
					SURGE LINE WAS INSULATED AT
					THE TIME OF EXAMINATION. ALL
					SUPPORT AND RESTRAINT BOLTING
					WAS EXAMINED. NO EVIDENCE
					OF PIPE MOVEMENT WAS FOUND.
					THE INSULATION HAD TO BE PARTIALLY
					REMOVED WHERE THE SURGE LINE
					CROSSES THE VENTILATION DUCT. THE
					INSULATION IN THESE TWO AREAS
					APPEARS TO BE FABRICATED FOR
					MOVEMENT BUT DOES NOT SHOW ANY
					SIGN OF MOVEMENT. SEE
					LIMITATION SHEET FOR SKETCH
				ANII REVIEW	
				ANII [illegible]	Richard B. Wilson 12/31/88
				DATE 12-31-88	

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

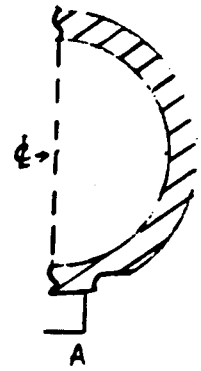
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-108

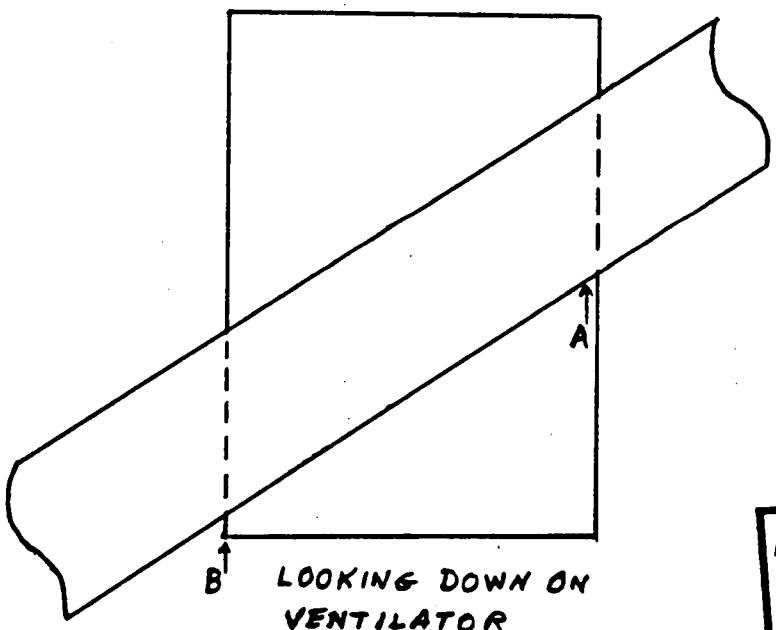
SYST/COMP PRESSURIZER SURGE LINE PROCEDURE CPL ISI-8 REV.0

EXAMINER [signature] LEVEL II DATE 12-30-88

RELATED TO: U/T ____ P/T ____ M/T ____ V/T ✓ ITEM(S) SURGE LINE AT VENT.

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.





LOOKING DOWN ON VENTILATOR

B OPPOSITE OF A

ANII REVIEW
ANII [signature]
DATE 12-31-88

Richard O. Weber 12/31/88

F49077

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-110

SYST/COMP. LOOP A 10" ACCUM. DISCHG. LINE PROCEDURE CPL ISI-11 REV.0

EXAMINER Gary M. Coleman II Paul J. Kovalle - II DATE 12-4-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
10A			X	SEE ATTACHED SURFACE INDICATION DATA SHEET
				TEMP - 63°F

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/6/88
[illegible] 12/6/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-110

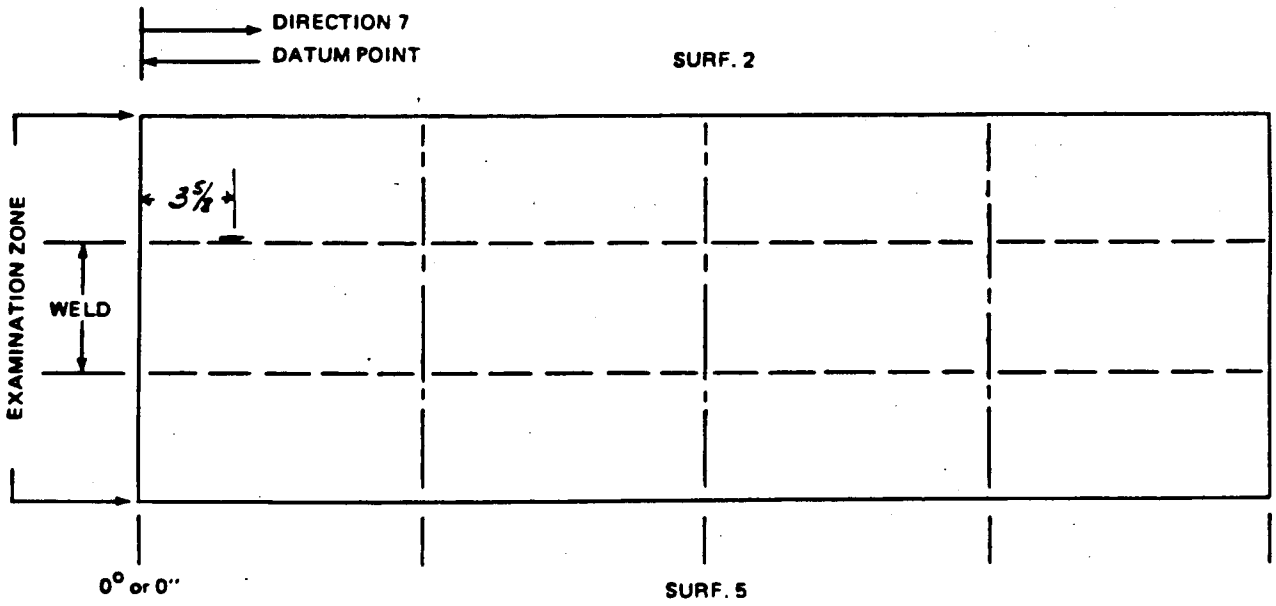
SYST/COMP LOOP A 10" ACCUM DISCHG LINE PROCEDURE CPL IST-11 REV.0

EXAMINER Harry M. Ackermann II Paul J. Kovalle II LEVEL II DATE 12-4-88

PT ✓ MT WELD NO. 10A

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS 1/8" LINEAR INDICATION, 11/16" FROM ℄ OF WELD ON TOE OF WELD



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/6/88
Eric Black 12/6/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-110

SYST/COMP. LOOP A 10" ACCUM DISCHG. LINE PROCEDURE CPL-ISI-11 REV. 0

EXAMINER Harry M. Jackson II / Ralph Chandfield I LEVEL II DATE 12-7-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	851045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
F-WS	X			62°F
16			X	63°F - SEE ATTACHED INDICATION DATA SHEET.

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
J. L. Black 12/9/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-110

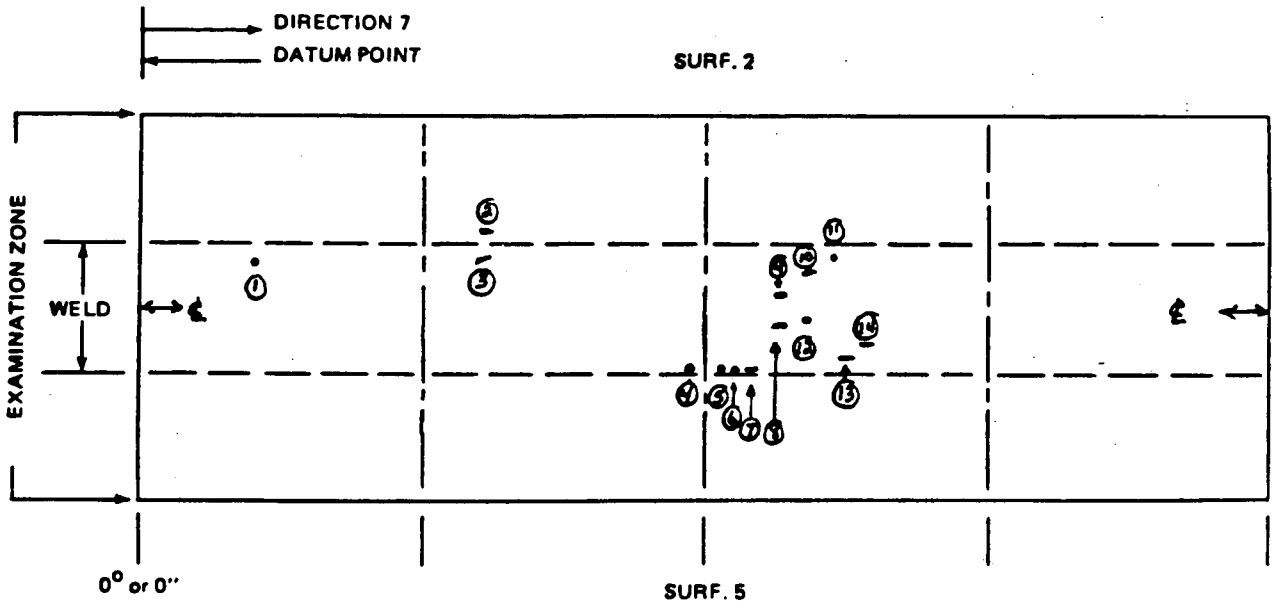
SYST/COMP LOOP A 10" ACCUM. DISCHG. LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Harry M. Jackson II / Ralph Chadfield I (LEVEL II) DATE 12-7-88

PT ✓ MT WELD NO. 16

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS ① 3/32" ROUNDED, 5" FROM 0°, 1/2" FROM ℄ ② 3/32" LINEAR, 15" FROM 0°, 1 1/4" FROM ℄
③ 1/8" LINEAR, 15" FROM 0°, 3/4" FROM ℄ ④ 1/16" ROUNDED, 22 1/2" FROM 0°, 3/4" FROM ℄
⑤ 1/16" ROUNDED, 22 7/8" FROM 0°, 3/4" FROM ℄ ⑥ 1/16" ROUNDED, 23" FROM 0°, 3/4" FROM ℄
⑦ 3/32" LINEAR, 23 1/8" FROM 0°, 3/4" FROM ℄ ⑧ 5/32" LINEAR, 24" FROM 0°, 1/4" FROM ℄



⑨ 1/8" LINEAR, 24" FROM 0°, 1/8" FROM ℄ ⑩ 1/32" ROUNDED, 24 5/8" FROM 0°, 1/8" FROM ℄
⑪ 5/32" LINEAR, 24 5/8" FROM 0°, 3/8" FROM ℄ ⑫ 1/64" ROUNDED, 25 1/4" FROM 0°, 3/4" FROM ℄
⑬ 5/32" LINEAR, 27 1/4" FROM 0°, 1/2" FROM ℄ ⑭ 5/16" LINEAR, 27 1/2" FROM 0°, 3/8" FROM ℄

ANII REVIEW
ANII [signature]
DATE 12-10-88

Richard B. Weber 12/9/88
[signature] 12/9/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-111

SYST/COMP. LOOP B 10" ACCUM. DISCHG. LINE PROCEDURE CPL IST-11 REV 0

EXAMINER Gary M. Johnson II Paul J. Kovalko-II DATE 12-12-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
14			X	TEMP. 70°F - SEE ATTACHED SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII
DATE 12-14-88

Richard B. Weber 12/12/88
[illegible] 12/13/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-111

SYST/COMP LOOP B 10" ACCUM. DISCHG. LINE PROCEDURE CPL IST-11 REV.0

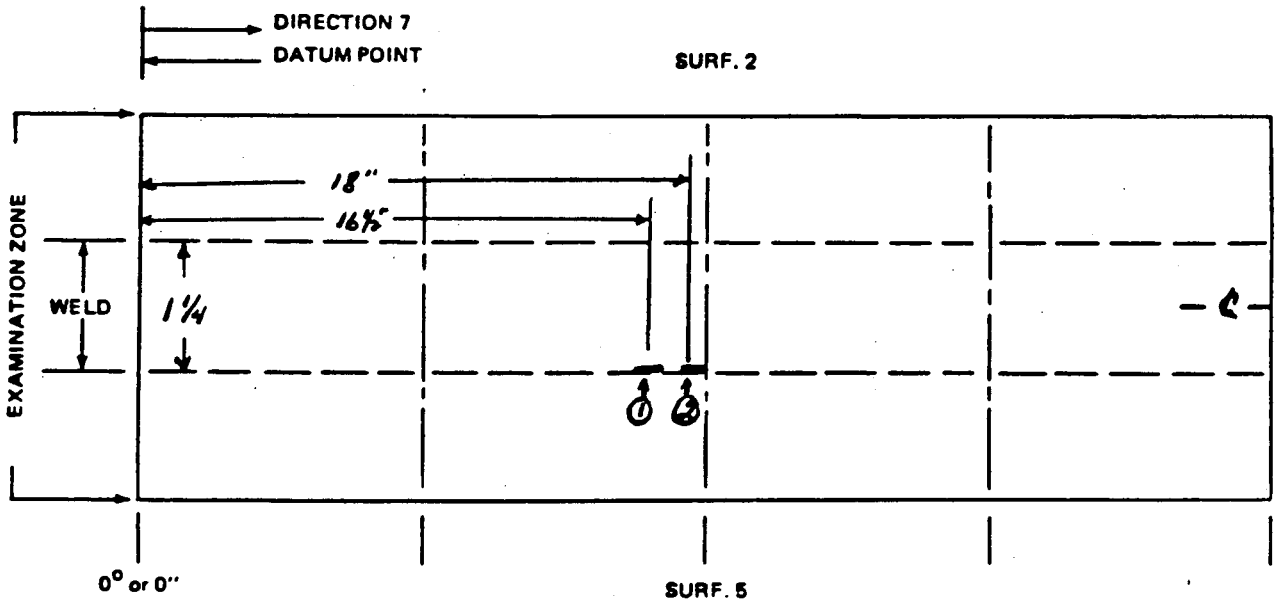
EXAMINER Harry M Johnson II Paul J. Kovalle II DATE 12-12-88
LEVEL II

PT ✓ MT WELD NO. 14

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS ① 1/8" LINEAR, 5/8" FROM ℄, 16½" FROM 0°

② 1/2" LINEAR, 5/8" FROM ℄, 18" FROM 0°



ANII REVIEW
ANII
DATE 12-14-88

Richard B. Weber 12/12/88
J. M. Black 12/13/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-112

SYST/COMP. LOOP C 10" ACCUM. DISCHG. LINE PROCEDURE CPL-151-11, REV. 0

EXAMINER [illegible] II [illegible] II LEVEL II DATE 11-21-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
13 A	X			AS WELDED CONDITION TEMP. 94°F
19			X	AS WELDED CONDITION, SEE ATTACHED
				SURFACE INDICATION DATA SHEET. TEMP. 89°F

ANII REVIEW
ANII [illegible]
DATE 11-25-88

Richard B Weber 11/23/88
[illegible] 11/23/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-112

SYST/COMP Loop C 10" Accum. Discng. Line PROCEDURE CPL-1S1-11, Rev. 0

EXAMINER [illegible] II [illegible] I DATE 11-21-88
LEVEL II

PT X MT WELD NO. 19

VISUAL AIDS Flashlight, Mirror

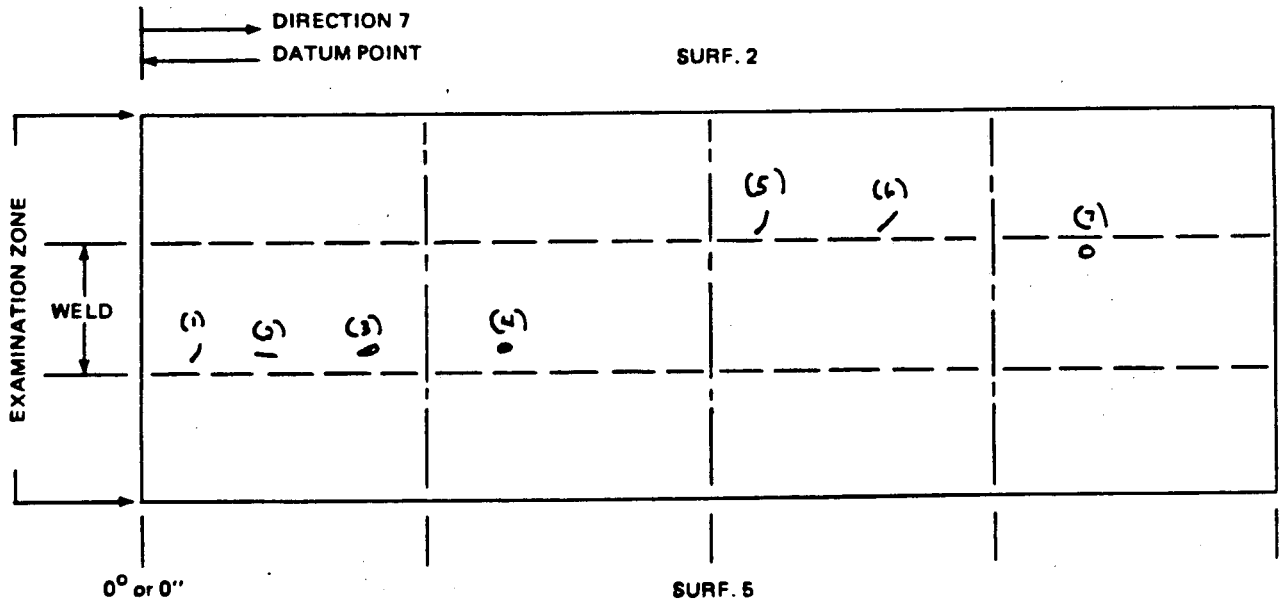
REMARKS (1.) 3/32" Linear, 3/4" From C/L weld, Located 7 3/4" CW From 0" Datum

(2) - 9/64" Linear, 3/4" From C/L weld, Located 9 1/2" CW From 0" Datum

(3) 1/16" Rounded, 1" From C/L weld, Located 13 1/2" CW From 0" Datum

(4) 3/32" Rounded, 3/4" From C/L weld, Located 14" CW From 0" Datum

(5) 1/8" Linear, 3/4" From C/L weld, Located 21 1/2" CW From 0" Datum



(6) 3/32" Linear, 3/4" From C/L weld, Located 24" CW From 0" Datum

(7) 2/32" Rounded, 1/2" From C/L weld, Located 27 1/8" From 0" Datum

ANII REVIEW
ANII [illegible]
DATE 11-25-88

Richard B. Weber 11/23/88
[illegible] 11/23/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-112

SYST/COMP Loop C 10" Accum. Dischg. Line PROCEDURE CPL 151-8 REV.0

EXAMINER George A. Marini II LEVEL II DATE 12-18-88

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
E 1	X			FLASHLIGHT	RE-EXAMINE AFTER RE WORK VT-3

ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-113

SYST/COMP LOOP A-8 RHR RETURN PROCEDURE CPL-151-8 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 12-9-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
V876 A			X	FLASHLIGHT	NO NUTS STUDS CUT OFF AT VALVE BONNET VT-1

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
E. Black 12/9/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-116 B

SYST/COMP. LOOP B & C 4" SPRAY LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER [illegible] II [illegible] I (LEVEL II) DATE 12-1-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T	
EQUIPMENT	
EXAM. MEDIUM	
BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS
18			X	See Attached Surface Ind. Data Sheet Temp. 66°F
161			X	See Attached Surface Ind. Data Sheet. Temp. 66°F

ANII REVIEW
ANII [illegible]
DATE 12-6-88

[illegible] 12/5/88
[illegible] 12/5/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-116B

SYST/COMP Loop B+C 4" Spray Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Donald B. Griffin II / Ralph Chandfield I (LEVEL II) DATE 12-1-88

PT X MT WELD NO. 18

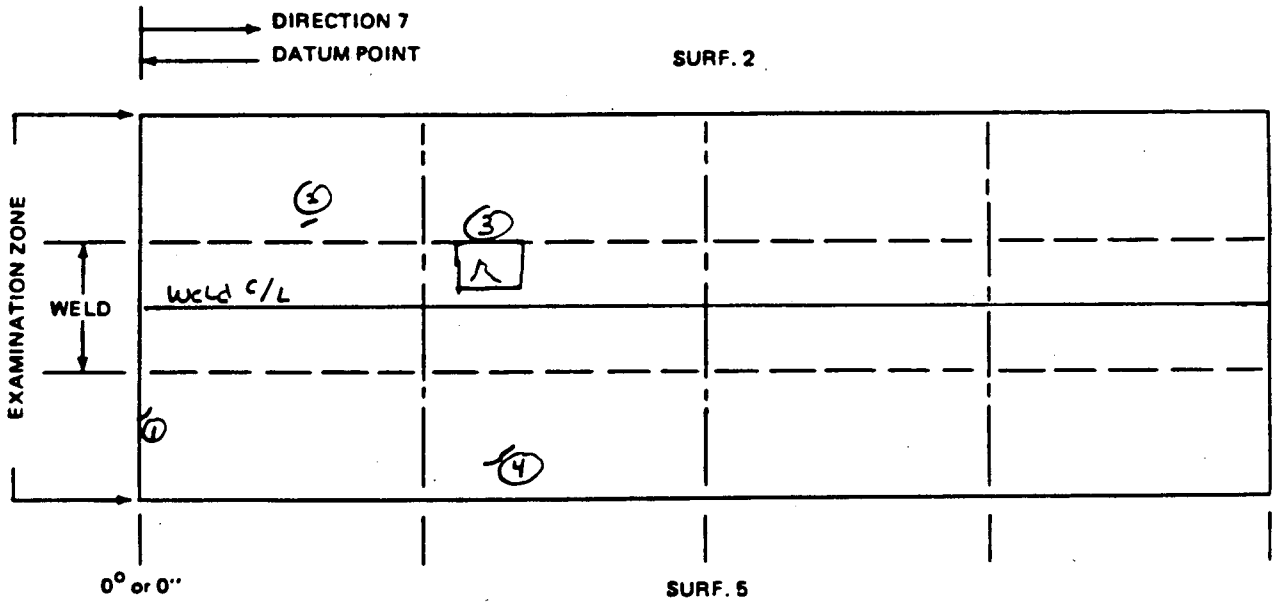
VISUAL AIDS Flashlight, Mirror

REMARKS (1) 0.06" Linear, 1/2" From C/L weld, Located At 0" Datum Point

(2) 0.09" Linear, 1/2" From C/L weld, Located At 3" CW From 0" Datum Point

(3) 0.16" by 0.12" Square Area with Numerious Rounded Indications, Seperated by Less than 1/8", 1/8" From C/L weld, Located At 4 9/16" CW From 0" Datum Point.

(4) 0.078" Linear, 7/8" From C/L weld, Located At 4 3/4" From 0" Datum Point



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
Ch Black 12/5/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-116B

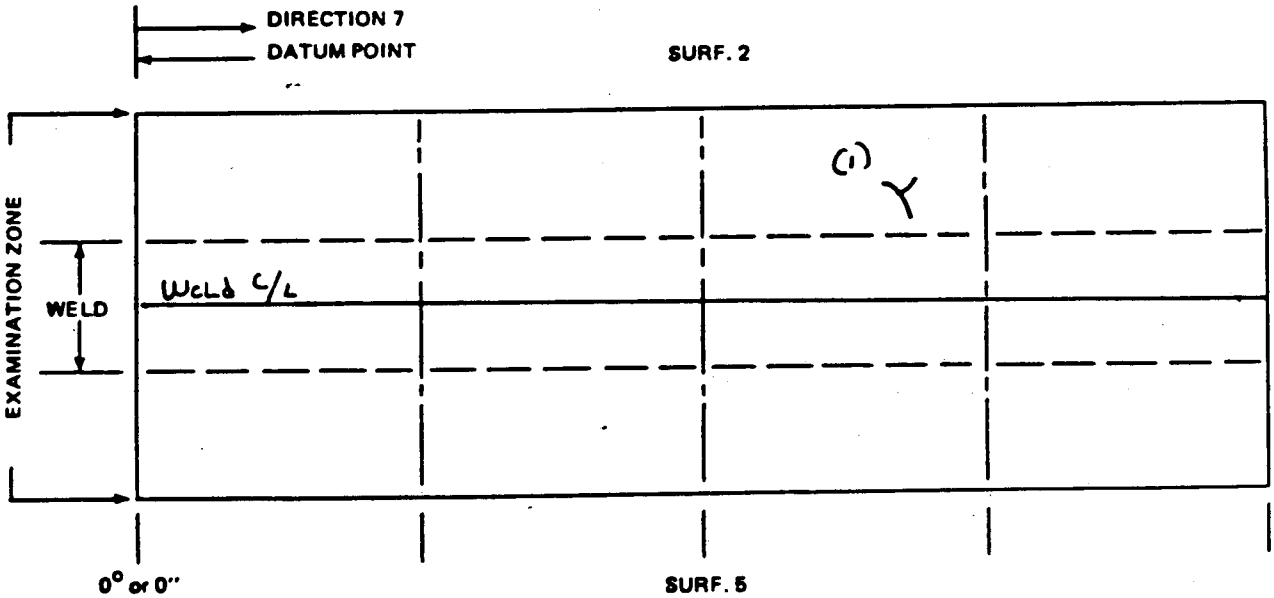
SYST/COMP Loop B+C 4" Spray Line PROCEDURE CPL-IST-11, Rev. 0

EXAMINER [illegible] II / Ralph Chandfield I (LEVEL II) DATE 12-1-88

PT X MT WELD NO. 161

VISUAL AIDS Flashlight, Mirror

REMARKS (1) 0.2" Linear, 1/2" From C/L weld, Located 10 1/2" CW From 0" Datum Point.



ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/5/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-118

SYST/COMP 4" PRESSURIZER SAFETY LINE PROCEDURE CPL ISI-8 REV.0

EXAMINER Daniel A. Bolfin II / Ralph Chandler I (LEVEL II) DATE 12-1-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
VALVE 551 A			X	FLASHLIGHT	VT-1, Examined 12 Bolts and 24 Nuts on Outlet Flange and 8 Bolts and 16 Nuts on In-Let Flange. See Attached Gen. Ind. Data Sheet.

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

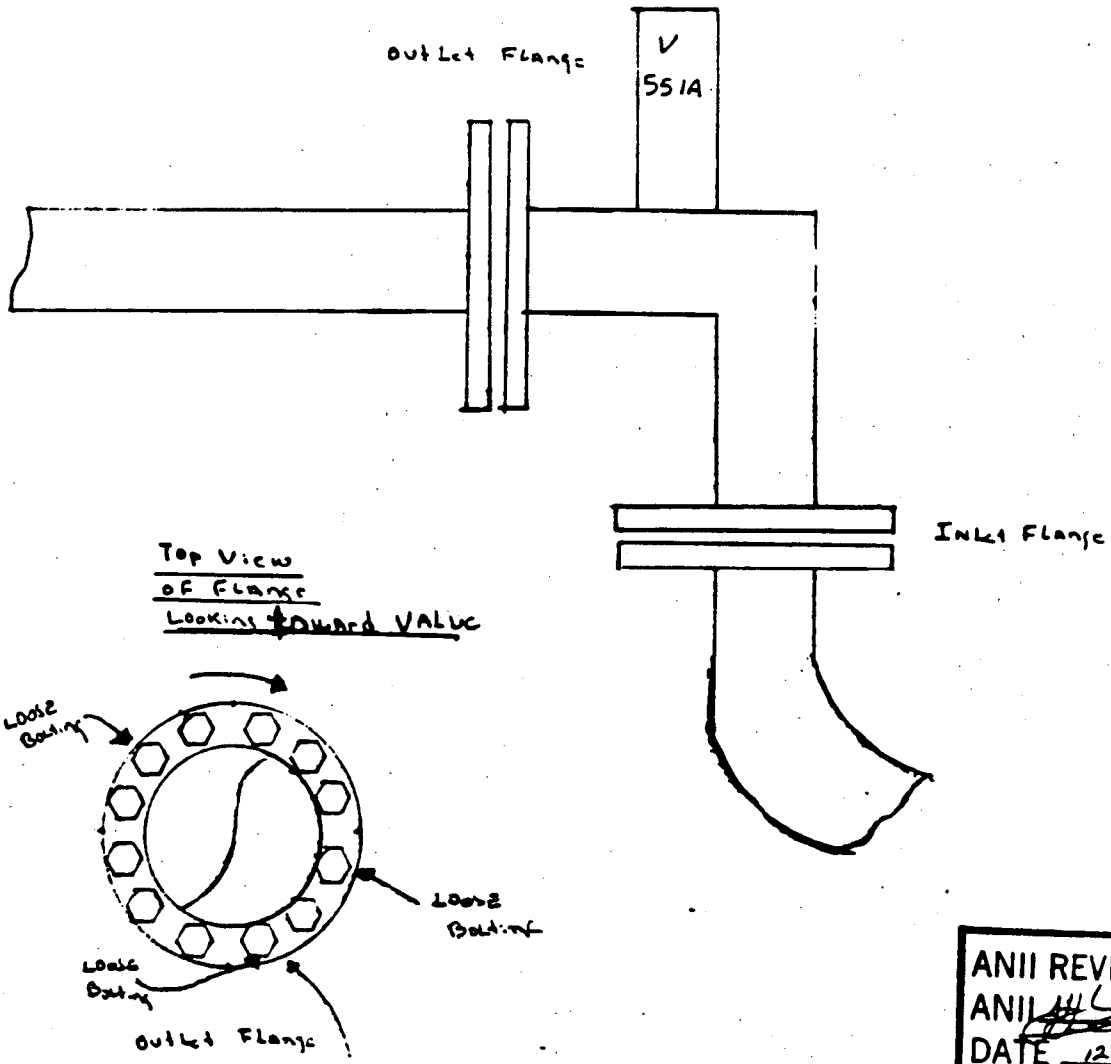
PLANT H.B Robinson UNIT 2 SKETCH CPL-118

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-ISI-8 Rev 0

EXAMINER Mark A. Bolin II / Ralph Churchfield I DATE 12-2-88
LEVEL II

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. V 551A

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/5/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT II SKETCH CPL-118

SYST/COMP PRESSURIZER SAFETY LINE PROCEDURE CPL-151-8 REV. 0

EXAMINER [illegible] III [illegible] I DATE 12-30-88
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
551A	X			FLASH LIGHT	VT-1 BOLTS TIGHTENED EXAMINED AFTER REWORK

ANII REVIEW
ANII [illegible]
DATE 12-31-88

Richard A. Weber 12/31/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL - 118A

SYST/COMP. 4" PRESSURIZER SAFETY LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Donald A. Bolyin II / Ralph Schuchfield I LEVEL II DATE 12-1-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
1 DM			X	See Attached Surface Ind. Data Sheet. Temp. 66°F

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
12/3/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-118A

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-ISI.11, Rev. 0

EXAMINER [illegible] II / Ralph Churchfield I (LEVEL II) DATE 12-1-88

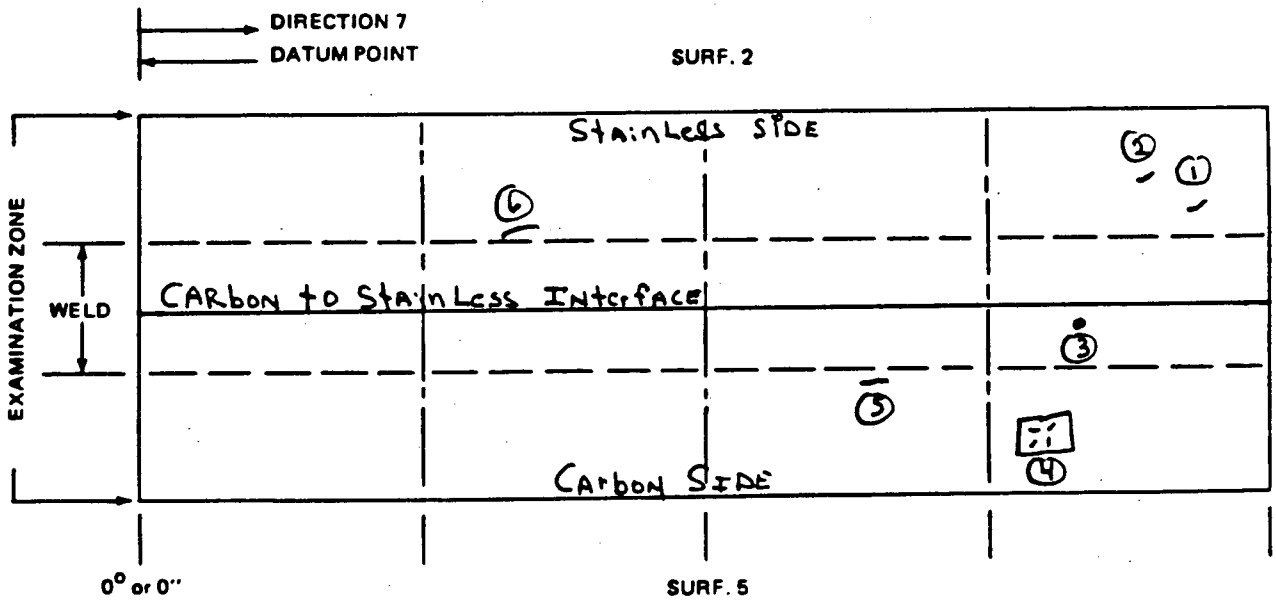
PT X MT WELD NO. 1 DM

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS (1) 3/32" Linear, 13/32" From Interface, Located at 1" CCW From 0" Datum Point

(2) 1/16" Linear and 1/32" Rounded, 15/32" From Interface, Located 1 1/4" CCW From 0" Datum Point.

(3) 1/16" Rounded, 1/8" From Interface, Located 2 3/4" CCW From 0" Datum Point.



(4) 3/8" by 5/8 Square Area with 3: 1/16" Linear's and 1: 3/32 Linear, 2 1/32" From Interface, Located at 3" CCW From 0" Datum Point.

(5) 3/32" Linear, 3/16 From Interface, Located 5 1/2" CCW From 0" Datum Point.

(6) 1/16" Linear, 3/8" From Interface, Located 6 1/4" CW From 0" Datum Point.

ANII REVIEW
ANII [illegible]
DATE 12-6-88

Richard B. Walker 12/5/88
[illegible] 12/3/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-118 B

SYST/COMP. 4" PRESSURIZER SAFETY LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Neal A. Bohm II / Ralph Churchfield I LEVEL II DATE 12-1-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
8			X	See Attached Surface Ind. Data Sheet Temp. 66°F
1DM			X	See Attached Surface Ind. Data Sheet Temp. 66°F

ANII REVIEW
ANII [signature]
DATE 12-6-88

Richard B. Weber 12/5/88
[signature] 12/3/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-118B

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Mark A. Boyd II / Ralph Schuelfield LEVEL II DATE 12-1-88

PT X MT WELD NO. 8

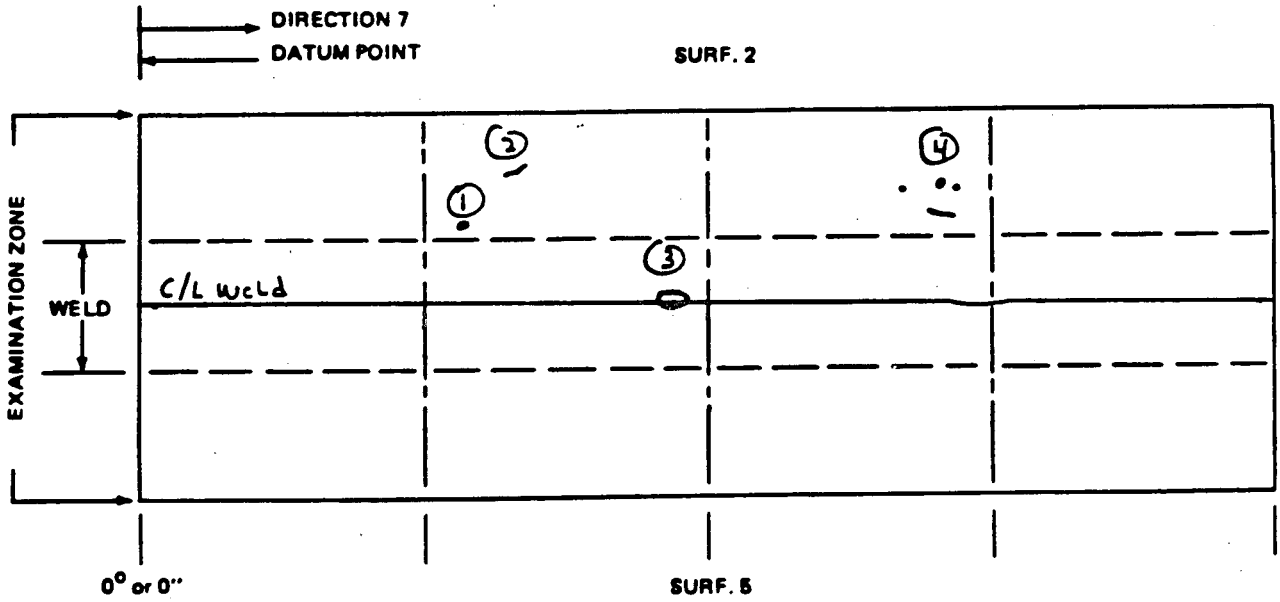
VISUAL AIDS Flashlight, Mirror

REMARKS (1) 1/16" Rounded, 1/2" From C/L weld, Located at 4 1/2" CW From 0" Datum Point

(2) 1/16" Linear, 7/16" From C/L weld, Located at 4 3/4" CW From 0" Datum Point

(3) 3/8" Rounded, At C/L weld, Located at 7" CW From 0" Datum Point

(4) 5/64" Linear with 2: 1/32" Rounded and 1/64" Round Ind. Within 1/2" From 5/64" Linear Ind., 1/2" From C/L weld, Located at 11 1/2" CW From 0" Datum Point.



ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
E M Black 12/3/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-1188

SYST/COMP 4" Pressurizer Safety Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Mark A. Bolyn II / Ralph Churchfield I (LEVEL II) DATE 12-1-88

PT X MT WELD NO. 1 DM

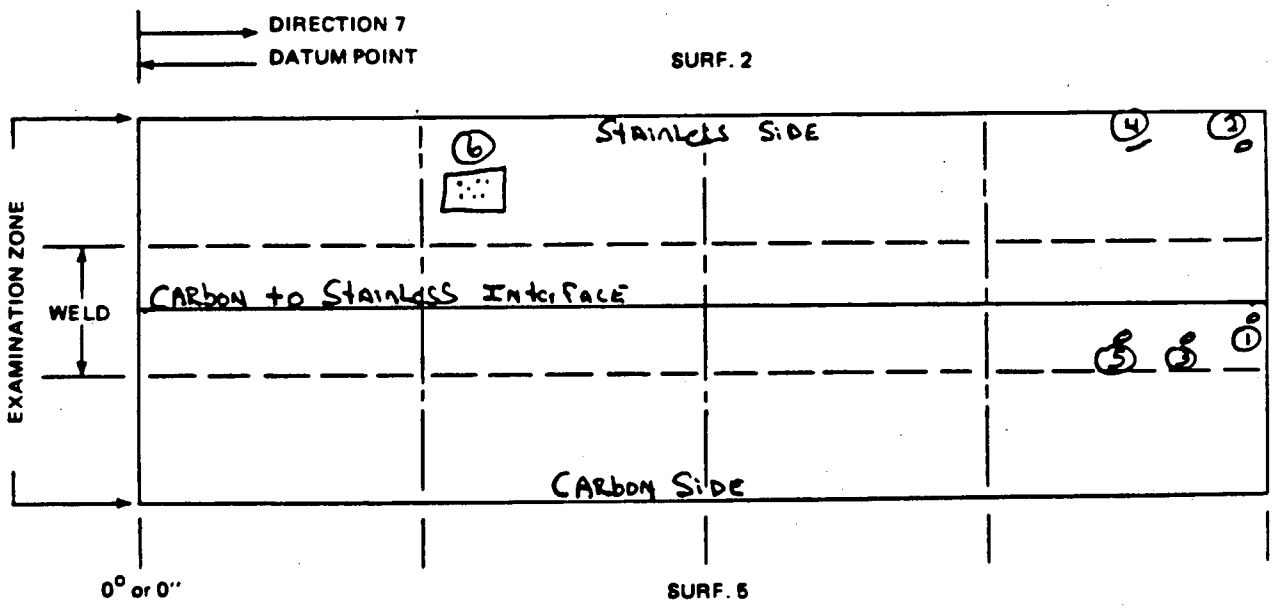
VISUAL AIDS Flashlight, Mirror

REMARKS (1) 1/16" Rounded, 1/4 From Interface, Located at 7/8" CCW From 0" Datum Point.

(2) 1/16" Rounded, 3/4" From Interface, Located at 7/8" CCW From 0" Datum Point

(3) 3/32" Rounded, 3/16" From Interface, Located at 1" CCW From 0" Datum Point

(4) 1/16" Linear, 3/4" From Interface, Located at 1 1/4" CCW From 0" Datum Point



(5) 1/8" Rounded, 5/32" From Interface, Located At 1 3/8" CCW From 0" Datum Point.

(6) 1/4" by 1/4" Square Area with Seven Rounded Ind. Less than 1/8" Separated by Less than 1/16", 1" From Interface, Located at 4 1/2" CW From 0" Datum Point.

ANII REVIEW
ANII
DATE 12-6-88

Richard B. Weber 12/5/88
[illegible] 12/3/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-118B

SYST/COMP. 4" PRESSURIZER SAFETY LINE PROCEDURE CPL 151-11 REV. 0

EXAMINER Gerald Morini II LEVEL II DATE 12 16 88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88 G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
8	X			RE-EXAMINED AREA OF INDICATION AFTER RE-WORK. TEMP. 62°F

ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88
12/19/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL DATA

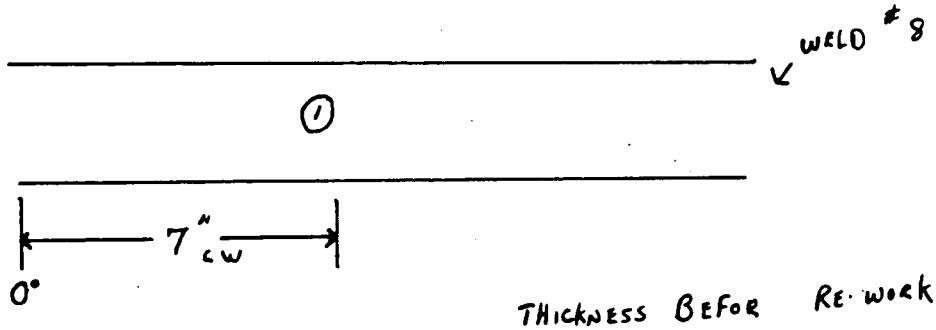
PLANT HB ROBINSON UNIT 2 SKETCH CPL-118B

SYST/COMP 4" PRESSURIZER SAFETY LINE PROCEDURE CPL-TBA-100 REV.0

EXAMINER George A Morini II LEVEL II DATE 12-16-88

DETECTED BY U/T X P/T ____ M/T ____ V/T ____ IDENT NO. WELD # 8

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



THICKNESS BEFOR RE-WORK

1 .700" T

THICKNESS AFTER RE-WORK

1 .650" T

INST:
SONIC MK I
SN. # 06210E

TRANS:
KB AEROTECH
SIZE .25"
FRQ. 5 MHZ
SN. # K 18421

COUPLANT:
SONOTRACE 40
BATCH # 8767

ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL DATA

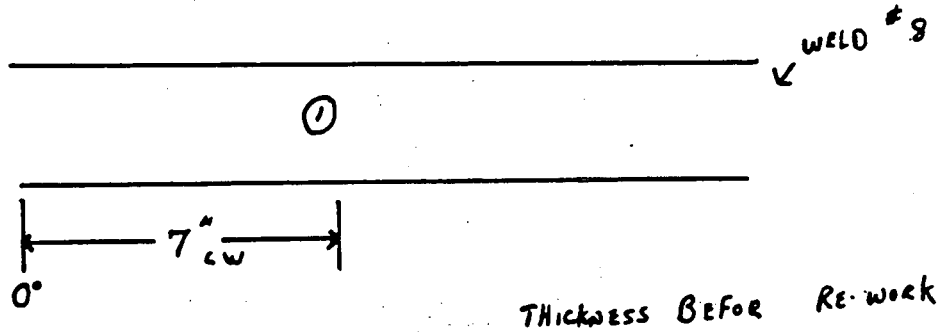
PLANT HB ROBINSON UNIT 2 SKETCH CPL-118B

SYST/COMP 4" PRESSURIZER SAFETY LINE PROCEDURE CPL-TBA-100 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 12-16-88

DETECTED BY U/T X P/T ____ M/T ____ V/T ____ IDENT NO. WELD #8

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



THICKNESS BEFOR RE-WORK

1 .700" T

THICKNESS AFTER RE-WORK

1 .650" T

INST:
SONIC MK I
SN. # 06210E

TRANS:
KB AEROTECH
SIZE .25"
FRQ. 5 MHZ
SN. # K 18421

COUPLANT:
SONOTRACE 40
BATCH # 8767

ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-118 B

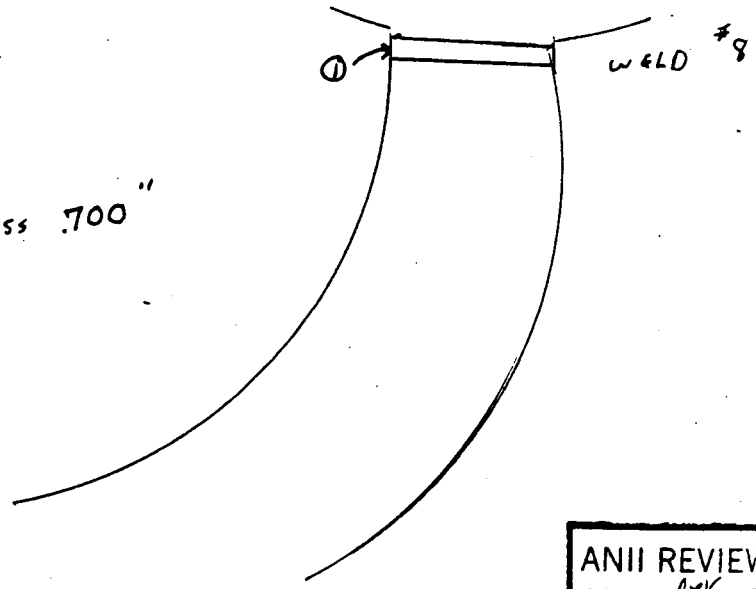
SYST/COMP PRESSURIZER SAFETY LINE PROCEDURE

EXAMINER [signature] LEVEL II DATE 12 13 88

DETECTED BY U/T X P/T ____ M/T ____ V/T ____ IDENT NO. WELD #8

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

MACH. SN # 06210E
TRANSDUCER # K 18421



1 THICKNESS .700"

ANII REVIEW
ANII [signature]
DATE 12-19-88

READING TAKEN AT 7" C.W. FM 0" DATUM POINT

Richard B. Miller 12/19/88
[signature] 12/13/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL - 122

SYST/COMP LOOP A 3" ALT CHARGING LINE PROCEDURE CPL-ISI-8 REV. 0

EXAMINER [illegible] LEVEL II [illegible] LEVEL I DATE 11-27-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
H H	X			FLASHLIGHT	VT-3
J J	X			FLASHLIGHT	VT-3
Q			X	FLASHLIGHT	DUAL SPRING CAN. ONE CAN OFF SCALE HIGH END, OTHER CAN NO SCALE VT-3
R			X	FLASHLIGHT	NOT THERE VT-3

ANII REVIEW
ANII [illegible]
DATE 11-30-88

Richard B. Weber 11/29/88
[illegible] 11/29/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT II SKETCH CPL-122

SYST/COMP ALT. CHARGING PROCEDURE CPL-151-8 REV. 0

EXAMINER [illegible] III [illegible] I DATE 12-30-88
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
Q		X		FLASHLIGHT	VT-3 AFTER REWORK BOTH SPRING CANS READING 3/4". HANGER IS NOT LEVEL

ANII REVIEW
ANII [illegible]
DATE 12-31-88

Richard B. Weber 12/21/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-122A

SYST/COMP. LP. A 3" ALT. CHARGING LINE PROCEDURE CPL ISI 11 REV. 0

EXAMINER Gerry A Moini II LEVEL II DATE 12-17-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
R-WS			X	SEE SURFACE INDICATION DATA SHEET, ATTACHED.
				TEMP 62°F

ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88
[illegible] 12-19-88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

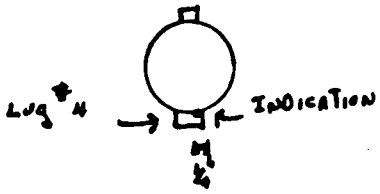
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-122A

SYST/COMP LP A 3" ALT. CHARGING LINE PROCEDURE CPL 151 11 REV.0

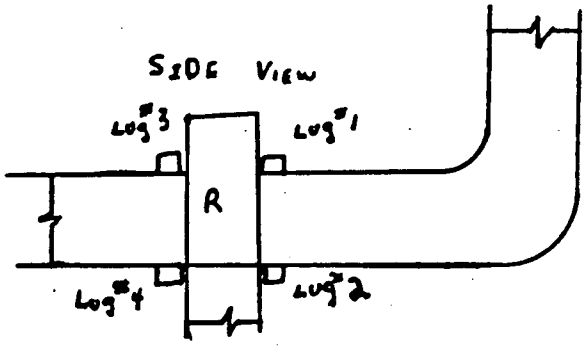
EXAMINER Gerry A Morini II LEVEL II DATE 12-17-88

PT X MT WELD NO. R-WS

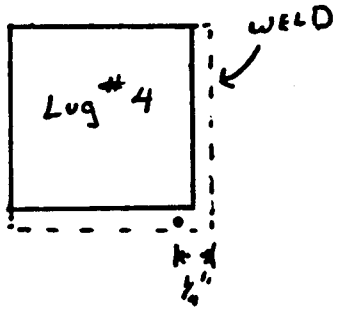
END VIEW



SIDE VIEW



INDICATION: 3/16" ROUNDED 1/4" FROM EDGE OF LUG # 4



ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88
12/19/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-123

SYST/COMP. LOOP B 3" CHGING. LINE PROCEDURE CPL ISI-11 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 12-11-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	888019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
63A	X			TEMP. 68°F
64			X	TEMP. 68°F - SEE ATTACHED SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII [signature]
DATE 12-12-88

Richard B. Weber 12/11/88
[signature] 12/11/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-123

SYST/COMP LOOP B 3" CHGING. LINE PROCEDURE CPL-ISI-11 REV 0

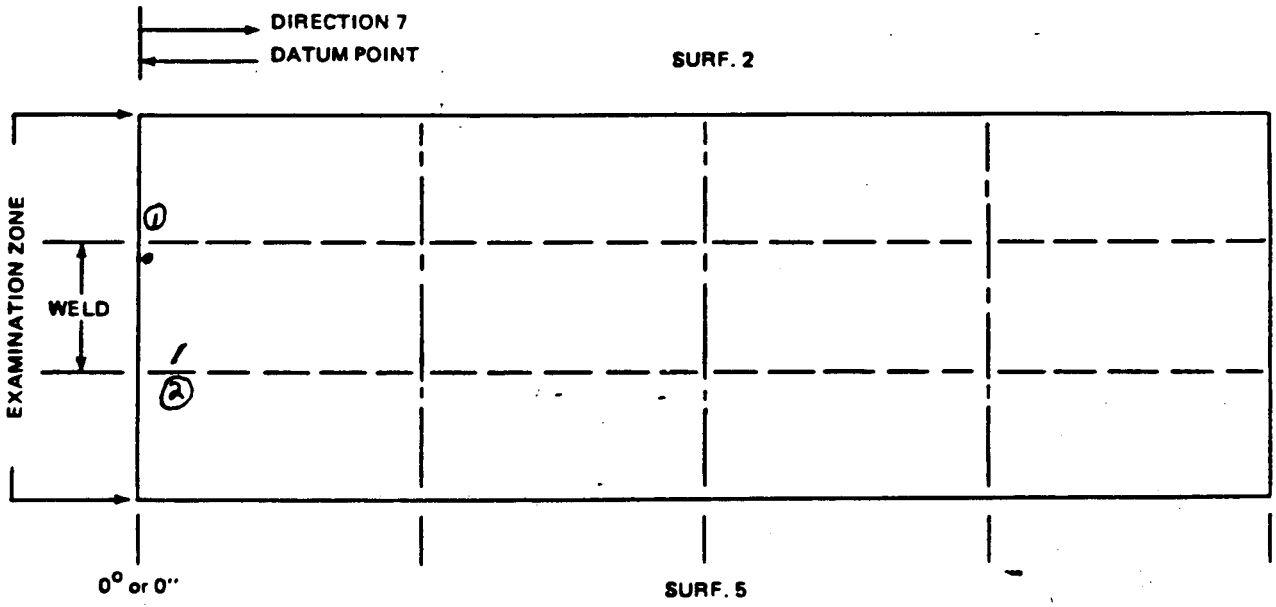
EXAMINER Gary A Morini II LEVEL II DATE 12-11-88

PT X MT WELD NO. 64

VISUAL AIDS FLASHLIGHT

REMARKS (1.) (NRI) 3/32" ROUNDED, 1/8" FROM 0°, 3/16" FROM WELD ℄

(2) (RI) 1/8" LINEAR, 3/8" FROM 0°, 1/4" FROM WELD ℄



ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
Jim Black 12/11/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-123

SYST/COMP LOOP B 3" CHGING LINE PROCEDURE CPL ISI-8 REV.0

EXAMINER [illegible] / [illegible] II DATE 11-30-88
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
FF			X	FLASHLIGHT	SEE ATTACHED GENERAL INDICATION DATA SHEET VT-3
312C	X			FLASHLIGHT	12 STUDS + NUTS EXAMINED IN PLACE VT-1

ANII REVIEW
ANII [illegible]
DATE 12-4-88

Richard B. Weber 11/30/88
[illegible] 12/3/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

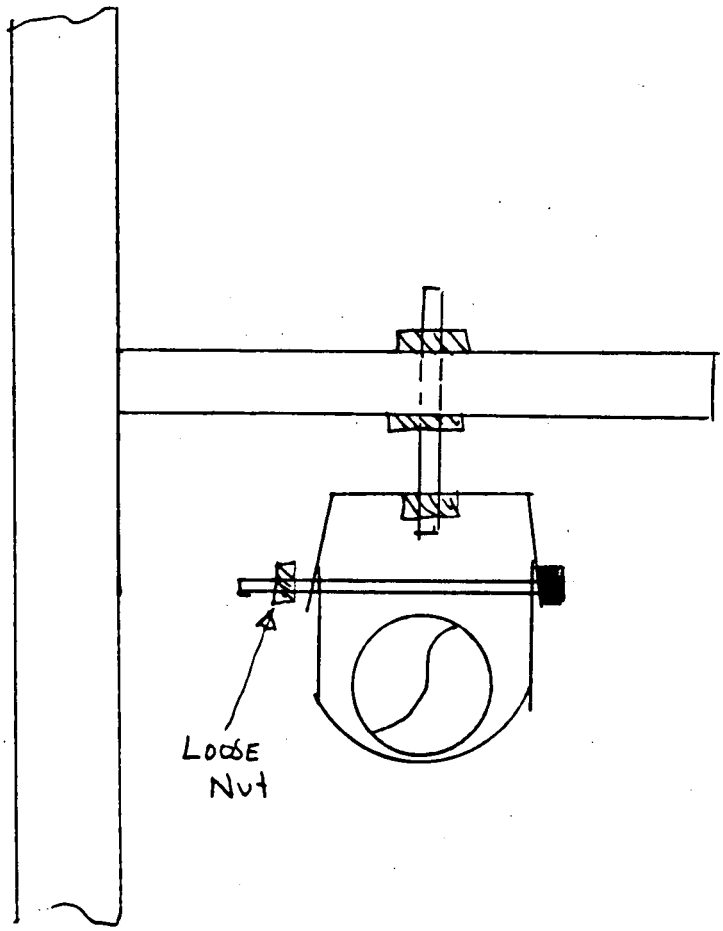
PLANT H. B. Robinson UNIT 2 SKETCH CPL-123

SYST/COMP Loop B 3" CHARGING Line PROCEDURE CPL-IST-8, Rev. 0

EXAMINER [illegible] LEVEL II DATE 11-30-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger FF

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII [illegible]
DATE 12-4-88

Richard B. Weber 11/30/88
[illegible] 12/3/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT HB ROBINSON UNIT 2 SKETCH CPL-123

SYST/COMP Loop B 3" CHGING. LINE PROCEDURE CPL 151-8 REV. 0

EXAMINER Geary A Morris II LEVEL II DATE 12-18-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
FF	X			FLASHLIGHT	RE-EXAMINE AFTER RE-WORK VT-3

ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-125

SYST/COMP. Loop A 2" Letdown Line PROCEDURE CPL-IST-11, Rev. 0

EXAMINER Arnold A. Bufin II, Joseph Morini II, Robert S. Cassatt II (LEVEL II) DATE 12-10-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T	
EQUIPMENT	
EXAM. MEDIUM	
BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
37	X			*
38	X			*
39	X			*
40	X			*
41	X			*
42	X			*
43	X			*
44	X			*
45	X			*
46	X			*
47	X			*
48			X	*, See Attached Surface Ind. Data Sheet
49	X			*
50			X	*, See Attached Surface Ind. Data Sheet
				* Temp. for all of the above welds was 62°F
				ANII REVIEW
				ANII [signature]
				DATE 12-12-88

Richard B. Weber 12/11/88
[signature] 12/12/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-125

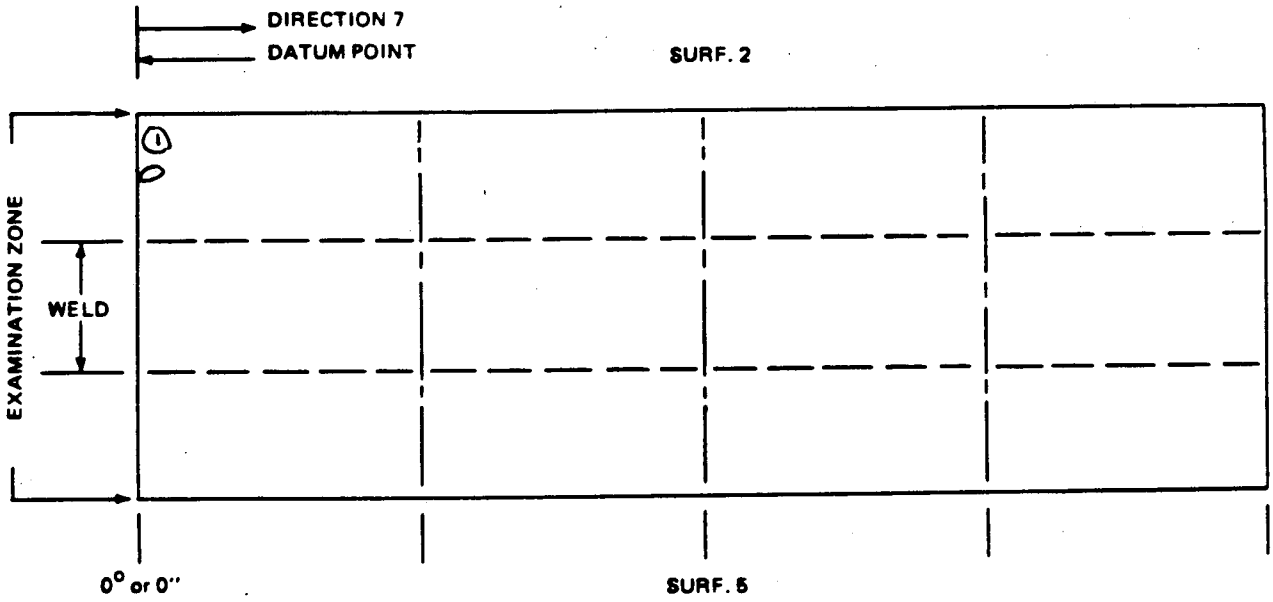
SYST/COMP Loop A 2" Letdown Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER [illegible] LEVEL II DATE 12-10-88

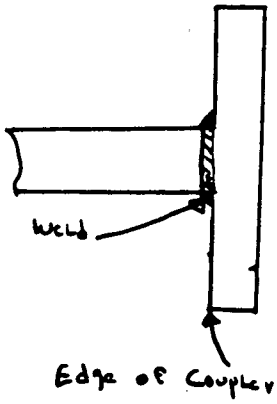
PT X MT WELD NO. 48

VISUAL AIDS Flashlight, MIRROR

REMARKS (1) 1/8" Rounded At 0" Datum Point, 3/8" From Edge of Coupler



Flow Determined by Ascending Weld Numbers



ANII REVIEW
ANII [illegible]
DATE 12-12-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

FORM 459328

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-125

SYST/COMP Loop A 2" Letdown Line PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER [signature] LEVEL II DATE 12-10-88

PT X MT WELD NO. 50

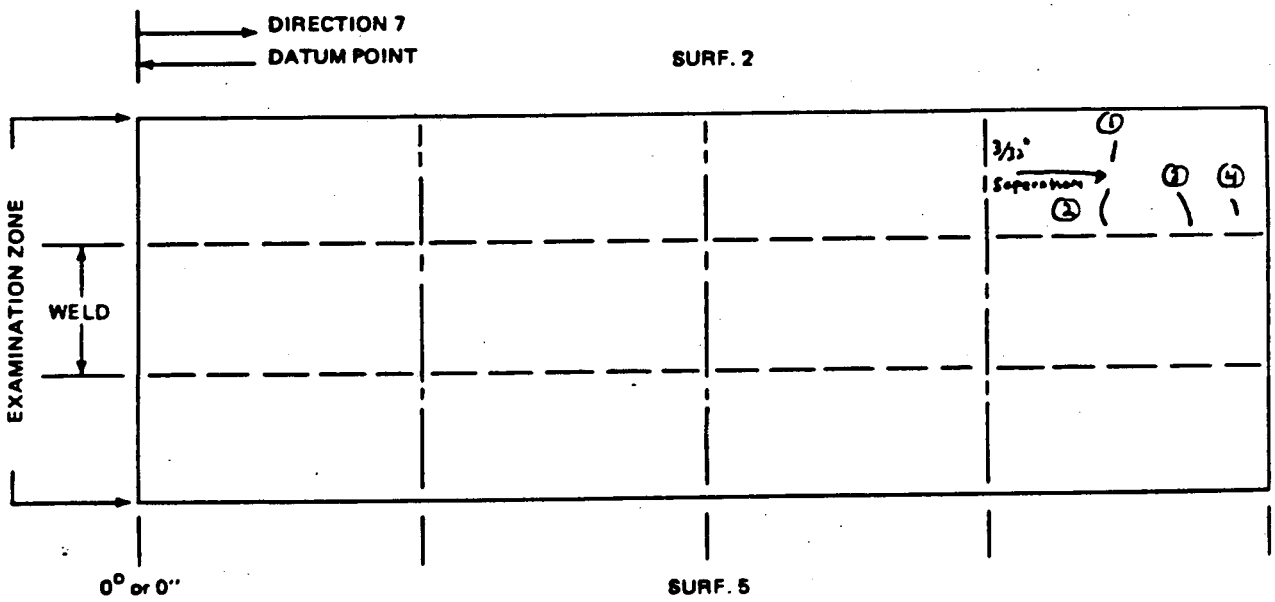
VISUAL AIDS Flashlight, MIRROR

REMARKS (1) 1/16" Linear, 5/16" From Edge of Coupler, Located at 15/16" CCW From 0" Datum Point.

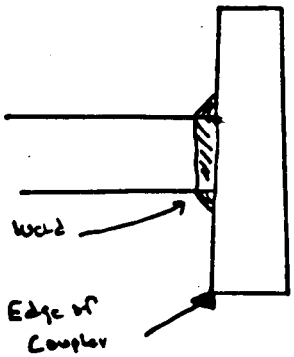
(2) 1/8" Linear, 3/32" From Edge of Coupler, Located At 15/16" CCW From 0" Datum Point

(3) 1/8" Linear, 1/32" From Edge of Coupler, Located At 7/8" CCW From 0" Datum Point

(4) 3/64" Linear, 1/16" From Edge of Coupler, Located at 3/8" CCW From 0" Datum Point



Flow Determined by Ascending Weld Numbers



ANII REVIEW
ANII [signature]
DATE 12-12-88

Richard B. Weber 12/11/88
[signature] 12/11/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-126

SYST/COMP LOOP A 2" DRAIN LINE PROCEDURE CPL-ISI-8 REV.0

EXAMINER Glenn A Morris II / Ralph Blandford I (LEVEL II) DATE 11-27-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
505 B			X	FLASHLIGHT	2 STUDS, 2 NUTS. WHITE FOREIGN
					SUBSTANCE ON STUDS VT-1

ANII REVIEW
ANII [illegible]
DATE 11-29-88

Richard B. Weber 11/27/88
J M Black 11/28/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT II SKETCH CPL-126

SYST/COMP DRAIN LINE LOOP 'A' PROCEDURE CPL-151-8 REV 0

EXAMINER [signature] LEVEL II [signature] LEVEL I DATE 12-30-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
505B			X	FLASHLIGHT	VT-3 WHITE SUBSTANCE REMOVED
					EVIDENCE OF LEAKAGE FROM
					INITIAL EXAMINATION
505B	X				VT-1 BOLTING

ANII REVIEW
ANII [signature]
DATE 12-31-88

[signature] 12/31/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-127

SYST/COMP. LOOP B 2" DRAIN LINE PROCEDURE CPL-ISI-11 REV. 0

EXAMINER Robert L Conrad II LEVEL II DATE 12-9-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
5			X	TEMP. 63°F SEE SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII
DATE 12-11-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-127

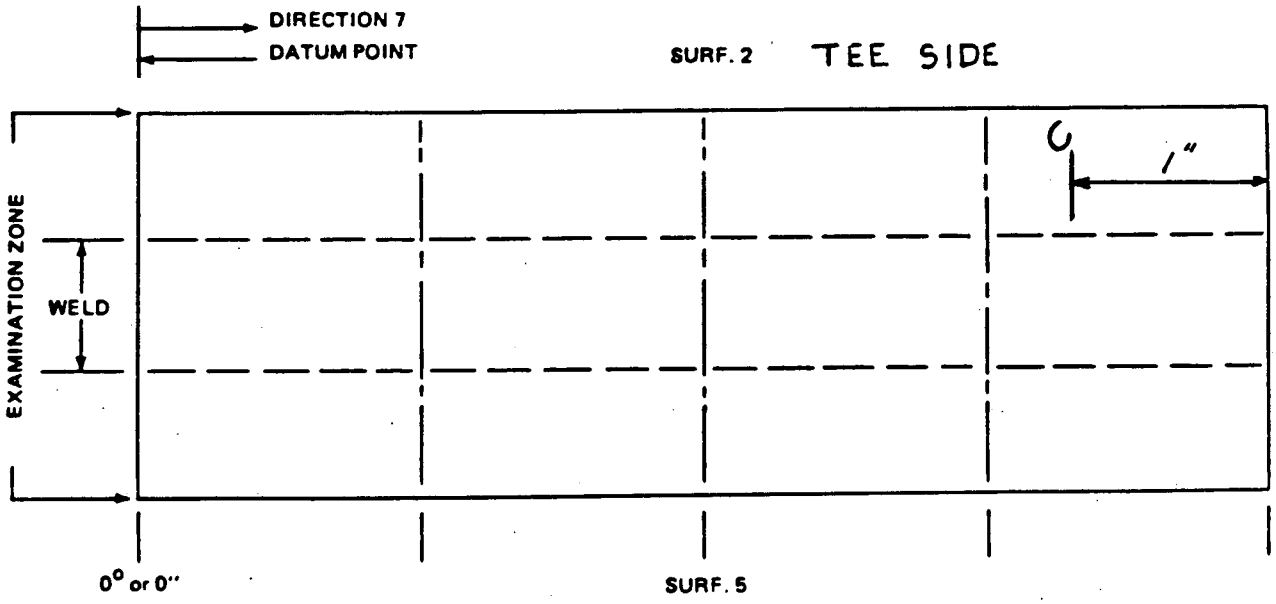
SYST/COMP LOOP B 2" DRAIN LINE PROCEDURE CPL-ISI-11 REV. 0

EXAMINER Robert L Cossart II LEVEL II DATE 12-9-88

PT ✓ MT _____ WELD NO. 5

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS 3/8" CURVILINEAR, 3/4" FROM TOE ON 2 SIDE 1" CCW FROM O



ANII REVIEW
ANII
DATE 12-11-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT HB ROBINSON UNIT 2 SKETCH CPL-127

SYST/COMP LOOP B 2" DRAIN LINE PROCEDURE CPL-151-8 REV. 0

EXAMINER Arnold A. Bolfin II LEVEL II DATE 12-9-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
V 508 B	X			FLASHLIGHT	2 STUDS & 2 NUTS IN PLACE VT-1
V 508 A			X	FLASHLIGHT	2 STUDS & 2 NUTS WHITE SUBSTANCE LEAKING FROM VALVE STEM. VT-1

ANII REVIEW
ANII
DATE 12-10-88

Richard B. Weber 12/9/88
Chr Black 12/9/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT II SKETCH CPL-127

SYST/COMP DRAIN LINE LOOP 'B' PROCEDURE CPL-151-8 REV.0

EXAMINER Lee Blackwell III Harry M. Ackerman I DATE 12-30-88
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
508A			X	FLASH LIGHT	VT-3 WHITE SUBSTANCE REMOVED
					EVIDENCE OF LEAKAGE FROM
					INITIAL EXAMINATION
508A	X				VT-1 BOLTING

ANII REVIEW
ANII
DATE 12-31-88

Richard B. Weber 12/31/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-127

SYST/COMP. LOOP B 2" DRAIN LINE PROCEDURE CPL-IST 11 REV.0

EXAMINER Henry A Marini II LEVEL II DATE 12-15-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	852045
DEVELOPER	MAGNAFLUX	883019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
5	X			RE-EXAMINED AREA OF INDICATION AFTER RE-WORK.
				TEMP. 70°F

ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88
[illegible] 12/19/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL DATA

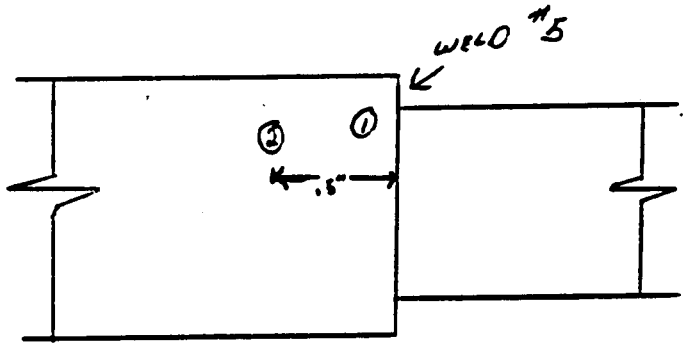
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-127

SYST/COMP LOOP B 2" DRAIN LINE PROCEDURE CPL TBA 100 REV.0 CPL 251 11 REV.0

EXAMINER Gary A Morini II LEVEL II DATE 12-15-88

DETECTED BY U/T X P/T X M/T ____ V/T ____ IDENT NO. WELD 5

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



INST.
SONIC MK I
SN# 06210E

TRANS:
KB AERCTECH
SIZE: .25"
FRQ: 5.0 MHZ
SN# K18421

COUPLANT:
SONOTRACE #0
BATCH # 8767

① .480 THICKNESS
② .800 THICKNESS

THICKNESS BEFOR AND AFTER RE-WORK.

ANII REVIEW
ANII [signature]
DATE 12-19-88

Richard B. Weber 12/19/88
[signature] 12/19/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL 127

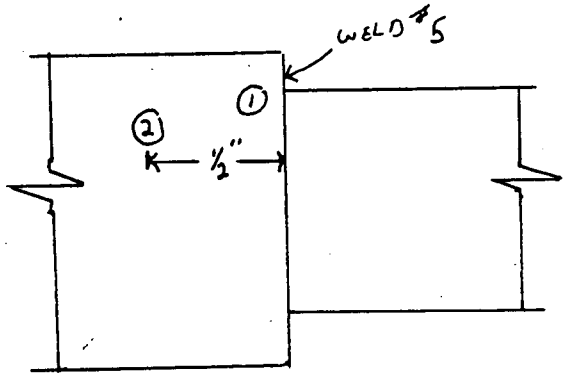
SYST/COMP LOOP B 2" DRAIN LINE PROCEDURE

EXAMINER [signature] LEVEL II DATE 12-13-88

DETECTED BY U/T X P/T ____ M/T ____ V/T ____ IDENT NO. WELD #5

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

MACH. SN. #06210E
TRANSDUCER SN. #K18421



1 THICKNESS .480"

2 THICKNESS .800"

ANI [signature]
DATE 12-19-88

READINGS TAKEN AT 1" C.C.W. FM 0" TOP DEAD CENTER

[signature] 12/19/88
[signature] 12/13/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL- 132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Ronald A. Bolyn II DATE 11-29-88
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
DD			X	MIRROR FLASHLIGHT	VT-3, INSUL. Pipe, See Attached
					Gen. Ind. Data Sheet.
EE	X			MIRROR FLASHLIGHT	VT-3, INSUL. Pipe. Appear to be
					Lugs underneath INSULATION.
FF	X			MIRROR FLASHLIGHT	VT-3, INSULATED Pipe
GG			X	MIRROR FLASHLIGHT	VT-3, INSULATED Pipe, See Attached
					Gen. Ind. Data Sheet.
HH	X			MIRROR FLASHLIGHT	VT-3, INSULATED Pipe
II			X	MIRROR FLASHLIGHT	VT-3, INSULATED Pipe, See Attached
					Gen Ind. Data Sheet
JJ			X	MIRROR FLASHLIGHT	VT-3, INSULATED Pipe, See Attached
					Gen. Ind. Data Sheet.
KK	X			MIRROR FLASHLIGHT	VT-3, INSULATED Pipe
LL		X		MIRROR FLASHLIGHT	VT-3, INSULATED Pipe, See Attached
					Gen. Ind. Data Sheet

ANII REVIEW
ANII [signature]
DATE 12-4-88

Richard B. Weber 11/30/88
[signature] 12/3/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

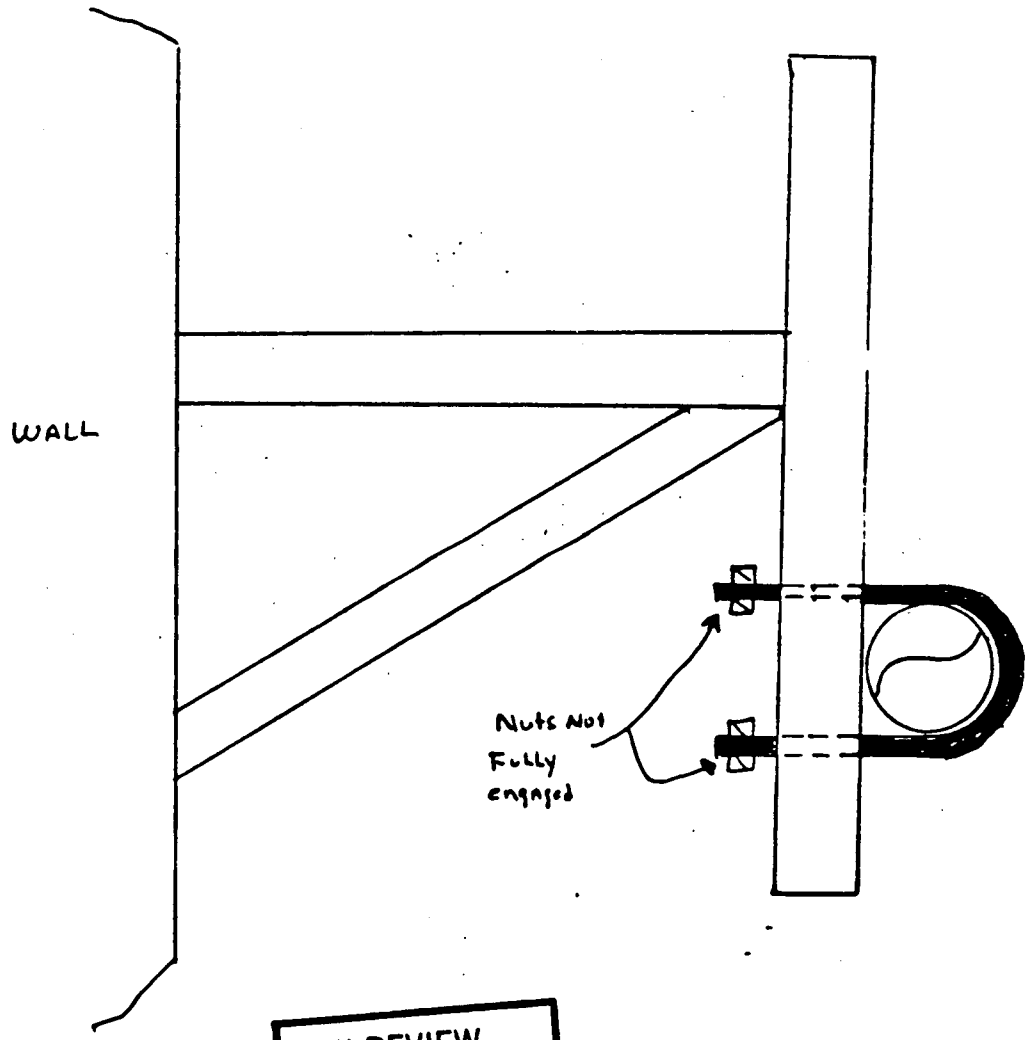
PLANT H. B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Mark A. Bolyn II DATE 11-29-88
LEVEL II

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger DD

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
[illegible] 12/3/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

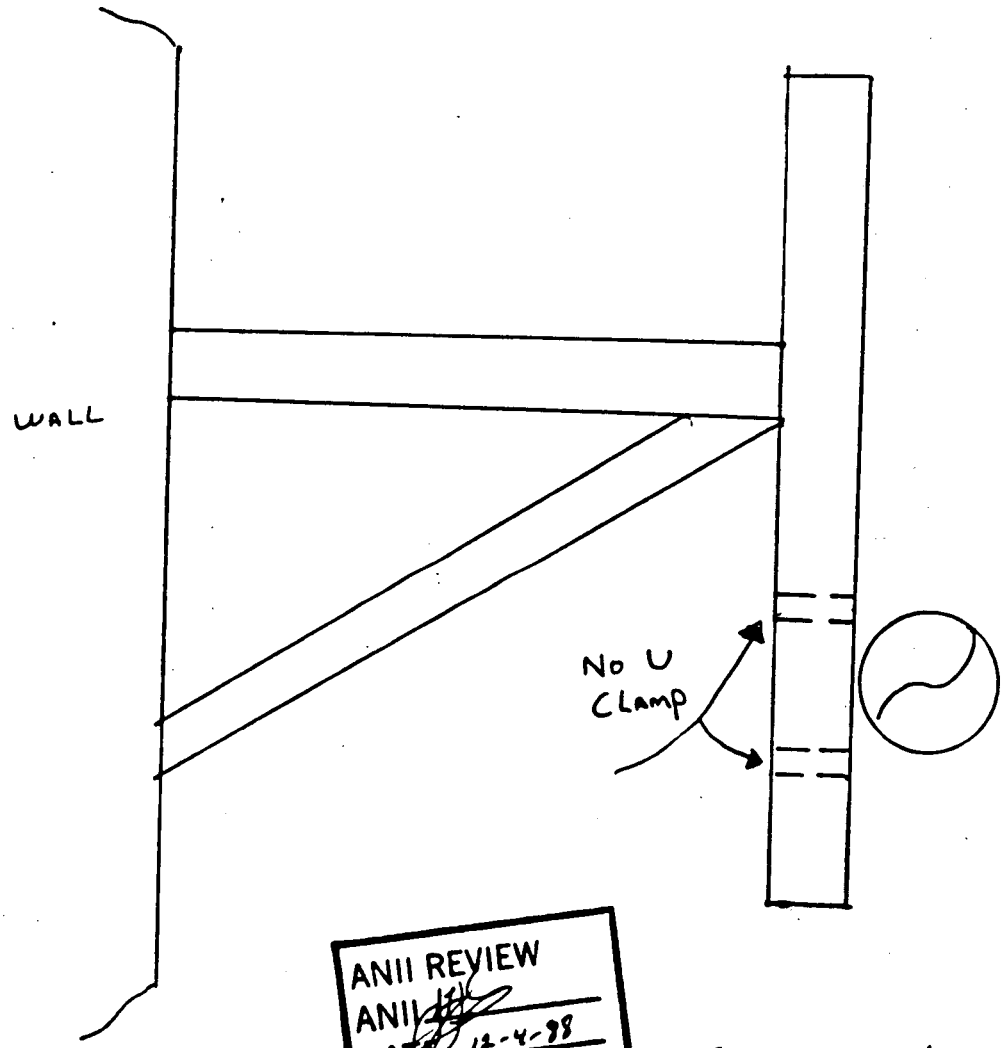
PLANT H.B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Arnold A. Bolgin II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger GG

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
J. Bleck 12/3/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

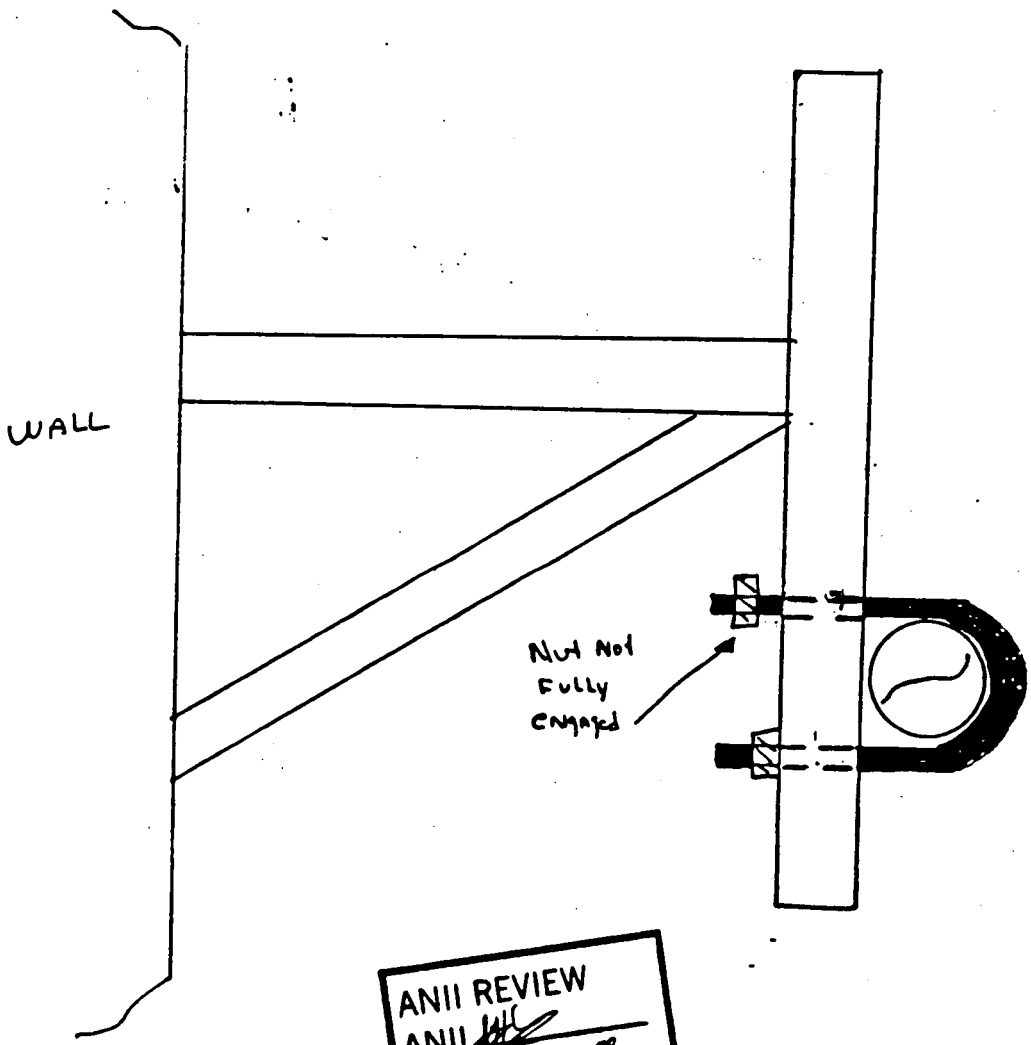
PLANT H.B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Seal Inject. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Lloyd H. Bollyn II LEVEL II DATE 11-29-88

DETECTED BY U/T____ P/T____ M/T____ V/T X IDENT NO. Hanger II

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
J. Black 12/3/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

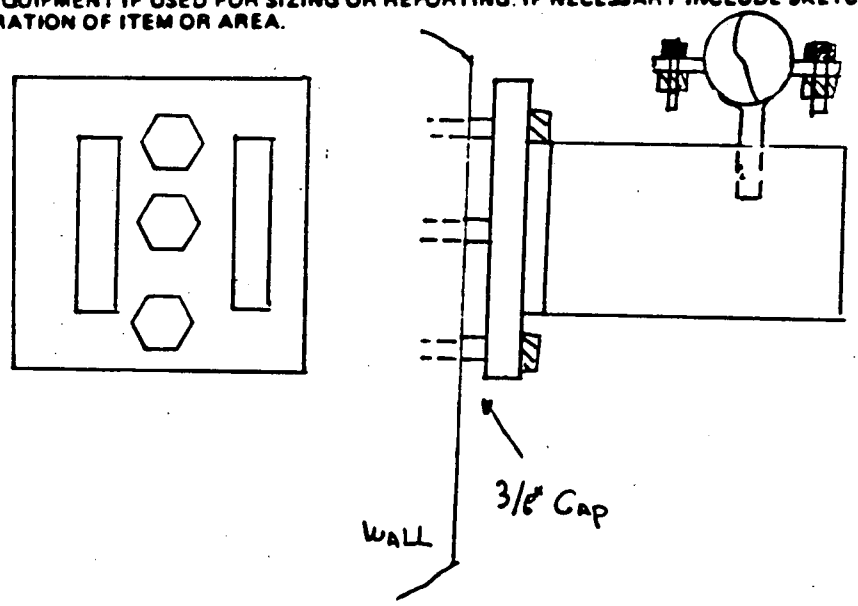
PLANT H.B. Robinson UNIT 2 SKETCH CPL-132

SYST/COMP Loop A 2" Scal Inject. Line PROCEDURE CPL-IST-8, Rev. 0

EXAMINER Nmd A. Bolgin II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger JJ

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
J. Blanck 12/3/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-132

SYST/COMP LOOP A 2" SEAL INJECT. LINE PROCEDURE CPL ISI-8 REV. 0

EXAMINER Henry A Morin II LEVEL II DATE 12-20-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
DD	X			FLASHLIGHT	RE EXAMINED AFTER REWORK VT-3
GG	X			FLASHLIGHT	RE EXAMINED AFTER REWORK VT-3

ANII REVIEW
ANII
DATE 12-20-88

Richard B. Weber 12/20/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-132

SYST/COMP LOOP A 2" SEAL INJECT LINE PROCEDURE CPL-151-8 REV. 0

EXAMINER Gary A Morin II LEVEL II DATE 12-19-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
II	X			FLASHLIGHT	RE-EXAMINED AFTER RE-WORK VT-3
JJ.			X	FLASHLIGHT	RE-EXAMINED AFTER RE WORK * VT 3
					* NOTE: GAP BETWEEN WALL PLATE AND WALL. SEE ATTACHED INDICATION DATA SHEET

ANII REVIEW
ANII
DATE 12-20-88

Richard B. Weber 12/20/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-132

SYST/COMP LOOP A 2" SEAL INJECT. LINE PROCEDURE CPL 151-8 REV. 0

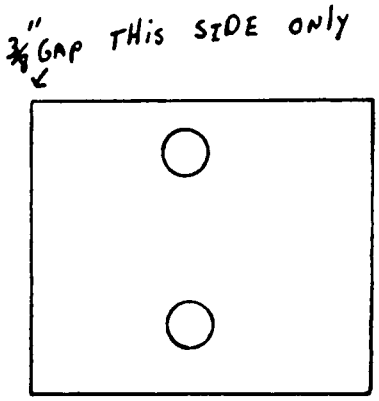
EXAMINER Gary A Morris II LEVEL II DATE 12-19-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. SUPPORT JJ

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

SIDE VIEW

FRONT VIEW



WALL PLATE FOR SUPPORT JJ

ANII REVIEW
ANII [signature]
DATE 12-20-88

Richard B. Weber 12/20/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-133

SYST/COMP Loop B 2" SEAL INJECT. LINE PROCEDURE CPL-ISI-8, Rev-0

EXAMINER Arnold A. Bolyn II LEVEL II DATE 11-27-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A1	X			FLASHLIGHT	VT-3, INSULATED PIPE
A2				FLASHLIGHT	UNACCESSIBLE
H	X			FLASHLIGHT	VT-3, INSULATED PIPE
I			X	FLASHLIGHT	VT-3, INSULATED PIPE, SEE ATTACHED
					GENERAL IND. DATA SHEET
J	X			FLASHLIGHT	VT-3, INSULATED PIPE, THIS IS NOT
					A HANGER IT IS A SUPPORT OF A PIPE
					BELOW IT.
K			X	FLASHLIGHT	VT-3, INSULATED PIPE. THIS HANGER
					WAS NOTED DURING EXAMINATION
					OF HANGER J. SEE ATTACHED GENERAL
					IND. DATA SHEET.

ANII REVIEW
ANII [signature]
DATE 11-30-88

Richard B. Weber 11/29/88
Jim Black 11/29/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

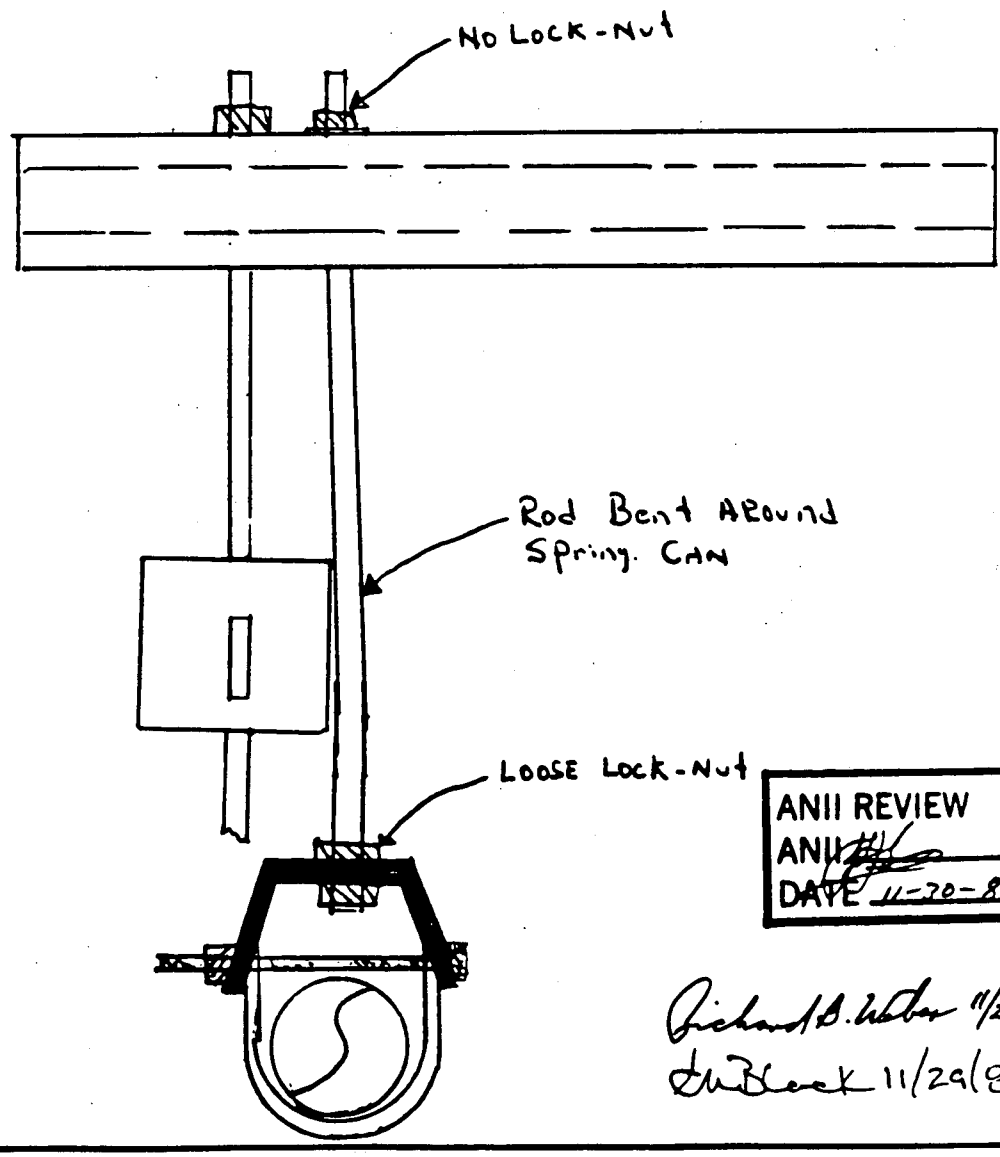
PLANT H. B. Robinson UNIT 2 SKETCH CPL-133

SYST/COMP Loop B 2" Seal Inject. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Donald B. Bolin II LEVEL II DATE 11-27-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger I

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 11-30-88

Richard B. Weber 11/29/88
Dan Black 11/29/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

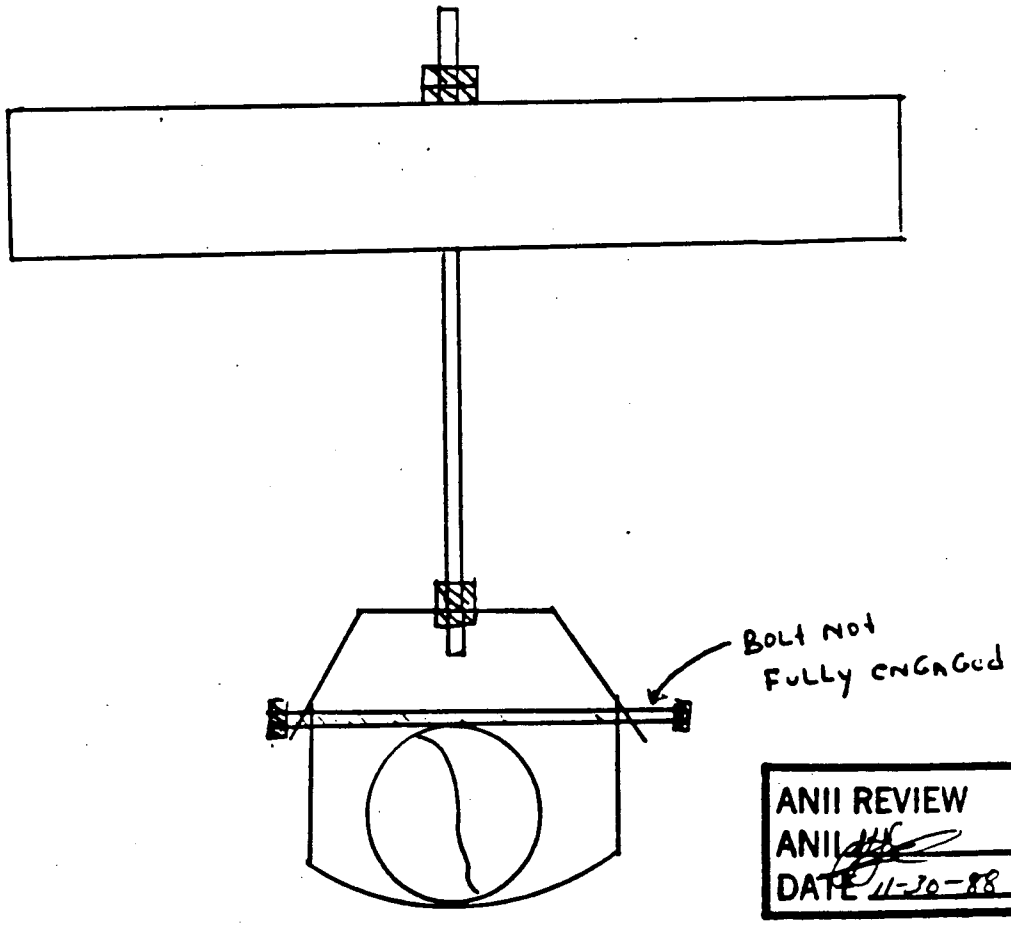
PLANT H.B. Robinson UNIT 2 SKETCH CPL-133

SYST/COMP Loop B 2" Seal Inject. Line PROCEDURE CPL-ISI-B, Rev. 0

EXAMINER Neil A. Bolin II DATE 11-27-88
LEVEL II

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger K

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII [illegible]
DATE 11-30-88

Richard B. Weber 11/29/88
[illegible] Black 11/29/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-133

SYST/COMP LOOP B 2" SEAL INJECT. LINE PROCEDURE CPL-151-8 REV.0

EXAMINER Gary A Morris II (LEVEL II) DATE 12-18-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
I	X			FLASHLIGHT	RE-EXAMINE AFTER RE WORK VT-3
K	X			FLASHLIGHT	RE-EXAMINE AFTER REWORK VT-3

ANII REVIEW
ANII [illegible]
DATE 12-19-88

Richard B. Weber 12/19/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP. LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL IST-11 REV.0

EXAMINER Gary A. Morin II Arnold A. Bolyn II DATE 11-21-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
10	X			FOR ALL WELDS BELOW - TEMP. - 70°F
11	X			
12	X			
12A	X			
12B	X			
16A			X	* SEE ATTACHED SURFACE INDICATION DATA SHEET.
16B	X			
17	X			
18		X		* SEE ATTACHED SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII
DATE 11-30-88

Richard B. Weber 11/23/88
[illegible] 11/29/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-134

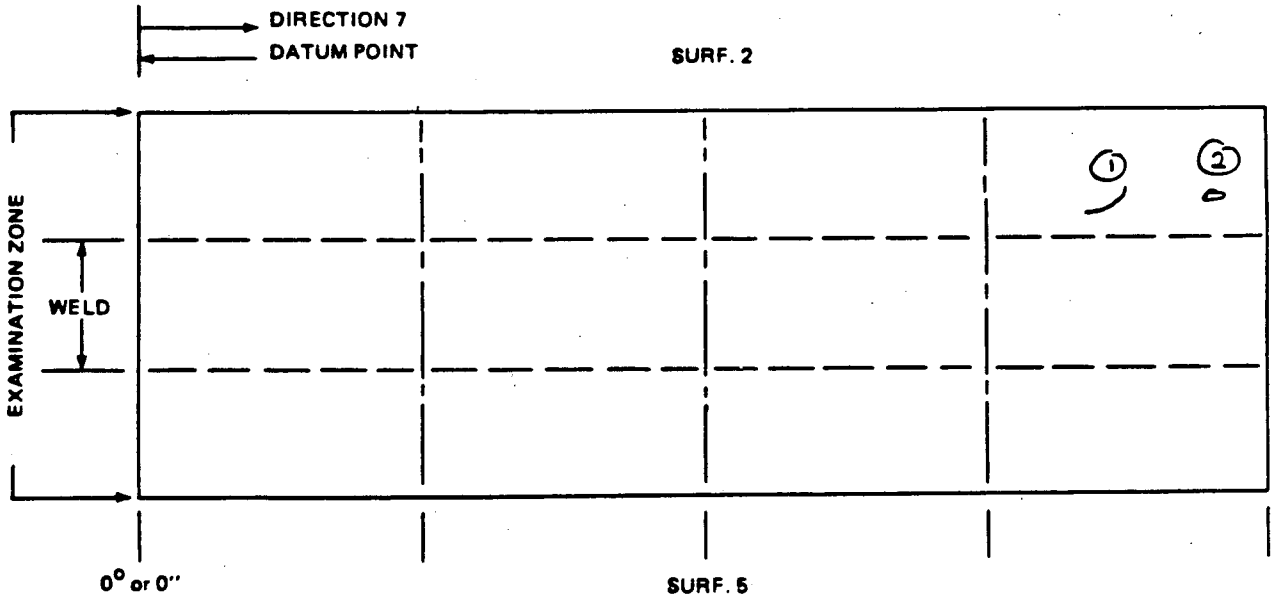
SYST/COMP Loop C 2" Seal Inject. Line PROCEDURE CPL ISI-11, Rev. 0

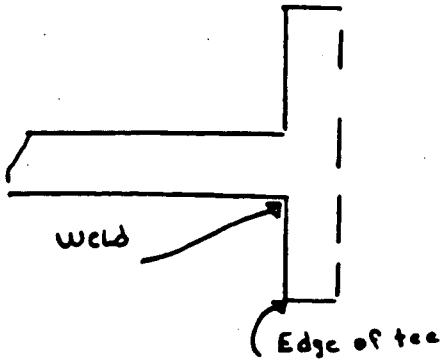
EXAMINER Arnold A. Bolyin II, Gary L. Morin II (LEVEL II) DATE 11-21-88

PT X MT WELD NO. 16A

VISUAL AIDS MIRROR, FLASHLIGHT

REMARKS (1) 1/4" Linear, 1/4" From Edge of Tee, Located 1/3" CCW From 0" Datum
(2) 3/32" Rounded, 13/32" From Edge of tee, Located 1/4" CCW From 0" Datum





ANII REVIEW
ANII [illegible]
DATE 11-30-88

Richard B. Weber 11/29/88
[illegible] 11/29/88

FORM 46932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP. LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL ISI-11 REV 0

EXAMINER George A Morini II LEVEL II DATE 12 15 88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
16 A	X			RE-EXAMINED AREA OF INDICATION AFTER REWORK
				TEMP 62°F

ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88
[illegible] 12/19/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL DATA

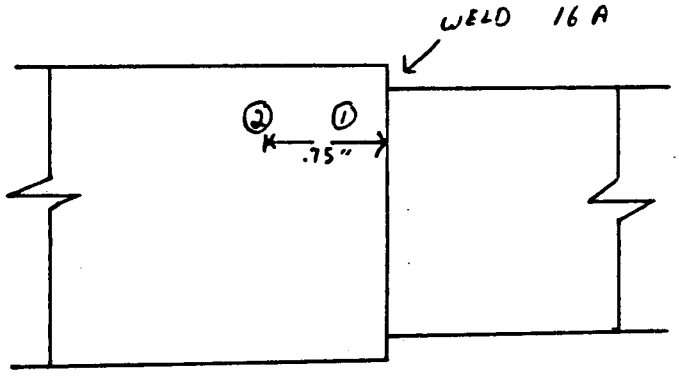
PLANT H B ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL-TBA-100 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 12-15-88

DETECTED BY U/T X P/T ____ M/T ____ V/T ____ IDENT NO WELD 16 A

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



INST:
SONIC MK I
SN. # 06210E

TRANS:
KB AEROTECH
SIZE .25"
FRQ. 5.0 MHz
SN # K18421

COUPLANT:
SONOTRACE 40
BATCH # 8767

THICKNESS TAKEN BEFOR RE-WORK
1 .430" T
2 .780" T

THICKNESS TAKEN AFTER RE-WORK
1 .410" T
2 .780" T

ANII REVIEW
ANII [signature]
DATE 12-19-88

Richard B. Webb 12/19/88
J R Blunk 12-19-88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT HB ROBINSON UNIT 2 SKETCH CPL 134

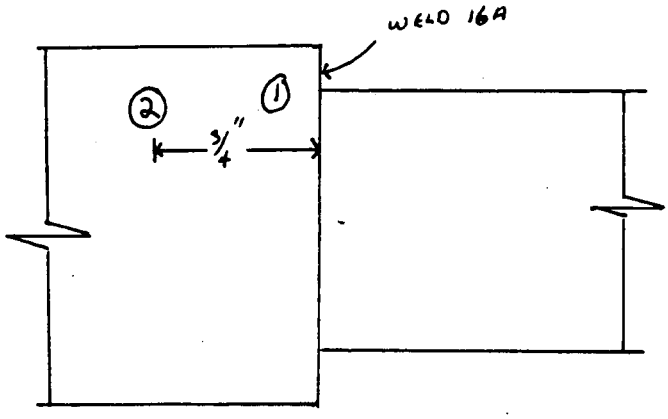
SYST/COMP LOOP C 2" SEAL INJECT. LINE PROCEDURE

EXAMINER [illegible] Mercer II LEVEL II DATE 12 13 88

DETECTED BY U/T X P/T ____ M/T ____ V/T ____ IDENT NO. WELD 16 A

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

MACH. SN. # 06210E
TRANSDUCER SN. # K18421



① Thickness .43"
② Thickness .78"

ANII REVIEW
ANII [illegible]
DATE 12-19-88

READINGS TAKEN AT 1/2" CCW FM 0" TOP DEAD CENTER

Richard B. Weber 12/19/88
J M Black 12/13/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL DATA

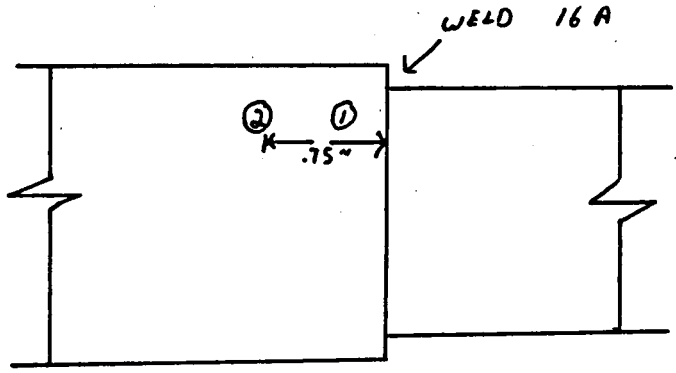
PLANT H B ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL-TBA-100 REV 0

EXAMINER George A Morini II LEVEL II DATE 12-15-88

DETECTED BY U/T X P/T ____ M/T ____ V/T ____ IDENT NO. WELD 16 A

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



INST:
SONIC MK I
SN. # 06210E

TRANS:
KB AEROTECH
SIZE .25"
FRQ. 5.0 MHZ
SN # K18421

COUPLANT:
SONOTRACE 40
BATCH # 8767

THICKNESS TAKEN BEFOR RE-WORK
1 .430" T
2 .780" T

THICKNESS TAKEN AFTER RE-WORK
1 .410" T
2 .780" T

ANII REVIEW
ANII [signature]
DATE 12-19-88

Richard B. Weber 12/19/88
J R Blank 12-19-88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL ISI-8 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 11-22-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
G			X	FLASHLIGHT	BOLT MISSING OFF WALL PLATE. U CLAMP LOOSE ON PIPE VT-3
					SEE ATTACHED SKETCH.

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/23/88
11/26/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

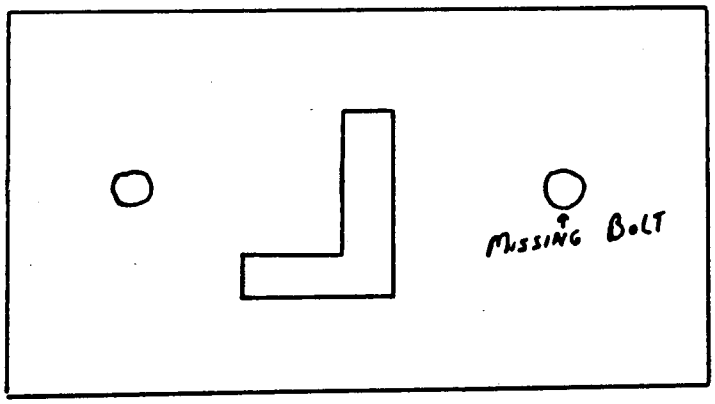
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-134

SYST/COMP LOOP C 2" SEAL INJECT LINE PROCEDURE CPL IST-8 REV. 0

EXAMINER George A Moisi II LEVEL II DATE 11-22-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T ✓ IDENT NO. HANGER G

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII [signature]
DATE 11-26-88

Richard B. Weber 11/26/88
[signature] 11/26/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL 134

SYST/COMP LOOP C 2" SEAL INJECT. LINE PROCEDURE CPL 151 8 REV. 0

EXAMINER George A Morris II LEVEL II DATE 12-19-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
G	X			FLASHLIGHT	RE-EXAMINE AFTER RE-WORK VT3

ANII REVIEW
ANII [signature]
DATE 12-19-88

Richard B. Weber 12/19/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP. Lp B 2" SIS Hleg High Head PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Merl A. Bolyin II (LEVEL II) DATE 12-10-88

P/T		BATCH NOS.
CLEANER	MAGNA FLUX	88G017
PENETRANT	MAGNA FLUX	8SL045
DEVELOPER	MAGNA FLUX	88B019
REMOVER	MAGNA FLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
18C			X	Temp. 61°F, See Attached Surface Ind. Data Sheet.
18D	X			Temp. 61°F

ANII REVIEW
ANII [illegible]
DATE 12-12-88

Richard B. Weber 12/11/88
[illegible] 12/11/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

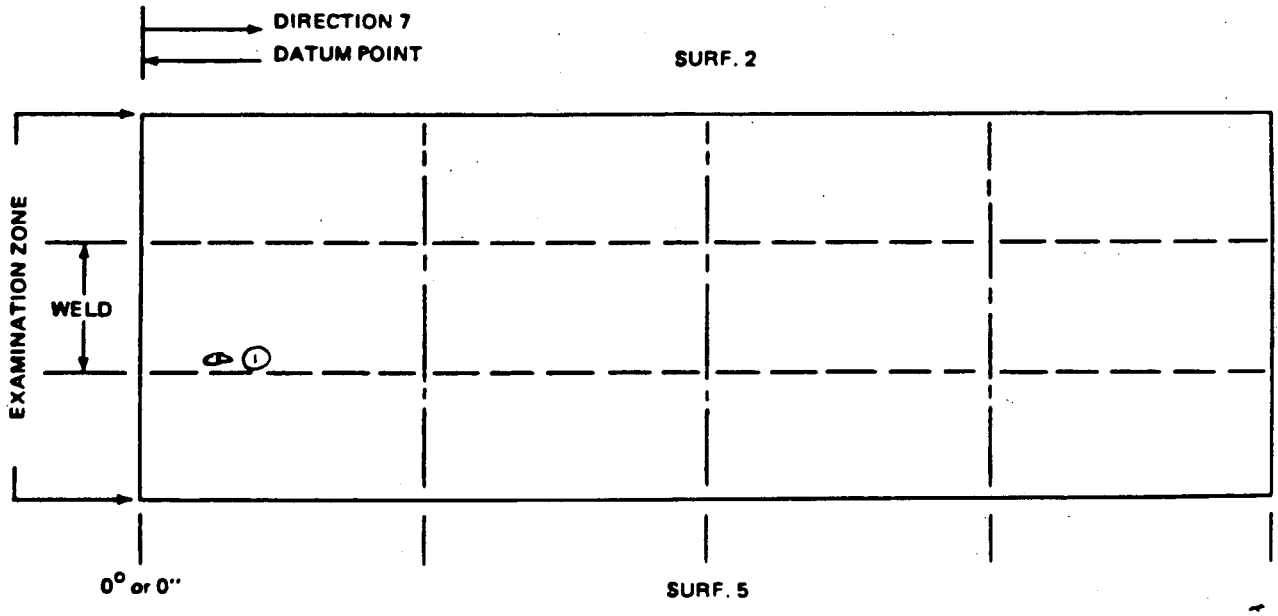
SYST/COMP Lp B 2" SIS HLEG High HEAD PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Nmd A. Bollyn LEVEL II DATE 12-10-88

PT X MT WELD NO. 18C

VISUAL AIDS FLASHLight, MIRROR

REMARKS ① 0.15" Rounded, 0.15" FROM C/L weld on COUPLER SIDE, Located At 2.8" cw FROM 0" Datum Point (Bleed-out FROM A Pin Hole in Weld)



ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
E. B. Cook 12/12/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP. Lp B 2" SIS HLEG High Head INJ. PROCEDURE CPL-ESI-11, Rev. 0

EXAMINER Lloyd A. Bolfin II LEVEL II DATE 12-12-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	BBG017
PENETRANT	MAGNAFLUX	BSL045
DEVELOPER	MAGNAFLUX	BBB019
REMOVER	MAGNAFLUX	BBG017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
F-WS			X	Temp. 61°F, See Attached Surface Ind. Data Sheet
O-WS	X			Temp 66°F

ANII REVIEW
ANII
DATE 12-14-88

Richard B. Weber 12/13/88
Jim Black 12/13/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

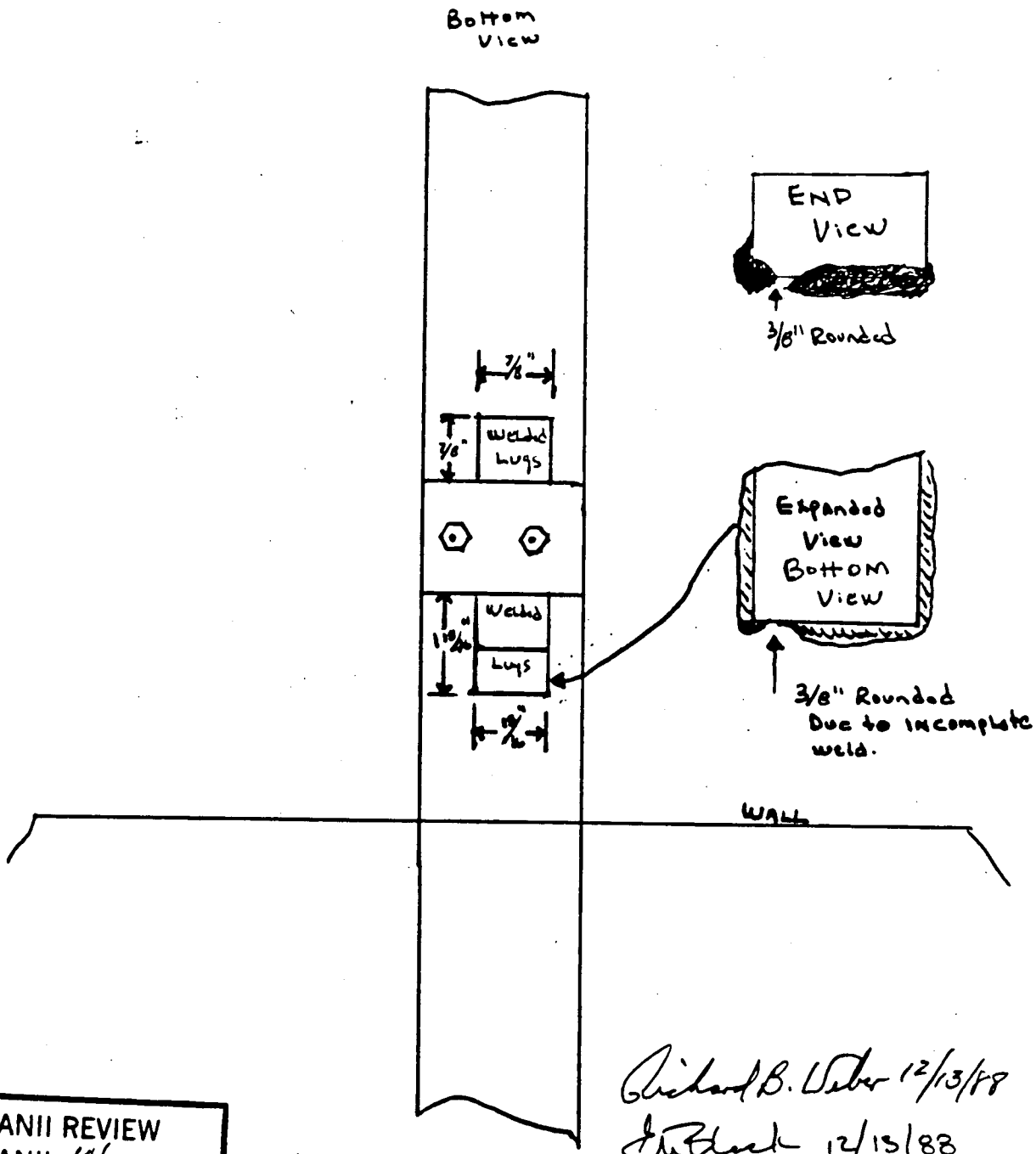
SURFACE INDICATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Lp.B 2" SIS HLeg. High Head INJ. PROCEDURE CPL-ISI-11, Rev. 0

EXAMINER Noel A. Bolyin II LEVEL II DATE 12-12-88

PT X MT WELD NO. F-WS



Richard B. Weber 12/13/88
[illegible] 12/13/88

ANII REVIEW
ANII [illegible]
DATE 12-14-88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Loop B 2" SIS H. Leg High Head Inj. PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Donald A. Bilyeu II DATE 11-23-88
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
E			X	Flashlight	Vt-3, See Attached Ind. Sheet 5/8" Defl.
F			X	Flashlight	Vt-3, See Attached Ind. Sheet

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Walker 11/25/88
Jim Black 11/26/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

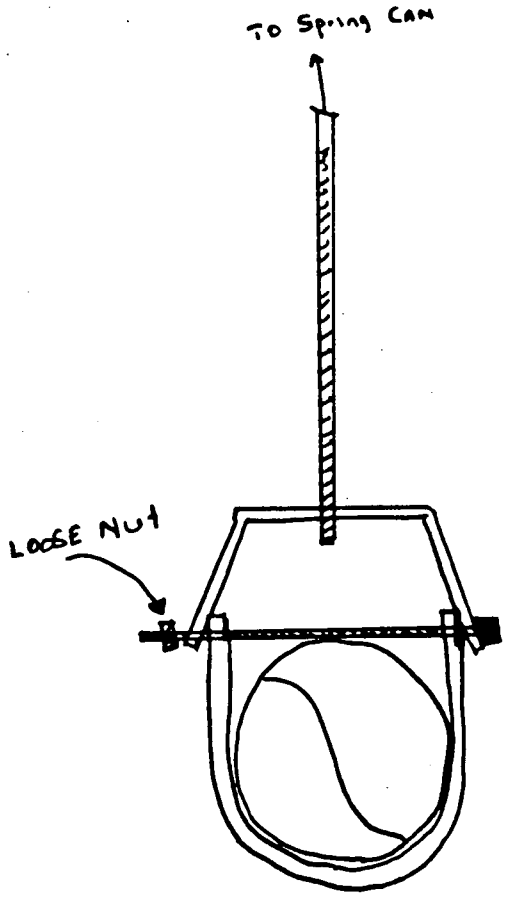
PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Loop B 2" SIS H.Leg High Head Inj. PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Donald A. Bilyeu II LEVEL II DATE 11-23-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. E

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/25/88
Eh B Cook 11/26/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

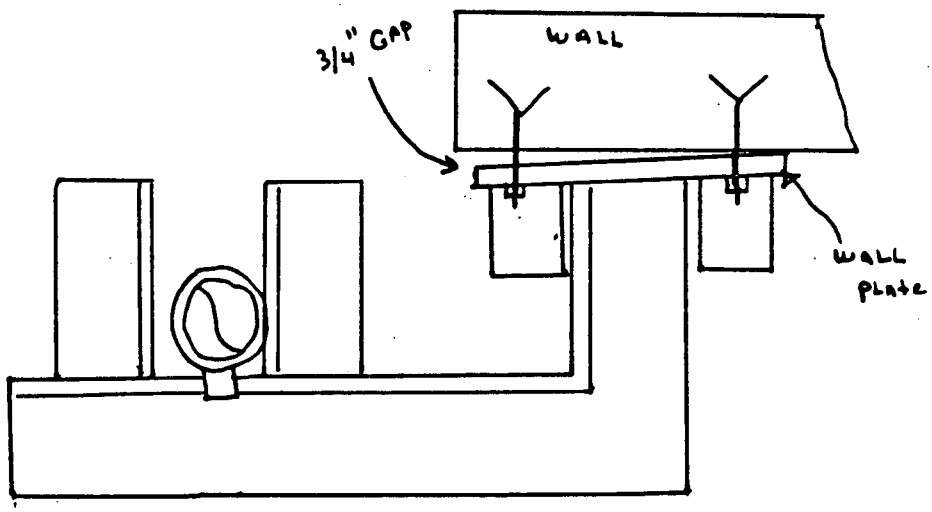
PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Loop B 2" SIS H.Leg High Head INJ. PROCEDURE CPL-151-8, Rev 0

EXAMINER Manuel A. Bolfrin II LEVEL II DATE 11-23-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. F

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 11-26-88

Richard B Weber 11/25/88
Chu Block 11/26/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL- 141

SYST/COMP LP B 2" SIS HLEG High Head INJ. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Arnold A. Bolin LEVEL II DATE 11-29-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
G			X	MIRROR FLASHLIGHT	VT-3, 1 3/16" DefL., Insulated
					Pipe. See Attached Gen. Ind. Data Sheet.
H			X	MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached
					Gen. Ind. Data Sheet.
I			X	MIRROR FLASHLIGHT	VT-3, Insulated Pipe. See Attached
					Gen. Ind. Data Sheet.
J		X		MIRROR FLASHLIGHT	VT-3, Insulated Pipe., See Attached
					Gen. Ind. Data Sheet.
K	X			MIRROR FLASHLIGHT	VT-3, Insulated Pipe
L	X			MIRROR FLASHLIGHT	VT-3, Insulated Pipe
M		X		MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached
					Gen. Ind. Data Sheet.
N		X		MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached
					Gen. Ind. Data Sheet.
O	X			MIRROR FLASHLIGHT	VT-3
P		X		MIRROR FLASHLIGHT	VT-3, Insulated Pipe, See Attached
					Gen. Ind. Data Sheet.
Valve 866B			X	FLASHLIGHT	VT-2; 2 Studs and 4 Nuts Examined
					in Place, Evidence of Leakage
					from Valve Stem.

ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
JM Bleck 11/30/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

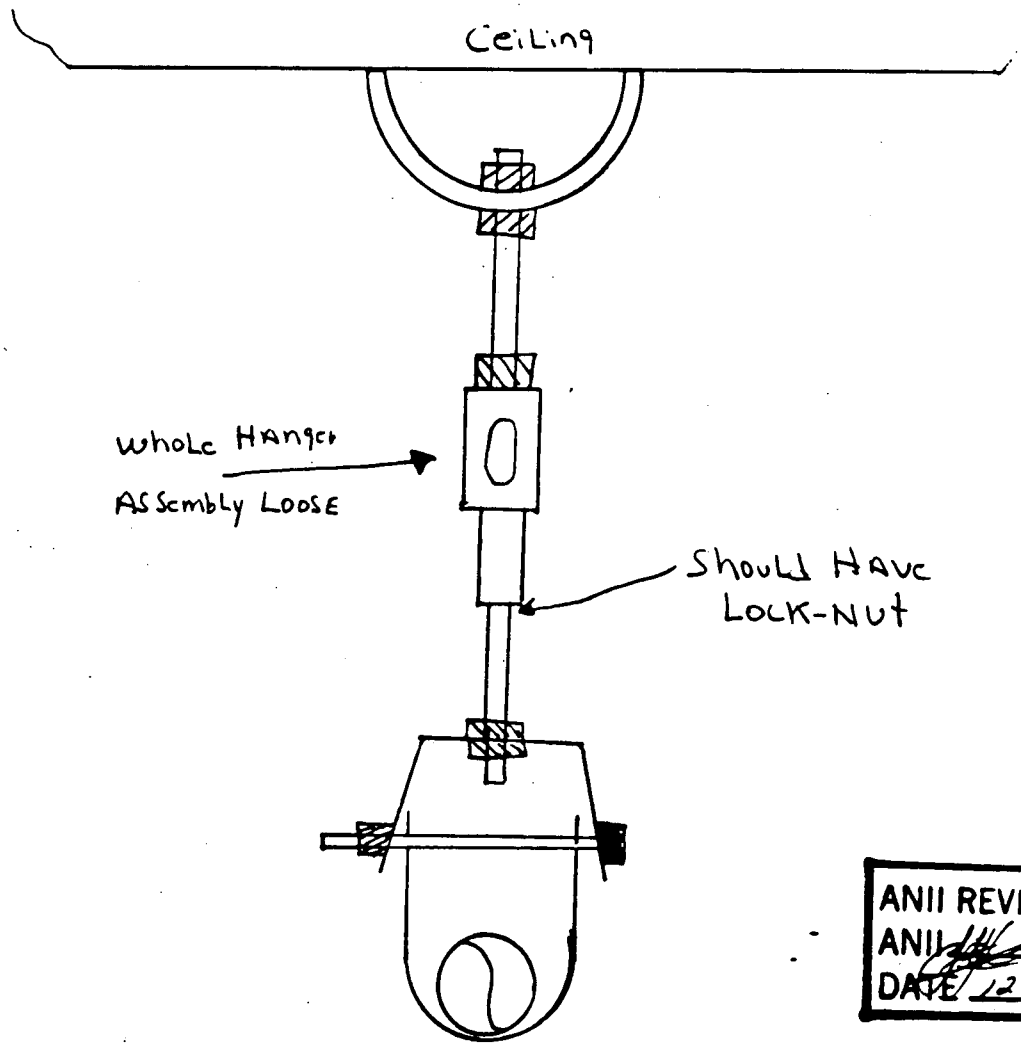
PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP LP B 2" SIS HLEG High HEAD INJ. Line PROCEDURE CPL-IST-B, Rev. 0

EXAMINER Mark A. Bolyn II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger G

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B. Walker 11/30/88
J.M. Black 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

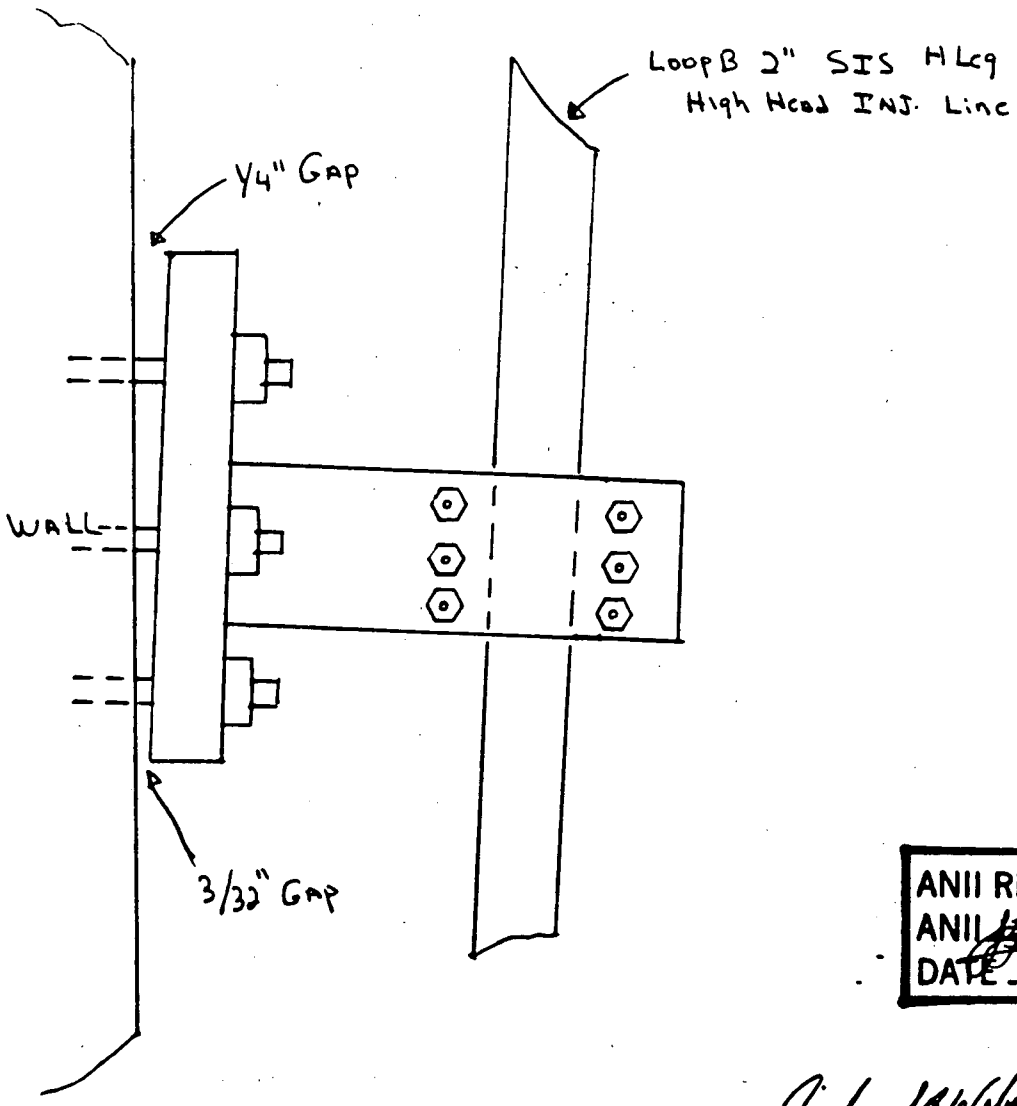
PLANT H.B. Robinson UNIT 2 SKETCH CPL-141

SYST/COMP Loop B 2" SIS HLeg High Head INJ. Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Harold H. Bolgin II LEVEL II DATE 11-29-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger H

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
Eu Black 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

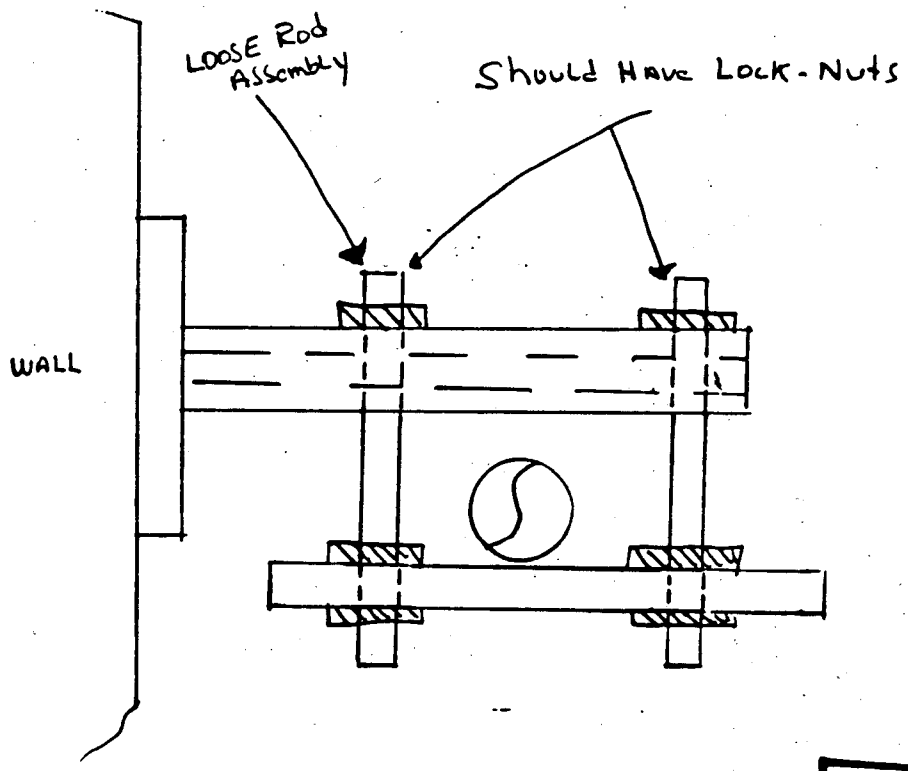
PLANT H. B. Robinson UNIT 2 SKETCH CPL. 141

SYST/COMP LP B 2" SIS HLeg High Head INJ. Line PROCEDURE CPL-IST. B, Rev. C

EXAMINER Nmla. Bolfin II DATE 11-29-88
LEVEL II

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger I

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B Weber 11/30/88
Eric Black 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-141

SYST/COMP LP B 2" SIS HLEG HIGH HEAD INJ. PROCEDURE CPL 1518 REV. 0

EXAMINER Gerry A Morini II LEVEL II DATE 12-18-88

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
E	X			FLASHLIGHT	RE-EXAMINE AFTER RE-WORK VT-3
F			X	FLASHLIGHT	RE-EXAMINE AFTER REWORK * VT-3
G	X			FLASHLIGHT	RE-EXAMINE AFTER RE-WORK VT-3
H			X	FLASHLIGHT	RE-EXAMINE AFTER REWORK * VT-3
I	X			FLASHLIGHT	RE-EXAMINE AFTER REWORK VT-3
					*NOTE: SEE INDICATION DATA
					SHEETS.

ANII REVIEW
ANII [illegible]
DATE 12-19-88

Richard B. Weber 12/19/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

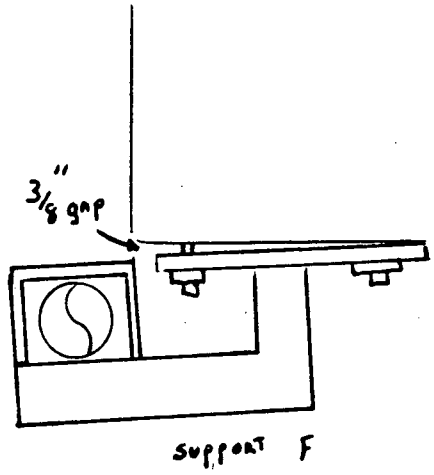
PLANT H B ROBINSON UNIT 2 SKETCH CPL - 141

SYST/COMP LP B 2" SIS HLEG HIGH HEAD INJ. PROCEDURE CPL ISI 8 REV. 0

EXAMINER Jorge A Moreno II LEVEL II DATE 12-18-88

DETECTED BY U/T____ P/T____ M/T____ V/T X IDENT NO. SUPPORT F

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-141

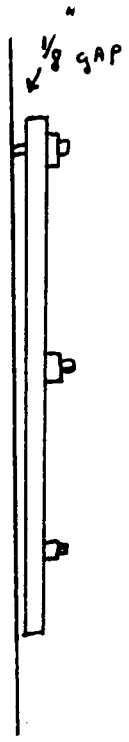
SYST/COMP LP B 2" SIS HLEG HIGH HEAD INJ. PROCEDURE CPL ISI 8 REV. 0

EXAMINER George A Morini II LEVEL II DATE 12-18-88

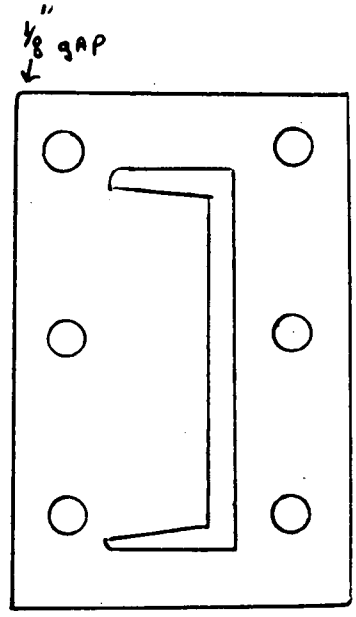
DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. SUPPORT H

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

SIDE VIEW



FRONT VIEW



Support H

ANII REVIEW
ANII [signature]
DATE 12-19-88

Richard B. Weber 12/19/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT II SKETCH CPL-141

SYST/COMP SIS HIGH HEAD INJECTION PROCEDURE CPL-151-8 REV 0

EXAMINER Joe Blackhill III Harry M. Ackerman I DATE 12-30-88
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
866 B			X	FLASHLIGHT	VT-3 WHITE SUBSTANCE STILL
					ON PACKING GLAND,
866 B	X				VT-1 BOLTING

ANII REVIEW
ANII
DATE 12-31-88

Richard B. Weber 12/31/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-ISI-8, Rev.0

EXAMINER Noel A. Bolyn II DATE 12-8-88
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
AA			X	FLASHLIGHT MIRROR	VT-3, See Attached General Indication Data Sheet.

ANII REVIEW
ANII [illegible]
DATE 12-10-88

Richard B. Weber 12/9/88
[illegible] 12/9/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

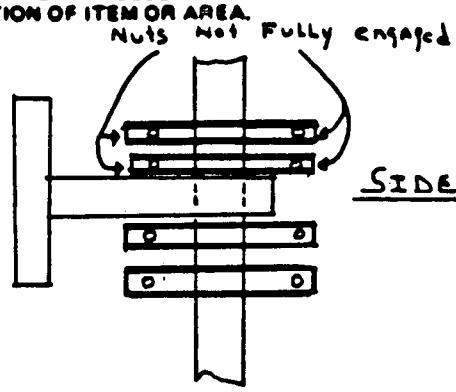
PLANT H.B. Robinson UNIT 2 SKETCH CPL-143

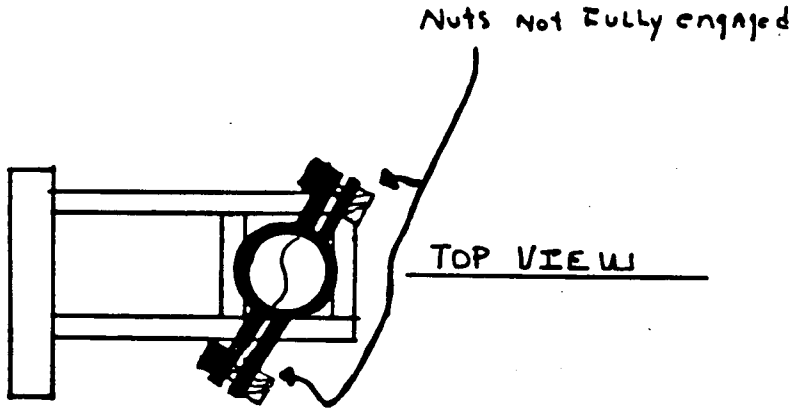
SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-ISI-8, Rev.0

EXAMINER Neal A. Bolgiano II LEVEL II DATE 12-8-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger AA

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.





ANII REVIEW
ANII
DATE 12-16-88

Richard B. Weber 12/9/88
[illegible] 12/9/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER Arnold Bolyn II LEVEL II DATE 11-22-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
BB			X	MIRROR FLASHLIGHT	VT-3, INSUL. Pipe, See Attach. Gen. Ind. Sheet
T			X	MIRROR FLASHLIGHT	VT-3, INSUL. Pipe, See Attach. Gen. Ind. Sheet
-					Dual Spring Can. (1) 88 lbs / 2½" Defl.
					(2) OFF Scale on the High Side

ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
Ed Black 11/30/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

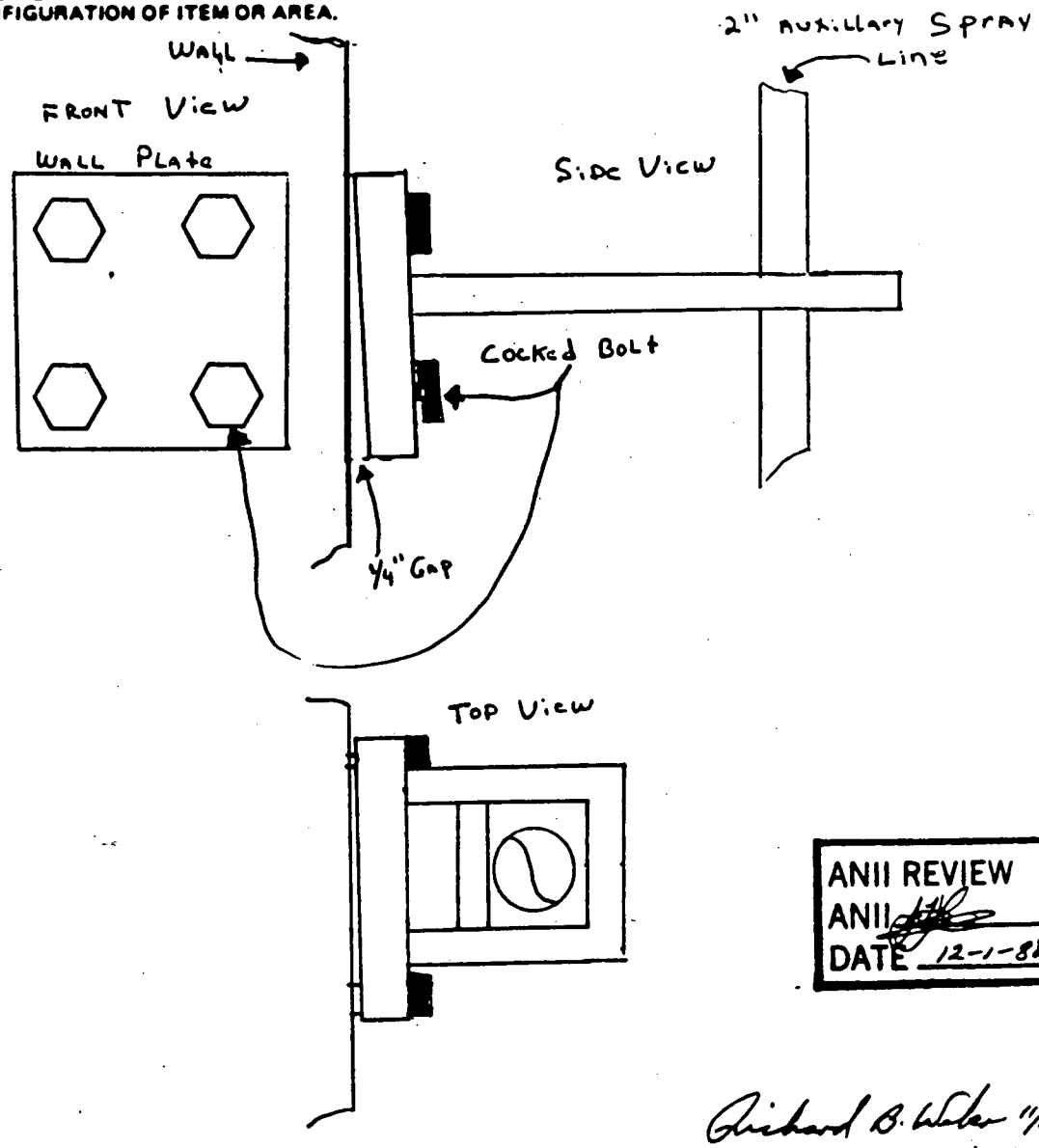
PLANT H.B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-ISI-8, Rev. 0

EXAMINER [illegible] II LEVEL II DATE 11-22-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger BB

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII [illegible]
DATE 12-1-88

Richard B. Walker 11/30/88
[illegible] 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

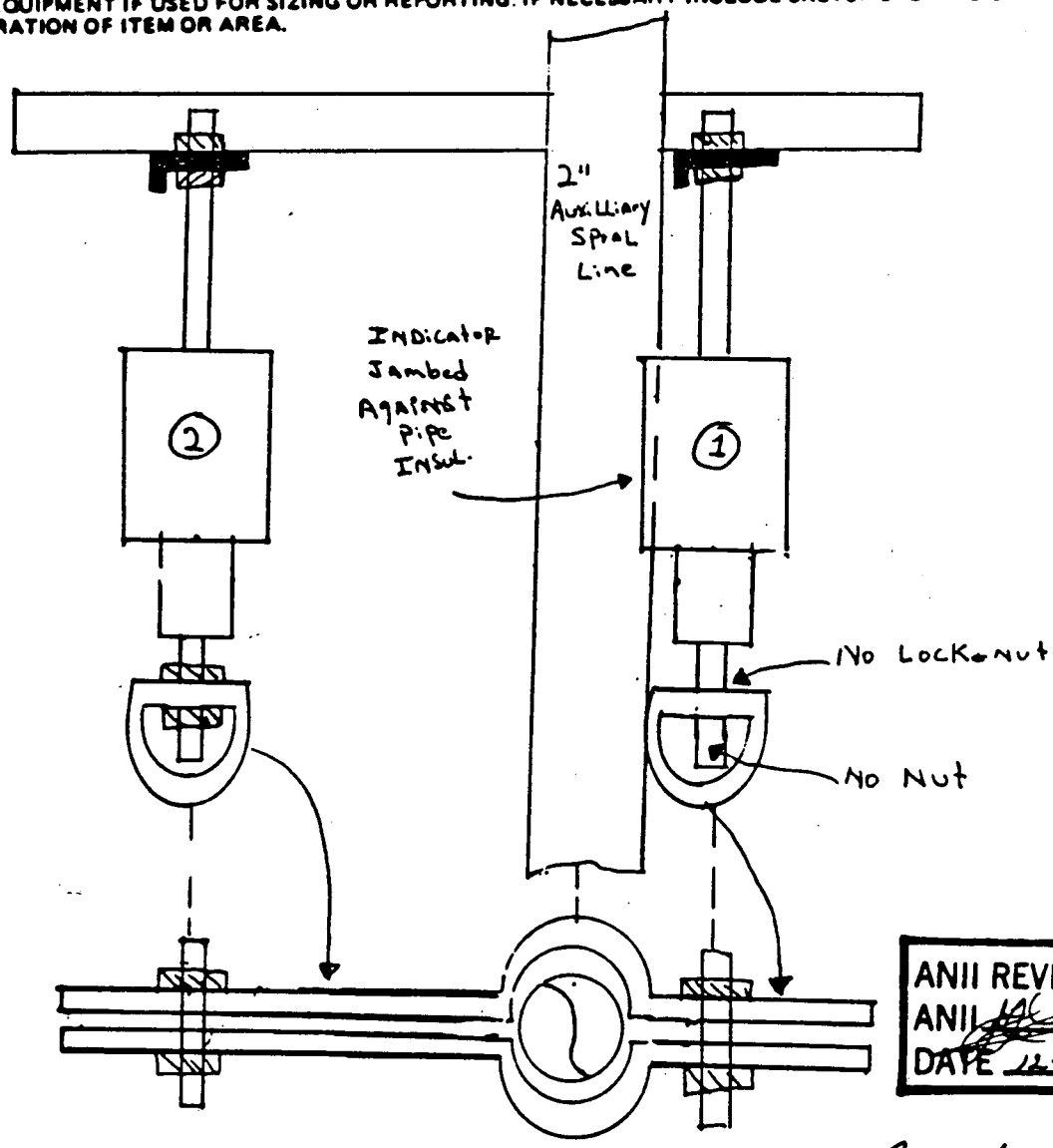
PLANT H.B. Robinson UNIT 2 SKETCH CPL-143

SYST/COMP 2" Auxiliary Spray Line PROCEDURE CPL-IST-8, Rev. 0

EXAMINER Donald A. Bolin II LEVEL II DATE 11-22-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. Hanger T

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII
DATE 12-1-88

Richard B. Weber 11/30/88
E.M. Black 11/30/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL 143

SYST/COMP 2" AUXILIARY SPRAY LINE PROCEDURE CPL 151 8 REV. 0

EXAMINER Gary A Morini II LEVEL II DATE 12-19-88

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
AA	X			FLASHLIGHT	RE-EXAMINE AFTER RE-WORK VT-3
BB			X	FLASHLIGHT	RE-EXAMINE AFTER RE-WORK * VT-3
T	X			FLASHLIGHT	RE-EXAMINE AFTER RE-WORK VT-3
				*	NOTE: LOOSE BOLT ON WALL PLATE, 3/32" GAP BEHIND WALL PLATE. SEE ATTACHED INDICATION DATA SHEET.

ANII REVIEW
ANII [illegible]
DATE 12-19-88

Richard B. Weber 12/19/88

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-143

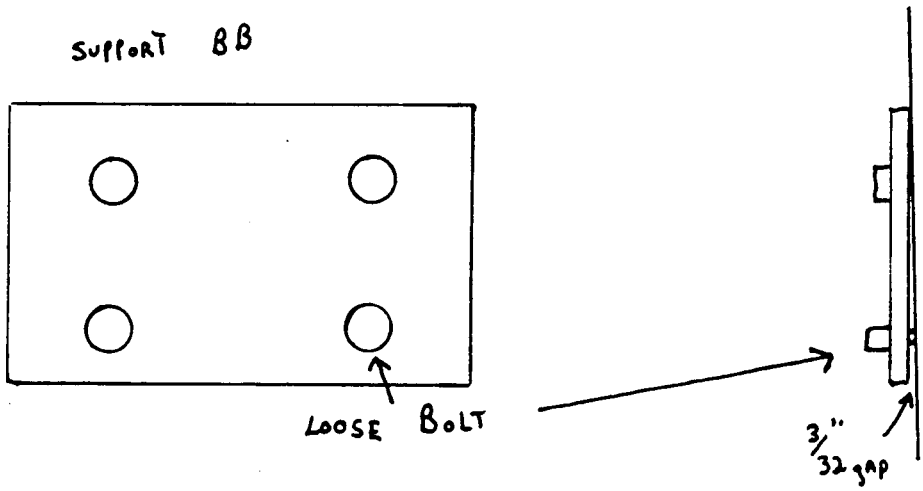
SYST/COMP 2" AUXILIARY SPRAY LINE PROCEDURE CPL ISI-8 REV. 0

EXAMINER George A Morini II LEVEL II DATE 12-19-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T X IDENT NO. SUPPORT BB

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

FRONT VIEW SIDE VIEW



ANII REVIEW
ANII
DATE 12-19-88

Richard B. Weber 12/19/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-203

SYST/COMP. VOLUME CONTROL TANK PROCEDURE CPL IST-11. REV.0

EXAMINER Gary L Morini II Harry M. Johnson I DATE 11-17-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
WS 3			X	* SEE ATTACHED SURFACE INDICATION SHEET
				TEMP. 78° F.

ANII REVIEW
ANII
DATE 11-25-88

Richard B Weber 11/20/88
Jim Blank 11/20/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

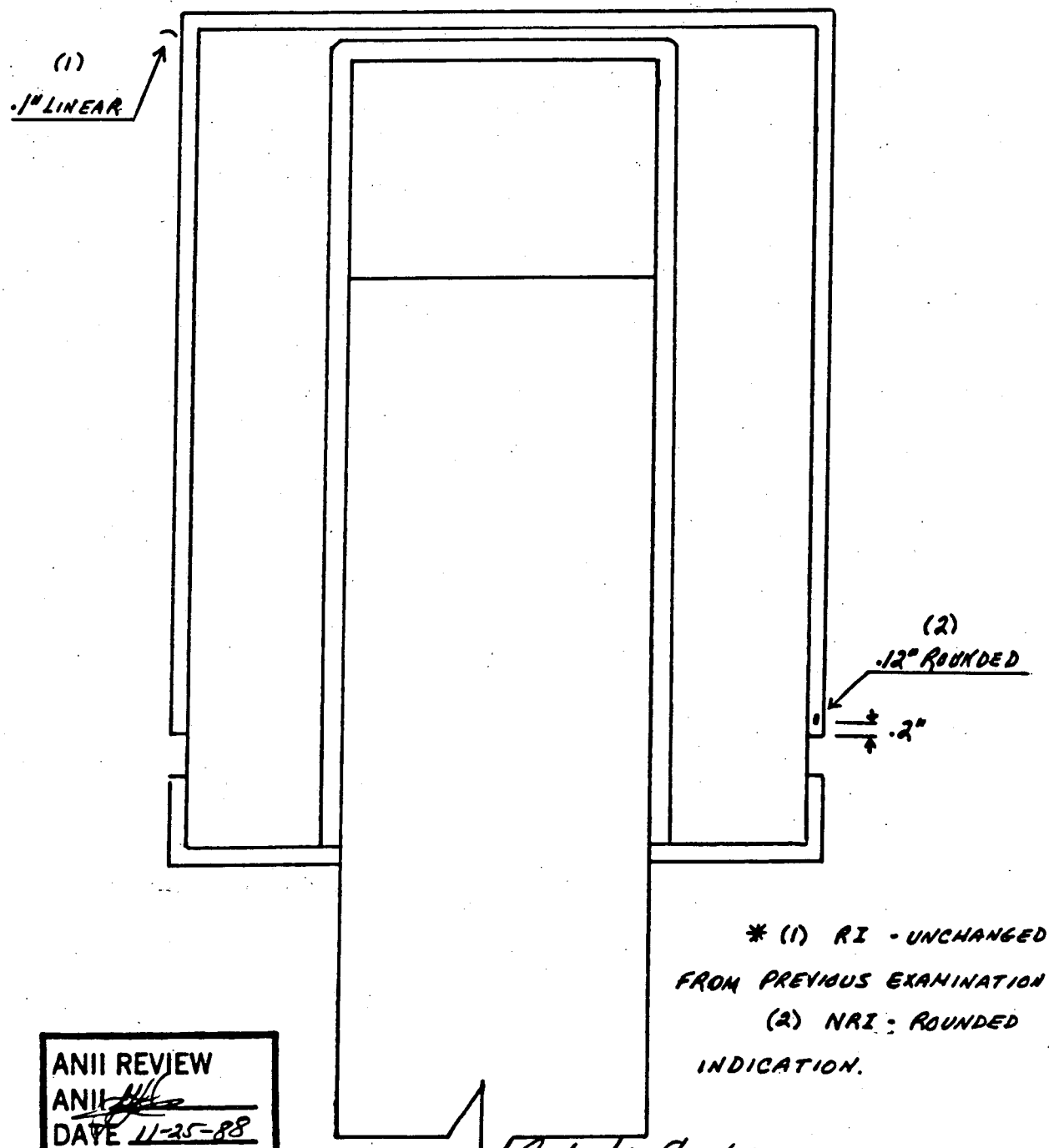
SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-203

SYST/COMP VOLUME CONTROL TANK PROCEDURE CPL IST-11 REV-0

EXAMINER George L. Moini II Hung M. Ochsner LEVEL II DATE 11-17-88

PT ✓ MT WELD NO. WS 3



* (1) RI - UNCHANGED FROM PREVIOUS EXAMINATION
(2) NRI: ROUNDED INDICATION.

ANII REVIEW
ANII
DATE 11-25-88

Richard B. Weber 11/20/88
L.H. Black 11/20/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-215

SYST/COMP LOOP 'A' FEED WATER PROCEDURE CPL-ISI-8 REV.0

EXAMINER [illegible] / Ralph Churchfield I DATE 11-27-88
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
L-WS			X	FLASH LIGHT	VT-3 SPRING SETTINGS 3600 BOTH
					CANS. PIPE CLAMP LOOSE, SEE
					INDICATION SHEET, INSULATED.

ANII REVIEW
ANII [illegible]
DATE 11-29-88

Richard O. Weber 11/27/88
[illegible] 11/28/88

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

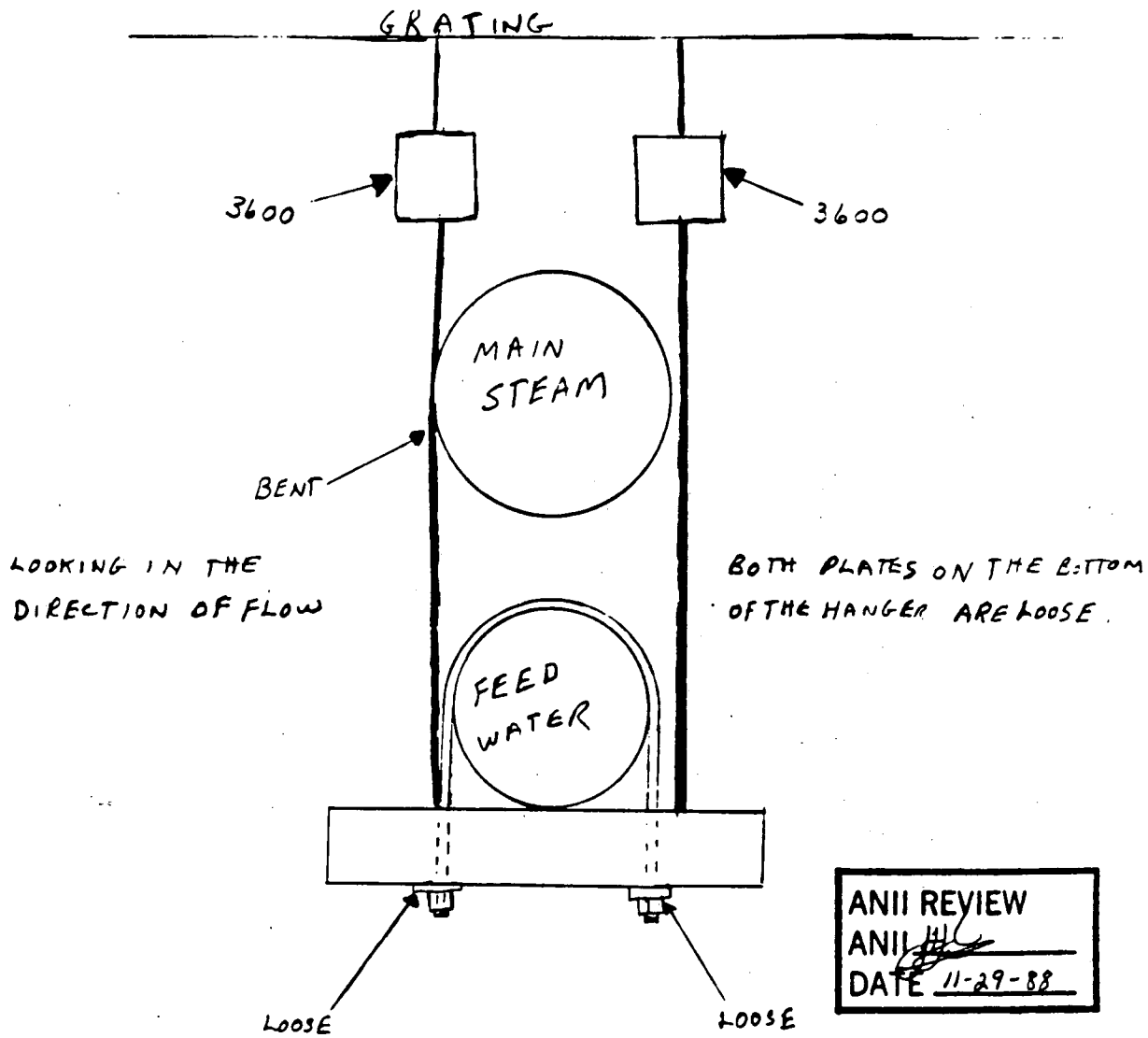
PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-215

SYST/COMP LOOP 'A' FEED WATER PROCEDURE CPL-151-8 REV. 0

EXAMINER [illegible] LEVEL II / Ralph Churchfield I DATE 11-27-88

DETECTED BY U/T ____ P/T ____ M/T ____ V/T ✓ IDENT NO. L-WS

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.



ANII REVIEW
ANII [illegible]
DATE 11-29-88

Richard B. Weber 11/27/88
[illegible] 11/28/88

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-215

SYST/COMP Loop A 16" FEEDWATER PROCEDURE CPL 151 8 REV. 0

EXAMINER George A Morini II LEVEL II DATE 12 19 88

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
L-WS	X			FLASHLIGHT	RE-EXAMINED AFTER RE-WORK VT-3

ANII REVIEW
ANII
DATE 12-20-88

Richard B. Weber 12/19/88

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219

SYST/COMP. SIS & RHR RETURN PROCEDURE CPL IST-11 REV.0

EXAMINER Paul J. Kovallo-II (LEVEL II) Harry M. Jackson II DATE 12-11-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
182	X			TEMP. 65°F
186			X	TEMP. 65°F - SEE ATTACHED SURFACE INDICATION DATA SHEET.

ANII REVIEW
ANII [signature]
DATE 12-14-88

Richard B. Weber 12/13/88
[signature] 12/13/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219

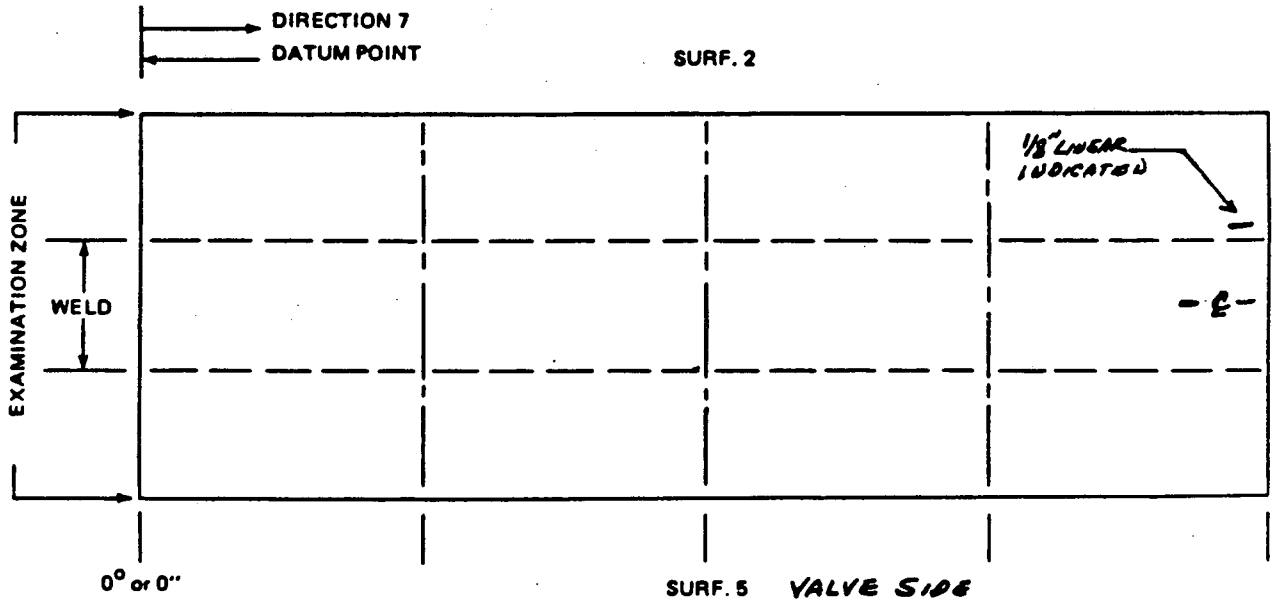
SYST/COMP SIS & RHR RETURN PROCEDURE CPL ISI-11 REV.0

EXAMINER Paul J. Kovallo-II Harry M. Johnson II DATE 12-11-88
LEVEL II

PT ✓ MT WELD NO. 186

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS 1/8" LINEAR, 3/4" FROM ℄ OF WELD, 3/8" FROM 0° CCW.



ANII REVIEW
ANII [illegible]
DATE 12-14-88

Richard B Weber 12/13/88
J M Black 12/13/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT II SKETCH CPL-219

SYST/COMP. SIS + RHR RETURN PROCEDURE CPL-151-11 REV. 0

EXAMINER Gary M Ackerman II LEVEL II DATE 12-10-88

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
V1			X	VALVE V744A TEMP 63°F SEE INDICATION DATASHEET
V2	X			VALVE V744A TEMP 63°F

ANII REVIEW
ANII
DATE 12-12-88

Richard B. Weber 12/11/88
Ch Black 12/12/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219

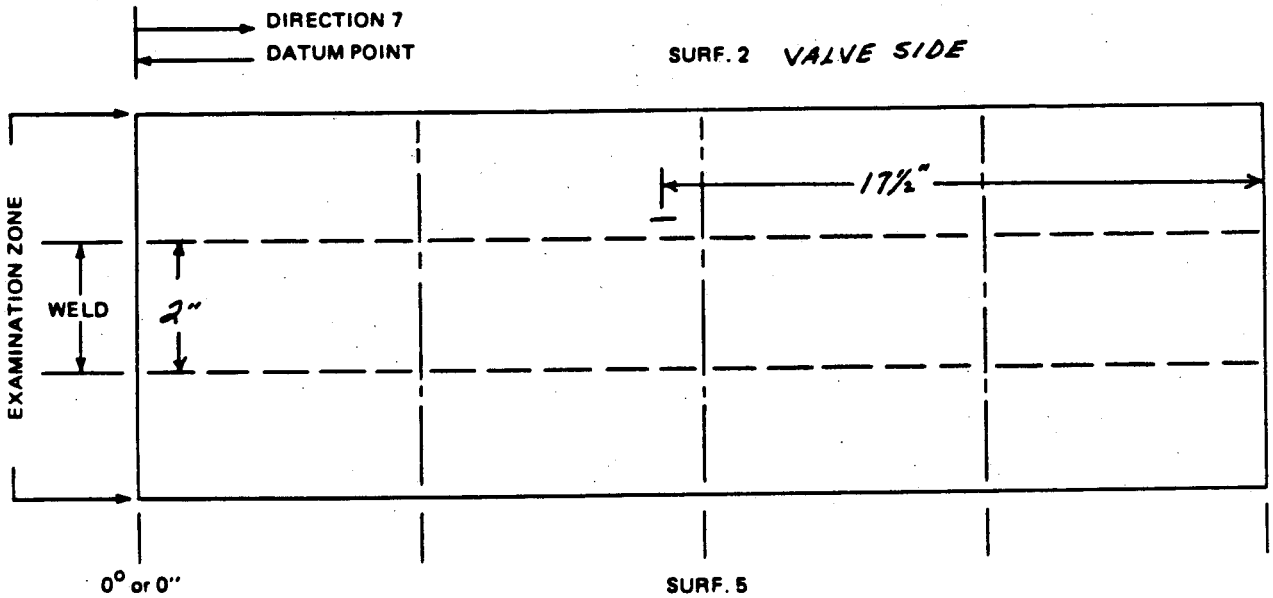
SYST/COMP SIS & RHR RETURN PROCEDURE CPL ISI-11 REV.0

EXAMINER Larry M. Ackerman II LEVEL II DATE 12-10-88

PT ✓ MT WELD NO. V744A-V1

VISUAL AIDS FLASHLIGHT, MIRROR

REMARKS INDICATION 3/16" LINEAR, 17½" CCW. FROM 0°, 1¼" FROM ℄ OF WELD.



ANII REVIEW
ANII [illegible]
DATE 12-12-88

Richard B. Weber 12/11/88
[illegible] 12-12-88

FORM 459328

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-219

SYST/COMP. SIS + RHR RETURN PROCEDURE CPL ISI-11 REV.0

EXAMINER Harry M. Jakuman II LEVEL II DATE 1-5-89

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	886017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	886017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
V1	X			VALVE V744A, RETEST OF PREVIOUS INDICATION
				AFTER REWORK TEMP. 120°F

ANII REVIEW
ANII
DATE 1-5-89

Richard B. Weber 1/5/89
J. Black 1-5-89

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219

SYST/COMP SIS + RHR RETURN PROCEDURE TBA ISI-100 REV.0

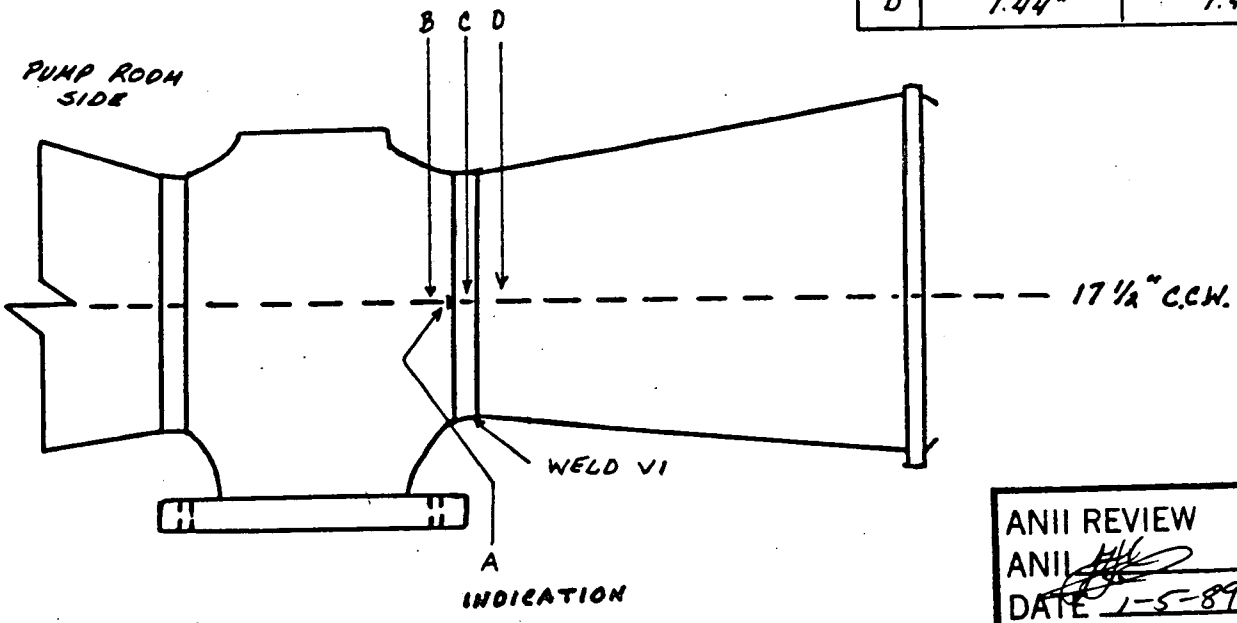
EXAMINER Paul J. Kovallo-II Harry M. Jekymow I LEVEL II DATE 1-5-89

DETECTED BY U/T ✓ P/T ____ M/T ____ V/T ____ IDENT NO. V744A

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

LOC.	BEFORE REMOVAL	AFTER REMOVAL
A	1.29"	1.28"
B	1.24"	1.24"
C	1.31"	1.27"
D	1.44"	1.44"

VIEW FROM BOTTEM LOOKING UP



ANII REVIEW
ANII
DATE 1-5-89

NOTE: ALL THICKNESS READINGS TAKEN FROM 17 1/2" C.C.W. FROM 0° DATUM AREA. SKETCH ILLUSTRATES AREA IN WHICH THICKNESS READINGS WERE TAKEN.

VALVE SIDE READING (B) TAKEN 1/2" FROM INDICATION (A).
WELD READING (C) TAKEN AT ℄ OF WELD.
READING (D) TAKEN ADJACENT TO TOE OF WELD.

Richard B. Weber 1/5/89
Chris Black 1-5-89

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-220

SYST/COMP. LOOP "A" 14" RHR PROCEDURE CPL-ISI-11 REV.0

EXAMINER Robert J. Conant II Paul J. Kovalle-II DATE 11-30-88
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	88G017
PENETRANT	MAGNAFLUX	85L045
DEVELOPER	MAGNAFLUX	88B019
REMOVER	MAGNAFLUX	88G017

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS
42			X	TEMP. 68°F SEE SURFACE INDICATION DATA SHEET *
43			X	TEMP. 68°F SEE SURFACE INDICATION DATA SHEET *
				* NOTE: P.T. IN AREAS OF PREVIOUS INDICATIONS MONITORED.

ANII REVIEW
ANII
DATE 12-4-88

Richard B. Weber 11/30/88
[illegible] 12/3/88

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-220

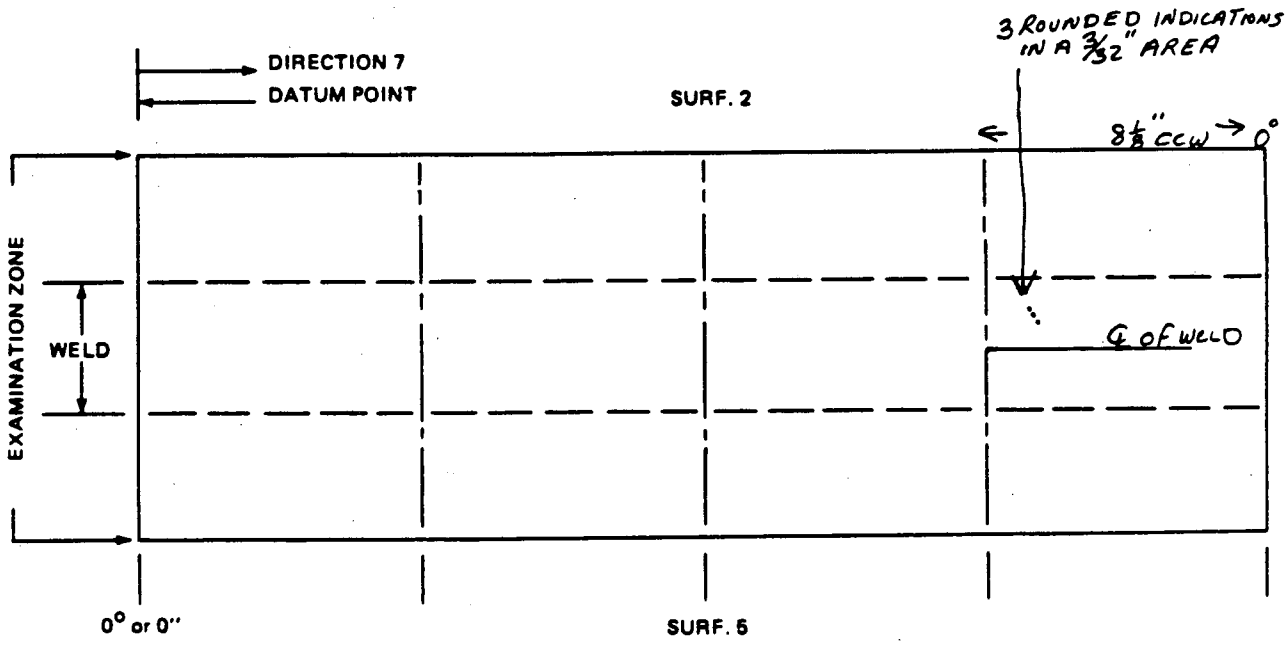
SYST/COMP LOOP A 14" RHR PROCEDURE CPL-ISI-11, REV 0

EXAMINER Paul J. Kovalle II LEVEL II DATE 11-30-88

PT ✓ MT _____ WELD NO. 42

VISUAL AIDS FLASHLIGHT

REMARKS SIZE OF INDICATION APPEARS UNCHANGED



ANII REVIEW
ANII [signature]
DATE 12-4-88

Richard B. Weber 11/30/88
John Black 12/3/88

FORM 45932B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE INDICATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-220

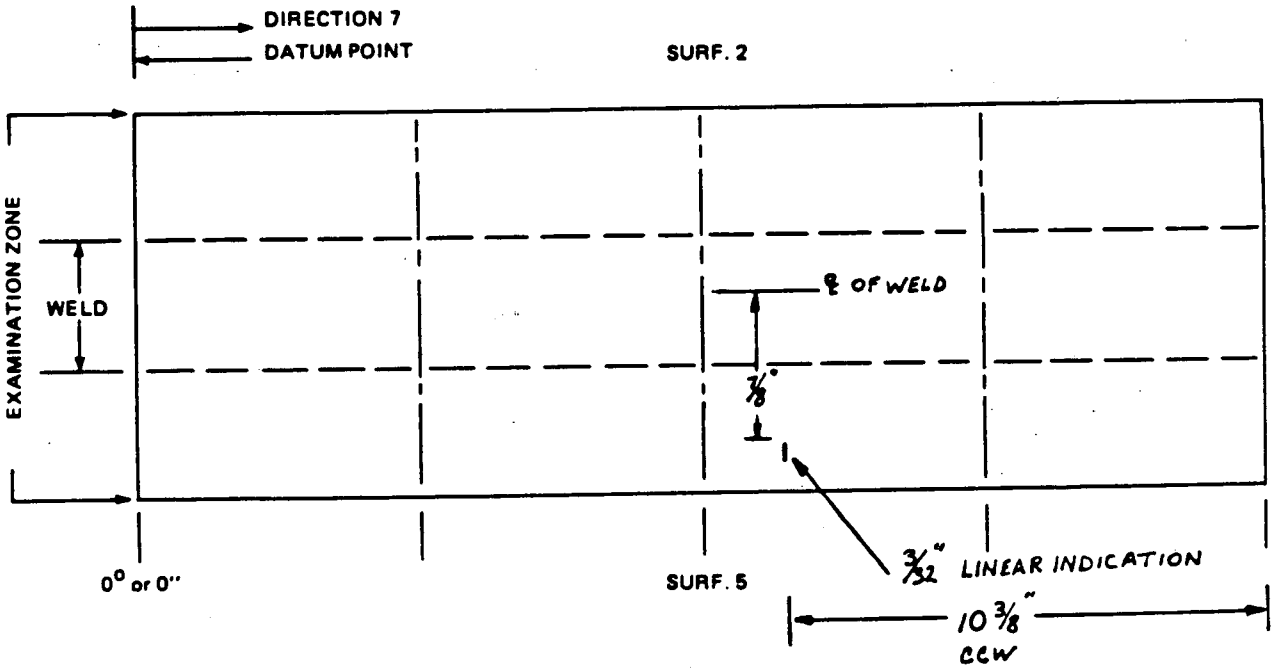
SYST/COMP LOOP "A" 14" RHR PROCEDURE CPL-IST-11 REV. 0

EXAMINER Robert L Cavart II LEVEL II DATE 11-30-88

PT ✓ MT _____ WELD NO. 43

VISUAL AIDS FLASHLIGHT

REMARKS AREA OF INDICATION APPEARS UNCHANGED



ANII REVIEW
ANII [illegible]
DATE 12-4-88

Richard B. Weber 11/30/88
[illegible] 12/3/88

FORM 469328

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-329

SYST/COMP COMPONENT COOLANT SYSTEM PROCEDURE CPL-ISI-8 REV. 0

EXAMINER Gary A Morini II John H Lewis I DATE 11-25-88
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
A			X	FLASHLIGHT	VERIFIED HANGER NOT IN PLACE
					VT-3

ANII REVIEW
ANII
DATE 11-26-88

Richard B. Weber 11/25/88
[illegible] 11/26/88

FORM 45934B

H.B. ROBINSON

SUMMARY OF
RECORDED INDICATIONS

1988

SKETCH REFERENCE	METHOD/ITEM IDENTIFICATION			⊗ EVALUATION *	UTILITY DISPOSITION			REFERENCE
	VOLUMETRIC	SURFACE	VISUAL		ACCEPT	CORRECT	MONITOR	
CPL-107B		5DM		2	✓			IWB-3514-3
CPL-108		1BC		2	✓			IWB-3514-3
CPL-110		10A		2	✓			IWB-3514-3
CPL-110		16		2	✓			IWB-3514-3
CPL-111		14		2	✓			IWB-3514-3
CPL-112		19		2	✓			IWB-3514-3
CPL-113			V876A	1-3-A		✓		88-AMQF1
CPL-116B		18		2	✓			IWB-3514-3
CPL-116B		161		2-C	✓			IWB-3514-3
CPL-118			V551A	1-A		✓		88-AMJX1
CPL-118A		1DM		2	✓			IWB-3514-3 IWB-3514-2
CPL-118B		8		2-A		✓		88-AMNR1
CPL-118B		1DM		2	✓			IWB-3514-3
CPL-122			Q	1-A		✓		88-AMLG1
CPL-122			R	8	✓			SEE SKETCH
CPL-122A		R-WS		2	✓			IWB-3516-2
CPL-123		64		2	✓			IWB-3514-3
CPL-123			FF	1-A		✓		88-AMJZ1
CPL-125		48		2	✓			IWB-3514-3
CPL-125		50		2	✓			IWB-3514-3
CPL-126			V505B	1-A		✓		88-AMJW1
CPL-127		5		1-A		✓		88-AMTK1
CPL-127			V508A	1-A		✓		88-AMQD1
CPL-132			DD	1-A		✓		88-AMLI1
CPL-132			GG	1-A		✓		88-AMLK1
CPL-108			A	1-A		✓		89-AAAR1
CPL-108			C	1-A		✓		89-AAAS1
CPL-108			F	1-A		✓		89-AAAT1

*1. NOT ACCEPTABLE
2. ACCEPTABLE
3. NOT SERVICE INDUCED
4. UNDER INVESTIGATION
5. PRIOR EXISTING
6. ACCEPTANCE LIMITS NOT SPECIFIC
7. OUTSIDE EXAMINATION ZONE
8. FOR INFORMATION ONLY
9. MORE PREP. REQUIRED
10. N/A - NOT APPLICABLE

RECOMMENDATIONS
A. CORRECT
B. FURTHER INVESTIGATION
C. FUTURE MONITORING
D. SUPPLEMENTARY EXAMINATION

NOTE: UTILITY MUST REVIEW ALL ⊗ EVALUATIONS TO DETERMINE NECESSARY DISPOSITION

⊗/COORD./DESIGNEE [signature] 1-17-89 DATE

[signature] 3/9/89
FOR UTILITY DATE

FORM 48494A

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

EXAMINATION PERSONNEL

PLANT H.B.ROBINSON UNIT II YEAR 1988 /1989

EXAMINER		U/T	P/T	V/T	M/T	R/T
Ackerman, H.M.	03-09-89	I	II	I	II	
Bollingmo, N.A.	12-30-88	II	II	II	II	
Campbell, J.B.	01-13-89	II		III	II	
Cassat, R.S.	03-14-89	I	II	I	II	
Kovallo, P.J.	01-27-89	II	II	I	II	
Morini, G.A.	09-29-89	II	II	II	II	
Churchfield,R.L.	07-14-89	I	I	I	I	

F49244

Nuclear Services Integration Division

TRAINING SEMINAR/MEETING ATTENDANCE RECORD

Location of Meeting/Training Seminar: H. B. ROBINSON

Training/Program Coordinator/Dept.: JOHN B. CAMPBELL

DATE	START TIME	FINISH TIME	SUBJECT TITLE/SUMMARY	PRESENTED BY/DEPARTMENT
11/18/88	08:00	14:30	ISI PROCEDURES LISTED BELOW	INSPECTION SERVICES
CPL-DOC-101 REV 0,	CPL-ISI-206 REV 0,	CPL-ISI-70 REV 0,	CPL-ISI-8 REV 0,	
CPL-ISI-47 REV 0,	CPL-TBA-100 REV 0,	CPL-ISI-15 REV 0,	CPL-ISI-11 REV 0,	
CPL-ISI-10 REV 0,	CPL-ISI-41 REV 0.			
TOTAL TIME ▶				

	ATTENDEES	POSITION	SECTION/DEPARTMENT/MANAGER
1	J. B. CAMPBELL	COORDINATOR	INSPECTION SERVICES
2	N. Bollingmo	NDE Tech	(W) Supt. Serv.
3	P.J. KOVALLO	NDE TECH	(W) Support Services
4	H.M. ACKERMAN	NDE TECH	(W) SUPPORT SERVICES.
5	R L Churchfield	NDE TECH	(W) Supt. Services
6	R S CASSAT	NDE TECH	(W) SUPPORT SERVICES
7	G A MORINI	NDE TECH	(W) SS.
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

RETAIN THIS COPY FOR TRAINING FILE AND SUBMIT A COPY TO THE TRAINING COORDINATOR AND THE MANAGER OF EACH ATTENDEE LISTED ABOVE.

Recorded By:

Date:

SIGNATURE SHEET

NAME	SIGNATURE	INITIALS	SOCIAL SECURITY NUMBER
1. E.T. Luksich		ETL	206-42-0308
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

AMII REVIEW
ANH
DATE 11-15-88

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
H. M. Ackerman	UT/Level I

Education & Experience:

1) Graduated Donora Senior HS, 1955

2) Performed UT in trainee capacity since 6/86

Statement of Training:

1) Westinghouse NDE TI, 80 hours training in UT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
6/12/86	92.5 x .3	100 x .3	100 x .4	97.7

Certification Limitation:

None

ANII REVIEW
ANII
DATE 11-15-88

Remarks:

Certification ~~XXXXXX~~ Date:	Expiration Date:
2/13/87	6/12/89

Certified By: ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
H. M. Ackerman	PT/Level II

Education & Experience:

1) Graduated Donora Senior HS, 1955

2) Performed PT in Level I capacity since 6/86

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in PT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
3/25/88	96.7 x .4	92.3 x .3	100 x .3	96.3

Certification Limitation:

None.

ANII REVIEW
ANII [signature]
DATE 11-15-88

Remarks:

Certification reissued to correct composite score.

Certification/Recertification Date:	Expiration Date:
3/25/88	3/25/91

Certified By: [signature] ESD NDE Level III

NSID

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

SS#: 186-30-0086

1. NAME: Harry M. Ackerman _____ ASME BPVC III X ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
PT-I	N/A	6/11/89	6/12/86
MT-I	N/A	6/11/89	6/12/86
VT-1/2/3/4-I	N/A	6/11/89	6/12/86
UT-Trainee	N/A		6/12/86 (Tested)

3. EDUCATION & EXPERIENCE:

Donora Senior High School - Graduated 1955.
Experience to certification date in each method:
PT 300 hrs., MT 200 hrs., VT 500 hrs.

4. STATEMENT OF TRAINING:

Westinghouse NDE TI:
PT 40 hrs. - 11/15/85
MT 40 hrs. - 9/20/85
VT 40 hrs. - 9/13/85
UT 80 hrs. - 12/13/85

5. PHYSICAL EXAMINATION RECORD ATTACHED: Yes X No _____

6. ACTUAL GRADE(S) AND PERCENTILE WEIGHTS FOR EXAMINATIONS:

Method	General x Wt.	Specific x Wt.	Practical x Wt.	Comp. Grade	Examination Date
PT	85 x .3	95 x .3	97 x .4	92.8	6/10/86
MT	90 x .3	90 x .3	95 x .4	92.0	6/11/86
VT-1/2/3/4	82 x 1/3	82.6 x 1/3	90 x 1/3	84.8	6/12/86
UT	92.5 x .3	100 x .3	100 x .4	97.8	6/12/86

7. CERTIFICATION LIMITATION:

None.

Certification record re-issued 9/30/87 to correct VT examination date.

ANII REVIEW
ANII [signature]
DATE 11-15-88

Certified By: Raymond J. Lusch
NDE Level III Examiner

NSID 1037 11-15-83

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
H. M. Ackerman	MT/Level II

Education & Experience:

1) Graduated Donora Senior HS, 1955

2) Performed MT in Level I capacity since 6/86

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in MT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
3/25/88	93.3 x .4	87.5 x .3	95 x .3	92

Certification Limitation:

None.

ANII REVIEW
ANII [signature]
DATE 11-15-88

Remarks:

None.

Certification/~~Recert.~~ Date:	Expiration Date:
3/25/88	3/25/91

Certified By:

[signature] ESSD NDE Level III

File #1
SSN ✓

NDE PERSONNEL VISION TEST REPORT
FORM 55282 E

WESTINGHOUSE ELECTRIC CORPORATION

WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
Harry M. Ackerman	186-30-0086	06-17-37

All applicants for NDE Certification are required to pass a vision test within thirty days of original certification testing. Personnel are required to have an annual vision examination.

Examination shall be conducted by (X) Medical Department or qualified persons designated by same.

Examination conducted shall include the following:

1. Natural or corrected near distance acuity in at least one eye such that the applicant is capable of reading J1 letters on the standard Jaegar's test type chart for near vision, or equivalent. The ability to perceive an Ortho Rater Number Ten (10) test pattern or Titmas Snellen Test Equivalents of 14/14 shall also be acceptable.
2. The ability to distinguish between colors when required by work (PT, MT, UT, etc.)
3. For far distance acuity, a minimum acceptable level of 20/30 Snellen fraction or equivalent, tested at twenty (20) feet (for visual testing only).

DATE OF EXAMINATION 3-9-88

APPLICANT'S SIGNATURE X Harry M. Ackerman

CORRECTIVE LENSES REQUIRED ☒ YES ☐ NO

ACCEPTABLE ☒ YES ☐ NO

ANII REVIEW
ANII [illegible]
DATE 11-5-88

[illegible] M.D.
MEDICAL EXAMINER

3-9-88
DATE

KENNETH POLLER, M.D.
MD038140L

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
N. Bollingmo	UT / Level II

Education & Experience:

1) Graduated Stewart HS, 1962

2) Graduated Hutchinson Area Voc-Tech, NDT Technology, 1974

3) Performed UT in Level II capacity since 4/75

Statement of Training:

Hutchinson Area Voc-Tech, 120 hours training in UT

EXAM DATE	GENERAL XWT.	SPECIFIC XWT.	PRACTICAL XWT.	COMP. GRADE
7/16/86	95 X .4	100 X .3	100 X .3	98

Certification Limitation:

NONE

ANII REVIEW
ANII [illegible]
DATE 11-15-88

Remarks:

~~Certification~~ Recert. Date:	Expiration Date:
7/16/86	7/16/89

Certified By:

[illegible] ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
N. A. Bollingmo	PT / Level II

Education & Experience:

1) Graduated Stewart HS, 1962

2) Graduated Hutchinson Area Voc-Tech, NDT Technology, 1974

3) Performed PT in Level II capacity since 4/75

Statement of Training:

Hutchinson Area Voc-Tech, 45 hours training in PT

EXAM DATE	GENERAL XWT.	SPECIFIC XWT.	PRACTICAL XWT.	COMP. GRADE
7/16/86	93 X .4	100 X .3	100 X .3	97.2

Certification Limitation:

NONE

ANII REVIEW
ANII [signature]
DATE 11-15-88

Remarks:

~~Certification~~/Recert. Date:	Expiration Date:
7/16/86	7/16/89

Certified By: [signature] ESSO NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
N. A. Bollingmo	MT / Level II

Education & Experience:

1) Graduated Stewart HS, 1962

2) Graduated Hutchinson Area Voc-Tech, NDT Technology, 1974

3) Performed MT in Level II capacity since 4/75

Statement of Training:

Hutchinson Area Voc-Tech, 45 hours training in MT

EXAM DATE	GENERAL XWT.	SPECIFIC XWT.	PRACTICAL XWT.	COMP. GRADE
7/17/86	90 X .4	100 X .3	98 X .3	95.4

Certification Limitation:

NONE

ANII REVIEW
ANII [signature]
DATE 11-15-88

Remarks:

[redacted] Recert. Date:	Expiration Date:
7/17/86	7/17/89

Certified By:

[signature] ESSD NDE Level III

NSID

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

1. NAME: N.A. Bollingmo, SS# 471-48-7179 _____ ASME BPVC III X ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
VT-1/2/3/4-II	2/27/86	2/26/89	2/7/83

3. EDUCATION & EXPERIENCE:

Graduated Stewart P.S., MN, 1962
NDE and Nuclear Service experience since 1975 including a minimum of four years on visual examination. Certified as Level II on UT, PT and MT

4. STATEMENT OF TRAINING:

Westinghouse NDE TI, Visual Training on VT - 1/2/3/4, 2-4-83 32 hours.

5. PHYSICAL EXAMINATION RECORD ATTACHED: Yes X No _____

6. ACTUAL GRADE(S) AND PERCENTILE WEIGHTS FOR EXAMINATIONS:

Method	Gen.	X Wt.	Spec.	X Wt.	Prac.	X Wt.	Comp. Grade	Examination Date
VT	90.7	x 1/3	86	x 1/3	91	x 1/3	89%	2/26/86

7. CERTIFICATION LIMITATION:

None

ANII REVIEW
ANII [signature]
DATE 11-15-88

Certified By: [signature]
NDE Level III Examiner

File #

SSN ✓

NDE PERSONNEL VISION TEST REPORT
FORM 66262 E

WESTINGHOUSE ELECTRIC CORPORATION

WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
Norvel A. Bollingmo	471-48-7179	07-14-44

All applicants for NDE Certification are required to pass a vision test within thirty days of original certification testing. Personnel are required to have an annual vision examination.

Examination shall be conducted by (W) Medical Department or qualified persons designated by same.

Examination conducted shall include the following:

1. Natural or corrected near distance acuity in at least one eye such that the applicant is capable of reading J1 letters on the standard Jaegar's test type chart for near vision, or equivalent. The ability to perceive an Ortho Rater Number Ten (10) test pattern or Titmas Snellen Test Equivalents of 14/14 shall also be acceptable.
2. The ability to distinguish between colors when required by work (PT, MT, UT, etc.)
3. For far distance acuity, a minimum acceptable level of 20/30 Snellen fraction or equivalent, tested at twenty (20) feet (for visual testing only).

DATE OF EXAMINATION 12-30-87

APPLICANT'S SIGNATURE Norvel A. Bollingmo

CORRECTIVE LENSES REQUIRED ☐ YES ☑ NO

ACCEPTABLE ☑ YES ☐ NO

ANII REVIEW
ANII [illegible]
DATE 11-15-88

Norman F. Sadeka M.D.
MEDICAL EXAMINER

12/30/87.
DATE

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
J. B. Campbell	UT/Level II

Education & Experience:

1) Graduated Edgewood HS, 1949

2) Performed UT in Level II capacity since 5/77

Statement of Training:

1) Westinghouse NDE TI, 80 hours training in UT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
1/27/88	97.5 x .4	80 x .3	100 x .3	93

Certification Limitation:

None

ANII REVIEW
ANII [illegible]
DATE 11-15-88

Remarks:

None

~~Certification~~/Recert. Date:	Expiration Date:
1/27/88	1/27/91

Certified By: [illegible] ESSD NDE Level III

NSID

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

SS#: 207-24-3162

1. NAME: John Campbell _____ ASME BPVC III ___X___ ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
VT-1/2/3/4-III	4/4/86	4/4/89	4/15/83

3. EDUCATION & EXPERIENCE:

Graduated Edgewood H.S., 1949. Certified Level II in RT, PT, MT since 1968; Level II in VT since 1980. Approximately 23 years experience in NDE methods.

4. STATEMENT OF TRAINING:

W NSD Visual Training, 4 hours, 7/77.
EPRI Level III Visual Examination Training, 40 hours, 7/23/82.
NDE Technical Institute, 8 hours, Level III Training Course, 4/4/86.

5. PHYSICAL EXAMINATION RECORD ATTACHED: Yes _____ No ___X___

6. ACTUAL GRADE(S) AND PERCENTILE WEIGHTS FOR EXAMINATIONS:

Method	Basic x Wt.	Specific x Wt.	Method x Wt.	Comp. Grade	Examination Date
VT 1,2,3,4	88.3 x .4	85.7 x .2	82.5 x .4	85.4	4/3/86

7. CERTIFICATION LIMITATION:

Certification record re-issued 9/29/87 to correct wt. factors and examination date.

ANII REVIEW
ANII [signature]
DATE 11-15-88

Certified By: [signature]
NDE Level III Examiner

NSID 1037 11-15-83

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
J. B. Campbell	MT/Level II

Education & Experience:

1) Graduated Edgewood HS, 1949

2) Performed MT in Level II capacity since 2/81

Statement of Training:

1) Westinghouse NES-PWR-SD, 20 hours training in MT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
3/18/88	86.6 x .4	91.6 x .3	90 x .3	89.1

Certification Limitation:

None.

ANII REVIEW
ANII [signature]
DATE 11-15-88

Remarks:

None.

~~Certification~~/Recert. Date:	Expiration Date:
3/18/88	3/18/91

Certified By: [signature] ESSD NDE Level III

File
IS

NDE PERSONNEL VISION TEST REPORT
FORM 55262 E

WESTINGHOUSE ELECTRIC CORPORATION

WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
John Campbell	207-24-3162	9/29/31

All applicants for NDE Certification are required to pass a vision test within thirty days of original certification testing. Personnel are required to have an annual vision examination.

Examination shall be conducted by (☺) Medical Department or qualified persons designated by same.

Examination conducted shall include the following:

1. Natural or corrected near distance acuity in at least one eye such that the applicant is capable of reading J1 letters on the standard Jaegar's test type chart for near vision, or equivalent. The ability to perceive an Ortho Rater Number Ten (10) test pattern or Titmas Snellen Test Equivalents of 14/14 shall also be acceptable.
2. The ability to distinguish between colors when required by work (PT, MT, UT, etc.)
3. For far distance acuity, a minimum acceptable level of 20/30 Snellen fraction or equivalent, tested at twenty (20) feet (for visual testing only).

DATE OF EXAMINATION 1/8/88

APPLICANT'S SIGNATURE John Campbell

CORRECTIVE LENSES REQUIRED ☒ YES ☐ NO Near vision only

ACCEPTABLE ☒ YES ☐ NO

ANII REVIEW
ANII
DATE 11-15-88

S Bruntock MD
MEDICAL EXAMINER

1-13-88
DATE

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
R. S. Cassat	UT/Level I

Education & Experience:

1) Graduated Greater Johnstown HS, 1969

2) Performed UT in Trainee capacity since 6/86

Statement of Training:

1) Westinghouse NDE TI, 80 hours training in UT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
6/12/86	90 x .3	100 x .3	98 x .4	96.2

Certification Limitation:

None

ANII REVIEW
ANII
DATE 11-15-88

Remarks:

Certification/~~RXXX~~. Date:	Expiration Date:
7/22/87	6/12/89

Certified By: ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
R. S. Cassat	PT/Level II

Education & Experience:

1) Graduated Greater Johnstown HS, 1969

2) Performed PT in Level I capacity since 6/86

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in PT

EXAM DATE	General	XWT.	Specific	XWT.	Practical	XWT.	COMP. GRADE
7/22/87	100 x .4		97.4 x .3		94 x .3		94.4

Certification Limitation:

None

ANII REVIEW
ANII
DATE 11-15-88

Remarks:

None

Certification/~~Recert~~. Date:	Expiration Date:
7/22/87	7/22/90

Certified By:

ESSD NDE Level III

NSID

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

SS#: 189-44-9111

1. NAME: Robert S. Cassat _____ ASME BPVC III ___X___ ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
PT-I	N/A	6/11/89	6/12/86
MT-I	N/A	6/11/89	6/12/86
VT-1/2/3/4-I	N/A	6/11/89	6/12/86
UT Trainee	N/A	N/A	6/12/86 (Tested)

3. EDUCATION & EXPERIENCE:
Graduated Johnstown Senior High School.
Experience to certification date in each method:
PT 200 hrs., MT 500 hrs., VT 3000 hrs.

4. STATEMENT OF TRAINING:
Westinghouse NDE TI: PT 5/2/86, 40 hrs.
MT 10/25/85, 40 hrs.
VT 3/7/86, 40 hrs.
UT 1/19/86, 80 hrs.

5. PHYSICAL EXAMINATION RECORD ATTACHED: Yes ___X___ No _____

6. ACTUAL GRADE(S) AND PERCENTILE WEIGHTS FOR EXAMINATIONS:

Method	General x Wt.	Specific x Wt.	Practical x Wt.	Comp. Grade	Examination Date
PT	90 x .3	95 x .3	96 x .4	93.9	6/10/86
MT	95 x .3	100 x .3	100 x .4	98.5	6/11/86
VT-1/2/3/4	83 x 1/3	79 x 1/3	97 x 1/3	86.3	6/12/86
UT	90 x .3	100 x .3	98 x .4	96.2	6/12/86

7. CERTIFICATION LIMITATION:

None.

Certification record re-issued 9/30/87 to correct VT examination date.

ANII REVIEW
ANII [signature]
DATE 11-15-88

Certified By: Raymond J. Fresch
NDE Level III Examiner

NSID 1037 11-15-83

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
R. S. Cassat	MT/Level II

Education & Experience:

1) Graduated Greater Johnstown HS, 1969

2) Performed MT in Level I capacity since 6/86

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in MT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
2/3/88	100 x .4	95.8 x .3	94 x .3	96.9

Certification Limitation:

None

ANII REVIEW
ANII [signature]
DATE 11-15-88

Remarks:

None

Certification/~~RXXM~~. Date:	Expiration Date:
2/3/88	2/3/91

Certified By:

[signature] ESSD NDE Level III

File # 187
SSN ✓

NDE PERSONNEL VISION TEST REPORT
FORM 55262 E

WESTINGHOUSE ELECTRIC CORPORATION
WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
Robert Cassat	189-44-9111	09-07-51

All applicants for NDE Certification are required to pass a vision test within thirty days of original certification testing. Personnel are required to have an annual vision examination.

Examination shall be conducted by ☒ Medical Department or qualified persons designated by same.

Examination conducted shall include the following:

1. Natural or corrected near distance acuity in at least one eye such that the applicant is capable of reading J1 letters on the standard Jaegar's test type chart for near vision, or equivalent. The ability to perceive an Ortho Rater Number Ten (10) test pattern or Titmas Snellen Test Equivalents of 14/14 shall also be acceptable.
2. The ability to distinguish between colors when required by work (PT, MT, UT, etc.)
3. For far distance acuity, a minimum acceptable level of 20/30 Snellen fraction or equivalent, tested at twenty (20) feet (for visual testing only).

DATE OF EXAMINATION 3-14-88

APPLICANT'S SIGNATURE x Robert Cassat

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

ANII REVIEW
ANII
DATE 11-15-88

MEDICAL EXAMINER

3-14-88
DATE

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
R. L. Churchfield	UT/Level I

Education & Experience:

1) Graduated East Allegheny HS, 1968

2) Performed UT in Trainee capacity since 6/86

Statement of Training:

1) Westinghouse NDE TI, 80 hours training in UT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
2/3/88	92.5 x .3	85 x .3	90 x .4	89.2

Certification Limitation:

None

ANII REVIEW
ANII HC
DATE 11-15-88

Remarks:

None

Certification/~~ANII~~ Date:	Expiration Date:
2/3/88	2/3/91

Certified By:

ESSD NDE Level III

NSID

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

1. NAME: 202-40-4284 Ralph Churchfield _____ ASME BPVC III X ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
PT-I	N/A	6/11/89	6/12/86
MT-I	N/A	6/11/89	6/12/86
VT-1-2-3-4-I	N/A	~~6/11/89~~ 2/27/89	6/12/86
UT Trainee	N/A	N/A	6/12/86 (Tested)

3. EDUCATION & EXPERIENCE: Graduated East Allegheny High School, formerly Westinghouse Memorial High School, Wilmerding, PA June 1968. Experience up to certification date in each method:
PT 240 + hrs, MT 240 + hrs, VT 20,800 + hrs

4. STATEMENT OF TRAINING:

Westinghouse NDE TI:
VT-1-2-3-4 3/7/86 40 hrs, PT 5/2/86 40 hrs
MT 5/9/86 40 hrs, UT 5/23/86 80 hrs.

5. PHYSICAL EXAMINATION RECORD ATTACHED: Yes X No _____

6. ACTUAL GRADE(S) AND PERCENTILE WEIGHTS FOR EXAMINATIONS:

Method	General	X Wt.	Specific	X Wt.	Practical	X Wt.	Comp. Grade	Examination Date
PT	82.5	.3	100	.3	100	.4	94.75	6/10/86
MT	90	.3	85	.3	97	.4	91.3	6/11/86
UT	92.5	.3	100	.3	96	.4	96.15	6/12/86
VT-1-2-3-4	96.2	~~.3~~ 1/3	98.6	~~.3~~ 1/3	98	~~.3~~ 1/3	97.6	2/27/86

7. CERTIFICATION LIMITATION:

ANII REVIEW
ANII [signature]
DATE 11-15-88

8. REMARKS

VT-1-2-3-4 wt. factors corrected on 3/11/88. [signature]
VT-1-2-3-4 expiration date corrected on 4/13/88. [signature]

Certified By: Raymond J. Lesch
NDE Level III Examiner

NSID 1037 11-15-83

NDE PERSONNEL VISION TEST REPORT
FORM 55262 E

WESTINGHOUSE ELECTRIC CORPORATION

WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
Ralph Churchfield	202-40-4284	3-13-50

All applicants for NDE Certification are required to pass a vision test within thirty days of original certification testing. Personnel are required to have an annual vision examination.

Examination shall be conducted by (S) Medical Department or qualified persons designated by same.

Examination conducted shall include the following:

1. Natural or corrected near distance acuity in at least one eye such that the applicant is capable of reading J1 letters on the standard Jaegar's test type chart for near vision, or equivalent. The ability to perceive an Ortho Rater Number Ten (10) test pattern or Titmus Snellen Test Equivalents of 14/14 shall also be acceptable.
2. The ability to distinguish between colors when required by work (PT, MT, UT, etc.)
3. For far distance acuity, a minimum acceptable level of 20/30 Snellen fraction or equivalent, tested at twenty (20) feet (for visual testing only).

DATE OF EXAMINATION July 14, 1988

APPLICANT'S SIGNATURE Ralph L Churchfield

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

ANII REVIEW
ANII
DATE 11-15-88

X Clemanza
MEDICAL EXAMINER

7-14-88
DATE

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
P. J. Kovallo	UT/Level II

Education & Experience:

1) Graduated South Allegheny HS, 1971

2) Performed UT in Trainee and Level I capacities since 1/84

Statement of Training:

1) Westinghouse NDE TI, 80 hours training in UT

2) Westinghouse NDE TI, 4 hours training in UT (Refresher Training)

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
12/5 & 8/86	82.5 x .4	85 x .3	94 x .3	86.7

Certification Limitation:

None

ANII REVIEW
ANII
DATE 11-15-88

Remarks:

Certification/~~Recert~~. Date:	Expiration Date:
7/13/87	12/5/89

Certified By: ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
P. J. Kovallo	PT/Level II

Education & Experience:

1) Graduated South Allegheny H.S., 1971

2) Performed PT in Trainee and Level I capacities since 1/84

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in PT

2) Westinghouse NDE TI, 4 hours training in PT (refresher training)

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
12/2 & 5/86	90 x .4	90 x .3	90 x .3	90

Certification Limitation:

None

ANII REVIEW
ANII
DATE 11-15-88

Remarks:

Certification/~~Recert~~ Date:	Expiration Date:
1/5/87	12/5/89

Certified By:

ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
P. J. Kovallo	VT1,VT2,VT3,VT4/Level I

Education & Experience:

1) Graduated South Allegheny H.S., 1971

2) Performed VT1, VT2, VT3, VT4 in Trainee and Level I capacities since 1/84

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in VT1, VT2, VT3, VT4

2) Westinghouse NDE TI, 12 hours training in VT1, VT2, VT3, VT4 (recertification training)

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
12/4,5,8/86	81 x 1/3	86 x 1/3	89 x 1/3	85

Certification Limitation:

None

ANII REVIEW
ANII [illegible]
DATE 11-15-88

Remarks:

~~Cert.~~/Recert. Date:	Expiration Date:
12/8/86	12/8/89

Certified By: [illegible] ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
P. J. Kovallo	MT/Level II

Education & Experience:

1) Graduated South Allegheny H.S., 1971

2) Performed MT in Trainee and Level I capacities since 1/84

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in MT

2) Westinghouse NDE TI, 4 hours training in MT (refresher training)

EXAM DATE	General	XWT.	Specific	XWT.	Practical	XWT.	COMP. GRADE
12/2 & 5/86	100 x .4		100 x .3		96 x .3		98.8

Certification Limitation:

None

ANII REVIEW
ANII [signature]
DATE 11-15-88

Remarks:

Certification ~~Renewal~~ Date:	Expiration Date:
5/15/87	12/5/89

Certified By:

[signature] ESSD NDE Level III

NDE PERSONNEL VISION TEST REPORT
FORM 55262 E

WESTINGHOUSE ELECTRIC CORPORATION

WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
Paul Kovallo	211-40-8960	07-27-52

All applicants for NDE Certification are required to pass a vision test within thirty days of original certification testing. Personnel are required to have an annual vision examination.

Examination shall be conducted by (X) Medical Department or qualified persons designated by same.

Examination conducted shall include the following:

1. Natural or corrected near distance acuity in at least one eye such that the applicant is capable of reading J1 letters on the standard Jaegar's test type chart for near vision, or equivalent. The ability to perceive an Ortho Rater Number Ten (10) test pattern or Titmas Snellen Test Equivalents of 14/14 shall also be acceptable.
2. The ability to distinguish between colors when required by work (PT, MT, UT, etc.)
3. For far distance acuity, a minimum acceptable level of 20/30 Snellen fraction or equivalent, tested at twenty (20) feet (for visual testing only).

DATE OF EXAMINATION 1-27-88

APPLICANT'S SIGNATURE Paul J. Kovallo

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

ANII REVIEW
ANII [illegible]
DATE 11-15-88

KENNETH POBER, M.D.
MD038140L
MEDICAL EXAMINER

1-27-88
DATE

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
G. A. Morini	UT/Level II

Education & Experience:

1) Graduated Ambridge Area HS, 1968

2) Performed UT in Level II capacity since 8/82

Statement of Training:

1) United States Steel, 80 hours training in UT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
6/1/88	92.5 x .4	90 x .3	100 x .3	94

Certification Limitation:

None.

ANII REVIEW
ANII [signature]
DATE 11-15-88

Remarks:

None.

~~Certification~~/Recert. Date:	Expiration Date:
6/1/88	6/1/91

Certified By: [signature] NSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
G. A. Morini	PT / Level II

Education & Experience:

1) Graduated Ambridge Area HS, 1968

2) Performed PT in Level II capacity since 2/84

Statement of Training:

Westinghouse NDE TI, 40 hours training in PT

EXAM DATE	GENERAL XWT.	SPECIFIC XWT.	PRACTICAL XWT.	COMP. GRADE
7/31/86	97.5 X .4	82.5 X .3	100 X .3	93.7

Certification Limitation:

NONE

ANII REVIEW
ANII
DATE 11-15-88

Remarks:

~~Certification~~/Recert. Date:	Expiration Date:
7/31/86	7/31/89

Certified By:

ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
G. A. Morini	VT1, VT2, VT3, VT4/Level II

Education & Experience:

1) Graduated Ambridge Area HS, 1968

2) Performed VT1, VT2, VT3, VT4 in Level II capacity since 6/83

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in VT1, VT2, VT3, VT4

2) Westinghouse NDE TI, 12 hours training in VT1, VT2, VT3, VT4 (recertification refresher training)

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
8/5/86	96 x 1/3	90 x 1/3	86 x 1/3	90.6

Certification Limitation:

None

ANII REVIEW
ANII
DATE 11-15-88

Remarks:

~~Initial~~/Recert. Date:	Expiration Date:
8/5/86	8/5/89

Certified By: ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
G. A. Morini	MT/Level II

Education & Experience:

1) Graduated Ambridge Area HS, 1968

2) Performed MT in Level II capacity since 8/82

Statement of Training:

1) United States Steel, 20 hours training in MT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
6/1/88	93.3 x .4	95.8 x .3	100 x .3	96

Certification Limitation:

None.

ANII REVIEW
ANII [signature]
DATE 11-15-88

Remarks:

None.

~~Certification~~/Recert. Date:	Expiration Date:
6/1/88	6/1/91

Certified By: [signature] NSD NDE Level III

NDE PERSONNEL VISION TEST REPORT
FORM 66262 E

WESTINGHOUSE ELECTRIC CORPORATION

WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
MORINI, George	193-40-4982	8/25/50

All applicants for NDE Certification are required to pass a vision test within thirty days of original certification testing. Personnel are required to have an annual vision examination.

Examination shall be conducted by (X) Medical Department or qualified persons designated by same.

Examination conducted shall include the following:

1. Natural or corrected near distance acuity in at least one eye such that the applicant is capable of reading J1 letters on the standard Jaegar's test type chart for near vision, or equivalent. The ability to perceive an Ortho Rater Number Ten (10) test pattern or Titmas Snellen Test Equivalents of 14/14 shall also be acceptable.
2. The ability to distinguish between colors when required by work (PT, MT, UT, etc.)
3. For far distance acuity, a minimum acceptable level of 20/30 Snellen fraction or equivalent, tested at twenty (20) feet (for visual testing only).

DATE OF EXAMINATION 9/29/88

APPLICANT'S SIGNATURE George Morini

CORRECTIVE LENSES REQUIRED ☐ YES ☑ NO

ACCEPTABLE ☑ YES ☐ NO

ANII REVIEW
ANII [illegible]
DATE 11-15-88

Marwan F. Sadekni M.D.
MEDICAL EXAMINER

9/29/88
DATE

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EQUIPMENT (TRANSDUCERS)

PLANT H.B. ROBINSON UNIT 2 YEAR 1988/1989

TRANSDUCER NUMBER	MANUFACTURER	SIZE	FREQUENCY	SERIAL NO.
1	KB	0.25"	2.25	21135
2	KB	0.25"	2.25	21137
3	PANAMETRICS	0.375"	2.25	57615
4	PANAMETRICS	0.25"	2.25	62408
5	PANAMETRICS	0.25"	2.25	62410
6	KB	0.5"	5.0	80087
7	KB	0.5"	5.0	80093
8	AEROTECH	0.5"	5.0	80437
9	KB	0.5"	2.25	B03664
10	KB	0.375"	5.0	C03626
11	KB	0.5"	5.0	D10578
12	KB	0.25"	2.25	F28235
13	KB	1.0"	1.0	G17508
14	KB	0.5"	5.0	G20209
15	KB	1.0"	2.25	H04313
16	KB	0.25"	5.0	K18421
17	AUTOMATION	1x3/8"	2.25	L83003
18	KB	0.375"	2.25	031238
19	AEROTECH	0.5"	2.25	041775
20	PANAMETRICS	0.75"	2.25	P44257
21	PANAMETRICS	0.75"	2.25	P47184
22	KB	0.75"	2.25	C29343
23	KB	0.375	5.0	F16320

FORM 49217

TRANSDUCER CERTIFICATION

Transducer Description

Gamma S/N 21135

Frequency 2.25 MHz Size .25

Style MSWQC Connector 110

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path 1.75 ☐ Spherical

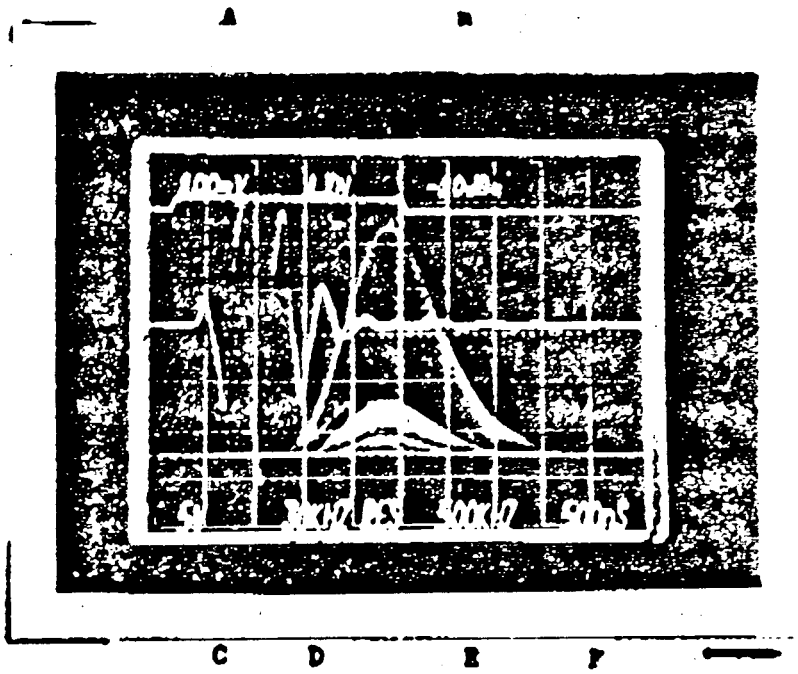
Target 1.0" Plex ☐ Cylindrical

Relative Sensitivity 24 dB

Energy Setting 2 Impedance 50

☑ Peak or ☐ Center Frequency 2.55 MHz

Inspector RD Date 4-7-86



TRACE I

TRACE II

TRACE III

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Dual contact transducers are tested on a flat polymer block unless otherwise specified. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7112 frequency spectrum analyzer in a 7704A mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 3 dB) on the CRT. With the vertical calibration of Trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for Trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for Trace I is the same as that for Trace II. The portion of Trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for Trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

TRANSDUCER CERTIFICATION

Transducer Description

Series GAMMA S/N 21137

Frequency 2.25 MHz Size .25

Type MSWAC Connector MD

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path DA ☐ Spherical

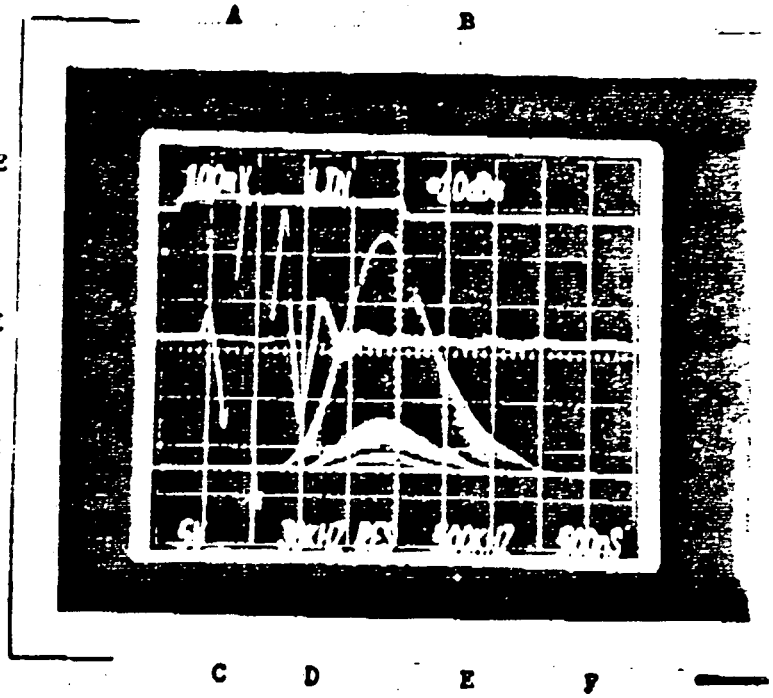
Target 16" Plex ☐ Cylindrical

Relative Sensitivity 24 dB

Energy Setting 2 Impedance 50

☑ Peak or ☐ Center Frequency 2.35 MHz

Inspector SCD Date 4-7-86



Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Dual contact transducers are tested on a flat polymer block unless otherwise specified. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delayline. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 dB) on the CRT. With the vertical calibration of Trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for Trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for Trace I is the same as that for Trace II. The portion of Trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for Trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02254 / 617 899-2719 TELEX: 923406

CONTACT TRANSDUCER ANALYSIS

PART NO. A125S SERIAL NO. 57615 FREQUENCY 2.25 MHz

SIZE: .375 " DIAMETER: ——— " by ——— " CABLE: RG-174/U LENGTH 4 ft.

ECHO FROM BACK SURFACE OF: 1.0 " THICK FUSED SILICA.

" THICK LUCITE.

" THICK POLYSTYRENE.

"

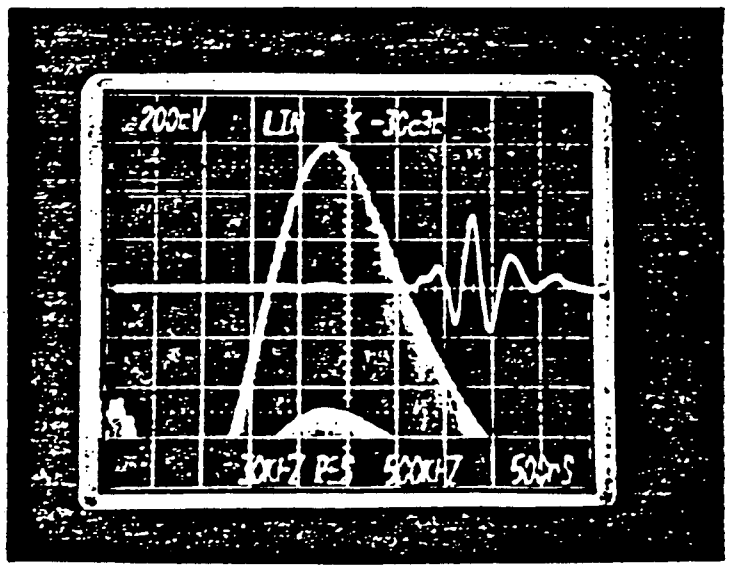
TEST INSTRUMENTATION

___ PANAMETRICS 5052(PR,G) PULSER AND GATE #___

✓ PANAMETRICS 5052UA OR 5030A # 4

TEKTRONIX	7704A	OSCILLOSCOPE SYSTEM
with	7A26	DUAL TRACE AMPLIFIER
	7B53A	DUAL TIME BASE
	7L12	SPECTRUM ANALYZER

Center frequency is determined by fultiplying the horizontal scan width (4) by the number of divisions to the spectrum peak. 1 3 6



1 5 4 2

WAVEFORM

PULSER RECEIVER SETTINGS:

ENERGY SETTING 1.

RECEIVER ATTENUATION 60 dB.

RECEIVER DAMPING 200 OHMS.

OSCILLOSCOPE SETTINGS:

1 - Vertical Sensitivity/div.

2 - Horizontal Sweep Rate/div.

SPECTRUM ANALYSIS

3 - Scale Format.

4 - Horizontal Scan Width/div.

5 - Resolution.

6 - Input Attenuation.

TECHNICIAN [signature]

DATE 5-19-82

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02254 / 617 899-2719 TELEX 923406

CONTACT TRANSDUCER ANALYSIS

PART NO. 4513 S SERIAL NO. 62408 FREQUENCY 2.25 MHz

SIZE: .25 " DIAMETER: N/A " by N/A " CABLE: RG- 174/u, LENGTH 40 ft

ECHO FROM BACK SURFACE OF: N/A " THICK FUSED SILICA.

N/A " THICK LUCITE.

0.5 " THICK POLYSTYRENE.

N/A "

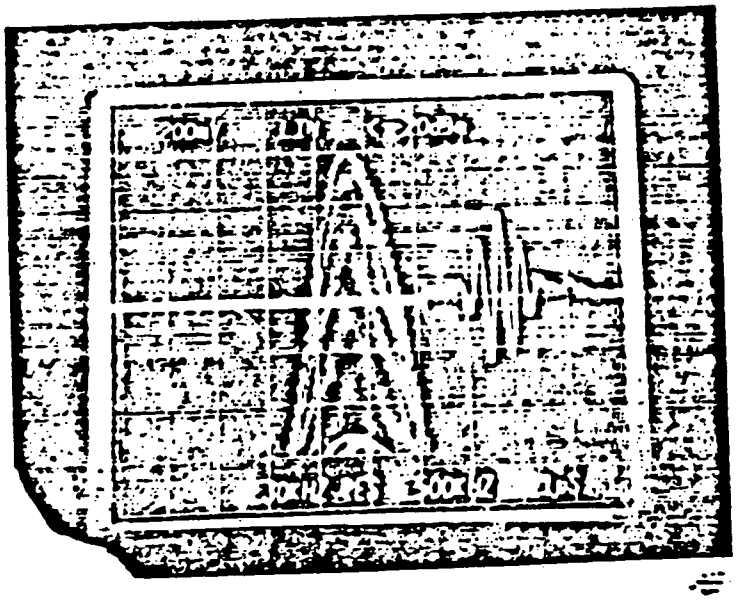
TEST INSTRUMENTATION

____ PANAMETRICS 5052(PR,G) PULSER AND GATE #____

X PANAMETRICS 5052UA OR 5030A # 3

TEKTRONIX	7704A	OSCILLOSCOPE SYSTEM
with	7A26	DUAL TRACE AMPLIFIER
	7B53A	DUAL TIME BASE
	7L12	SPECTRUM ANALYZER

Center frequency is determined by fultiplying the horizontal scan width (4) by the number of divisions to the spectrum peak. 1 3 6



1 5 4 2

WAVEFORM

PULSER RECEIVER SETTINGS:

ENERGY SETTING 1.

RECEIVER ATTENUATION 50 dB.

RECEIVER DAMPING 120 OHMS.

OSCILLOSCOPE SETTINGS:

1 - Vertical Sensitivity/div.

2 - Horizontal Sweep Rate/div.

SPECTRUM ANALYSIS

3 - Scale Format.

4 - Horizontal Scan Width/div.

5 - Resolution.

6 - Input Attenuation.

TECHNICIAN [signature]

DATE 10/1/82

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02254 / 617 899-2719 TELEX 923406

CONTACT TRANSDUCER ANALYSIS

PART NO. 4513 S SERIAL NO. 62510 FREQUENCY 2.25 MHz

SIZE: .25 " DIAMETER: N/A " by N/A " CABLE: RG- 174/U, LENGTH 40 ft

ECHO FROM BACK SURFACE OF: N/A " THICK FUSED SILICA.

N/A " THICK LUCITE.

0.5 " THICK POLYSTYRENE.

N/A "

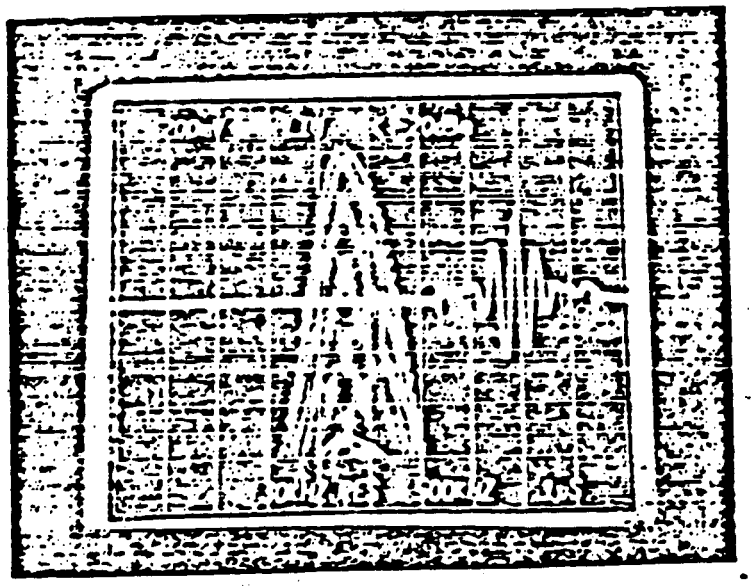
TEST INSTRUMENTATION

___ PANAMETRICS 5052(PR,G) PULSER AND GATE #___

✓ PANAMETRICS 5052UA OR 5030A # 3

TONIX	7704A	OSCILLOSCOPE SYSTEM
with	7A26	DUAL TRACE AMPLIFIER
	7B53A	DUAL TIME BASE
	7L12	SPECTRUM ANALYZER

Center frequency is determined by fultiplying the horizontal scan width (4) by the number of divisions to the spectrum peak. 1 3 6



WAVEFORM

PULSER RECEIVER SETTINGS:

ENERGY SETTING 1.

RECEIVER ATTENUATION 50 dB.

RECEIVER DAMPING 120 OHMS.

OSCILLOSCOPE SETTINGS:

1 - Vertical Sensitivity/div.

2 - Horizontal Sweep Rate/div.

SPECTRUM ANALYSIS

3 - Scale Format.

4 - Horizontal Scan Width/div.

5 - Resolution.

6 - Input Attenuation.

TECHNICIAN [signature]

DATE 10/1/82

Transducer Description

Series GAMMA

Frequency 5.0 MHz Size .50

Serial No. 80087

[x] Contact [ ] Immersion [x] Nonfocused
Water Path [ ] Spherical
_____ [ ] Cylindrical

Style MSWQC Connector MP

Relative Sensitivity 24 DB

Energy Setting 2 Impedance 50

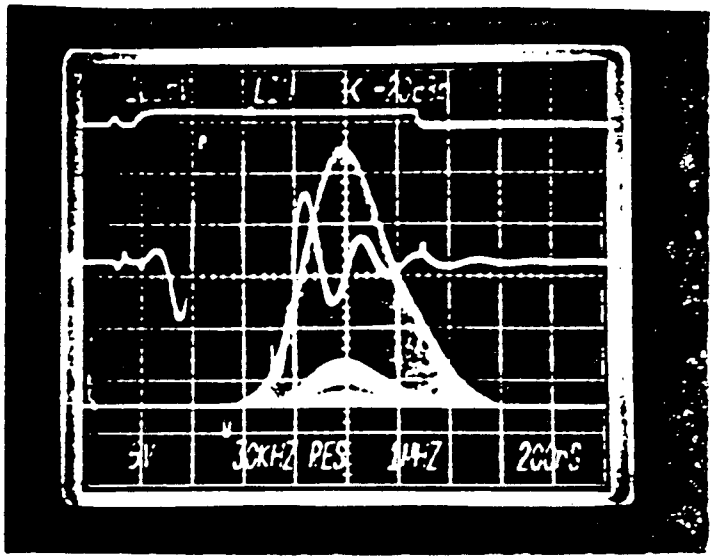
Inspector MK Date 7-21-83

A B

TRACE I

TRACE II

TRACE III



C D E F

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a 1.0" flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 db) on the CRT. With the vertical calibration of trace II fixed at 100 millivolts per division, the amount of attenutation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for trace I is the same as that for trace II. The portion of trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

MODEL# - 113-244-590 MSWQC

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

Aerotech

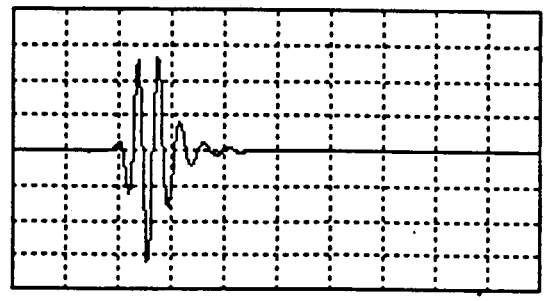
Transducer Certification

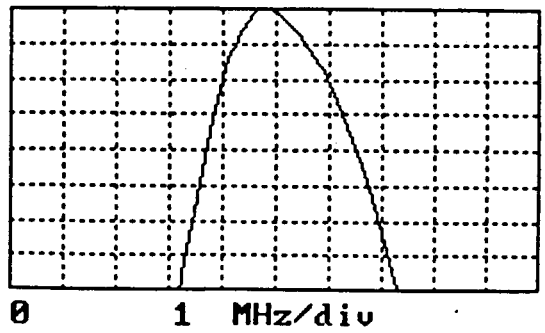
DATE: 02-09-1989
MODEL 113-244-590
SERIES: GAMMA STYLE: MSWQC
SERIAL #80437
DIAMETER: .50 in. CONNECTOR: MD
NOMINAL FREQUENCY: 5 MHz

TEST SETUP--
TEST BLOCK THICKNESS: 1.000 MATERIAL: PLEX
ENERGY SETTING: 2
IMPEDANCE SETTING: 50 OHMS

TEST DATA--
PEAK FREQUENCY: 4.79 MHz
RELATIVE SENSITIVITY: 27 dB
INSPECTOR: S.DIVEN

EQUIPMENT USED:
UTA-4 (S/N 103 CAL THRU 10-89)
TEK 2430 SCOPE (S/N B012909 CAL THRU 10-89)
TEK PEP301 CONTROLLER
PROCEDURE: WAVEFORM SHOWN IS THE FIRST RETURN ECHO FROM THE INDICATED TARGET





Krautkramer Branson
P.O. Box 350, Lewistown, PA 17044
(717) 242-0327 Fax: 717-242-2606

Transducer Description

Series GAMMA

Frequency 5.0 MHz Size .50

Serial No. 80093

Contact ☐ Immersion ☒ Nonfocused
Water Path ☐ Spherical
_____ ☐ Cylindrical

Style MSWQC Connector MP

Relative Sensitivity 24 DB

Energy Setting 2 Impedance 50Ω

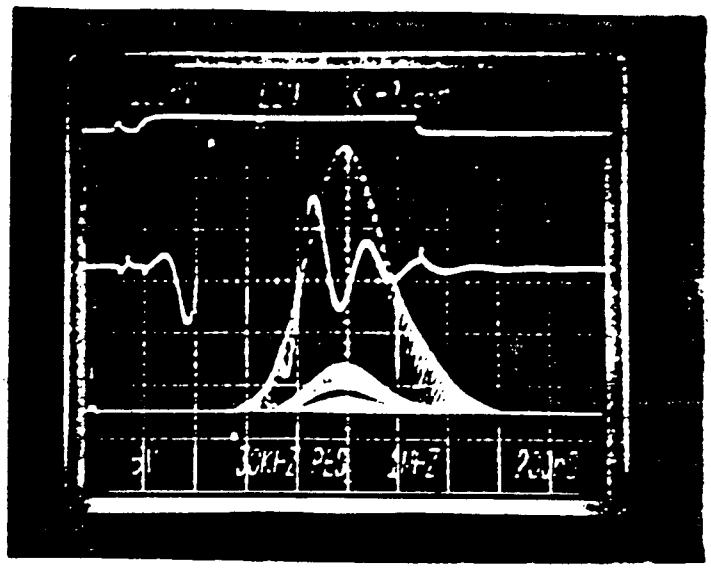
Inspector MK Date 7-21-83

A B 32

TRACE I

TRACE II

TRACE III



C D E F

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a 1.0" flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (+ 1 db) on the CRT. With the vertical calibration of trace II fixed at 100 millivolts per division, the amount of attenutation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for trace I is the same as that for trace II. The portion of trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

MODEL# 113-244-590 MSWQC.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

TRANSDUCER CERTIFICATION

Transducer Description

Series GAMMA S/N B03664

Frequency 2.25 MHz Size .50

Style DUFP Connector BNC

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path NA ☐ Spherical

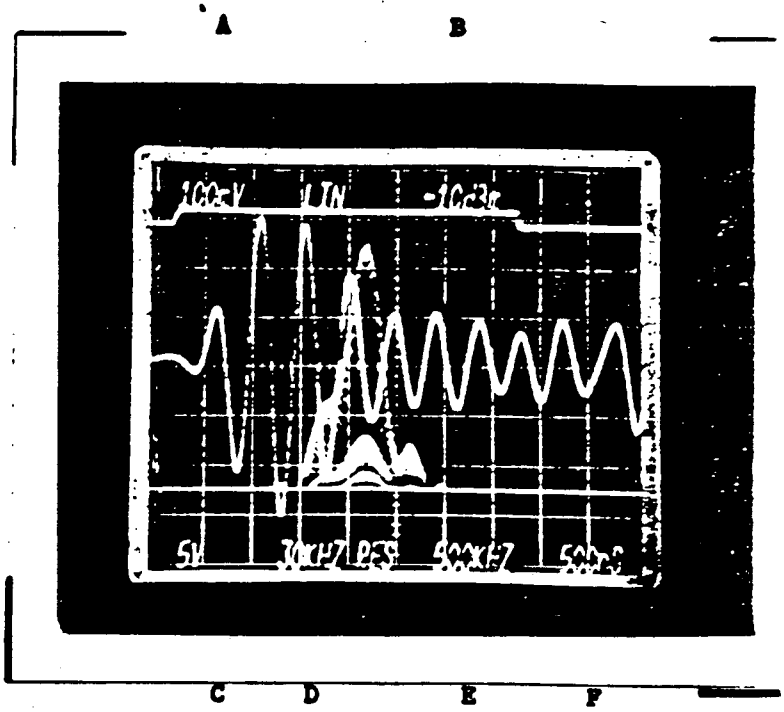
Target .50" STEEL ☐ Cylindrical

Relative Sensitivity 25 dB

Energy Setting 2 Impedance 50

☑ Peak or ☐ Center Frequency 2.175 MHz

Inspector SCD Date 2·26·86



Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Dual contact transducers are tested on a flat polymer block unless otherwise specified. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 dB) on the CRT. With the vertical calibration of Trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for Trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for Trace I is the same as that for Trace II. The portion of Trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for Trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

TRANSDUCER CERTIFICATION

Transducer Description

Series GAMMA HP S/N C03626

Frequency 5.0 MHz Size .375

Style F Connector MO

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path N/A ☐ Spherical

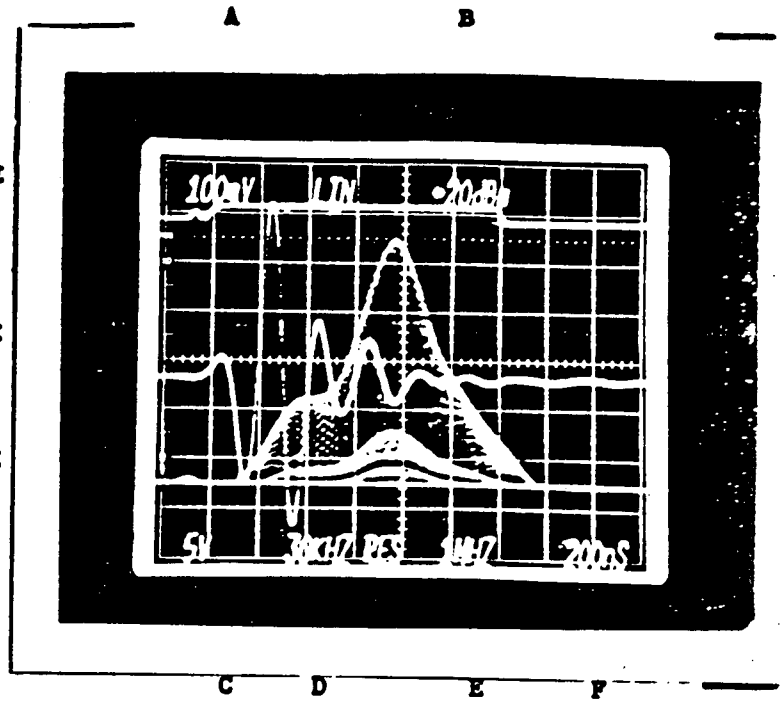
Target 3.0" STEEL ☐ Cylindrical

Relative Sensitivity 62 dB

Energy Setting 4 Impedance 250

☑ Peak or ☐ Center Frequency 4.8 MHz

Inspector SCD Date 3-4-86



Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Dual contact transducers are tested on a flat polymer block unless otherwise specified. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 dB) on the CRT. With the vertical calibration of Trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for Trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for Trace I is the same as that for Trace II. The portion of Trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for Trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

TRANSDUCER CERTIFICATION

Transducer Description

Series GAMMA S/N D16578

ency 5.0 MHz Size .50

Style F Connector MB

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path N/A ☐ Spherical

Target .3" STEEL ☐ Cylindrical

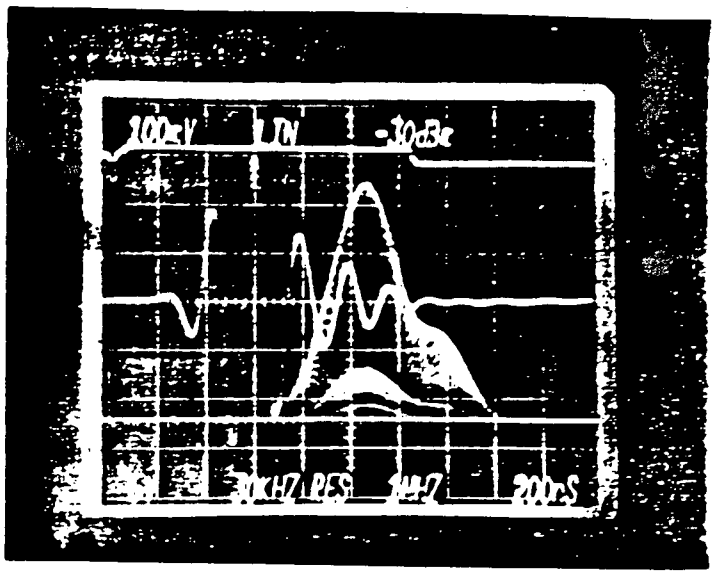
Relative Sensitivity 64 dB

Energy Setting 4 Impedance 250

☑ Peak or ☐ Center Frequency 5.3 MHz

Inspector SCD Date 1-29-86

A B



TRACE I

TRACE II

TRACE III

C D E F

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Dual contact transducers are tested on a flat polymer block unless otherwise specified. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 dB) on the CRT. With the vertical calibration of Trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for Trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for Trace I is the same as that for Trace II. The portion of Trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for Trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

Transducer Description

Series Gamma

equency 2.25 MHz.

ement dimensions .25 in.

Style - Connector type

Msws - MB

Focal Type: Nonfocused
Spherical
Cylindrical

~~Water Path~~ 1" plex

Serial Number F23235

Relative sensitivity rating

27 db

Inspector SG

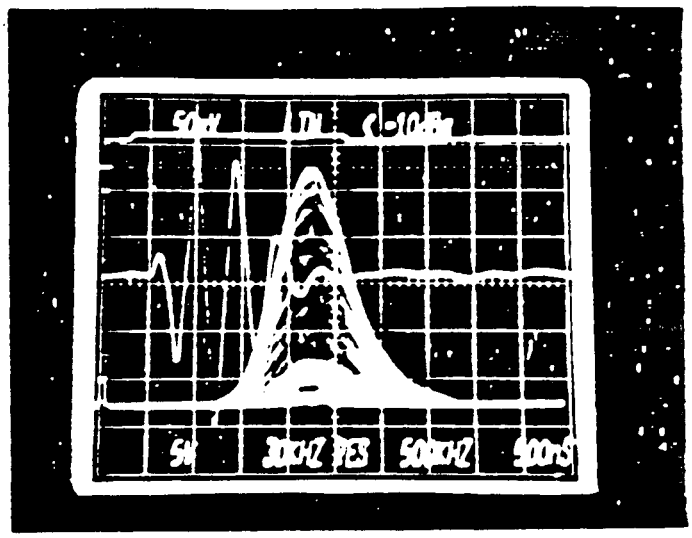
Date 6/29/82

A B

TRACE I

TRACE II

TRACE III



C D E F

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a flat steel plate, while epoxy-faced shear wave transducers are tested on a flat polymer block. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over flat steel plate using a water path as specified above. Focused immersion transducers e tested the same as nonfocused transducers except that the water path used is equal the actual focal length.

Using a KB-AEROTECH Ultrasonic Transducer Analyzer, Model UTA-3, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-3 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-3 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 db) on the CRT. With the vertical calibration of trace II fixed at 50 millivolts per division, the amount of attenutation used provides a relative sensitivity rating for all transducers certified by KB-AEROTECH.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for trace I is the same as that for trace II. The portion of trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KB-AEROTECH
Transducer Technology Center
P.O. Box 350
Lewistown, PA 17044

TRANSDUCER CERTIFICATION

Transducer Description

[illegible]es Gamma S/N 617508

[illegible]ncy 10 MHz Size 10

Style TS Connector BNC

☐ Contact ☑ Immersion ☑ Nonfocused

Water Path 3" ☐ Spherical

Target 1" steel ☐ Cylindrical

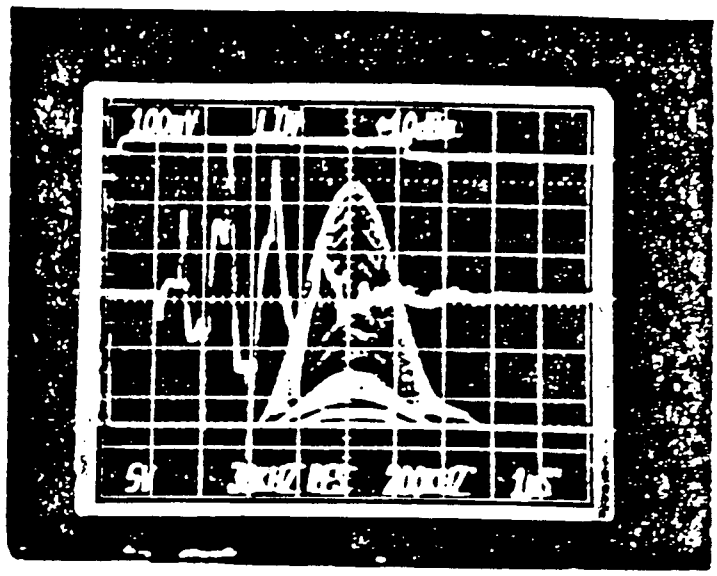
Relative Sensitivity 38 dB

Energy Setting 2 Impedance 50

☑ Peak or ☐ Center Frequency 1.02 MHz

Inspector SCD Date 7-17-85

A B



C D E F

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a [illegible] steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer [illegible] Dual contact transducers are tested on a flat polymer block unless otherwise [illegible]ied. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 dB) on the CRT. With the vertical calibration of Trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for Trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for Trace I is the same as that for Trace II. The portion of Trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

[illegible]creen writing figure E provides the horizontal calibration for Trace III. Figures B and [illegible] the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

Transducer Description

Series GAMMA

Frequency 50 MHz Size .50

Serial No. G20209

Contact ☐ Immersion ☒ Nonfocused
Water Path ☐ Spherical
_____ ☐ Cylindrical

Style F Connector MD

Relative Sensitivity 60 DB

Energy Setting 2 Impedance 50Ω

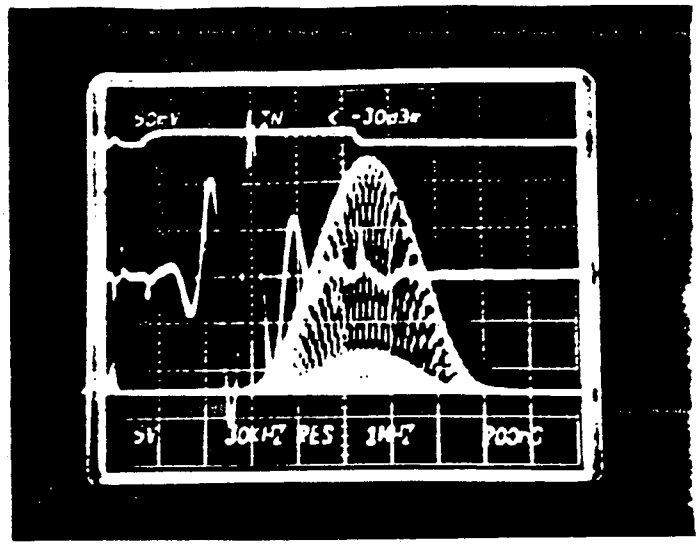
Inspector MK Date 8-3-83

A B

TRACE I

TRACE II

TRACE III



C D E F

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a 1.0" flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 db) on the CRT. With the vertical calibration of trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for trace I is the same as that for trace II. The portion of trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON MODEL# 113-244-000 TRG
P. O. Box 350
Lewistown, PA 17044

Transducer Description

Series GAMMA

Frequency 2.25 MHz Size 1.0"

Serial No. H04313

☒ Contact ☐ Immersion ☒ Nonfocused
Water Path ☐ Spherical
1" Steel ☐ Cylindrical

Style CR Connector BNC

Relative Sensitivity 50 DB

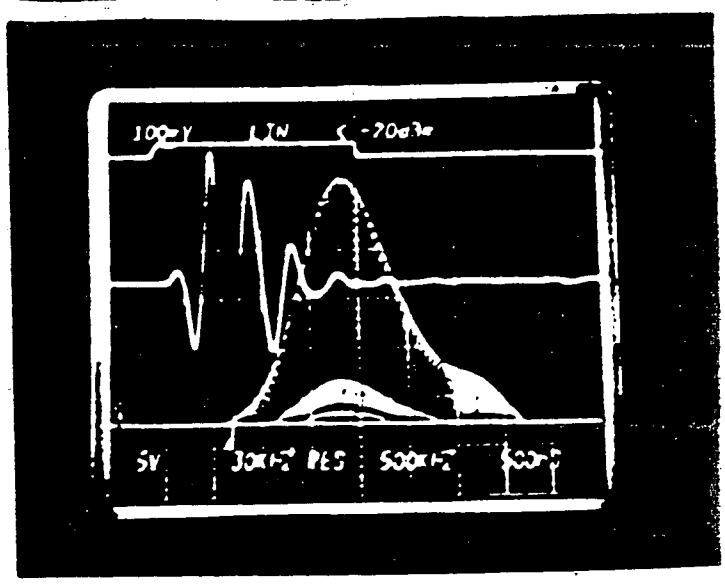
Energy Setting 2 Impedance 50Ω

Inspector MK Date 8-29-83

TRACE I

TRACE II

TRACE III



C D E F

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a 1.0" flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 db) on the CRT. With the vertical calibration of trace II fixed at 100 millivolts per division, the amount of attenutation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for trace I is the same as that for trace II. The portion of trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

TRANSDUCER CERTIFICATION

Transducer Description

[illegible]es GAMMA S/N K18421

[illegible]ncy 5.0 MHz Size .25

Style DUFP Connector BNC

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path NA ☐ Spherical

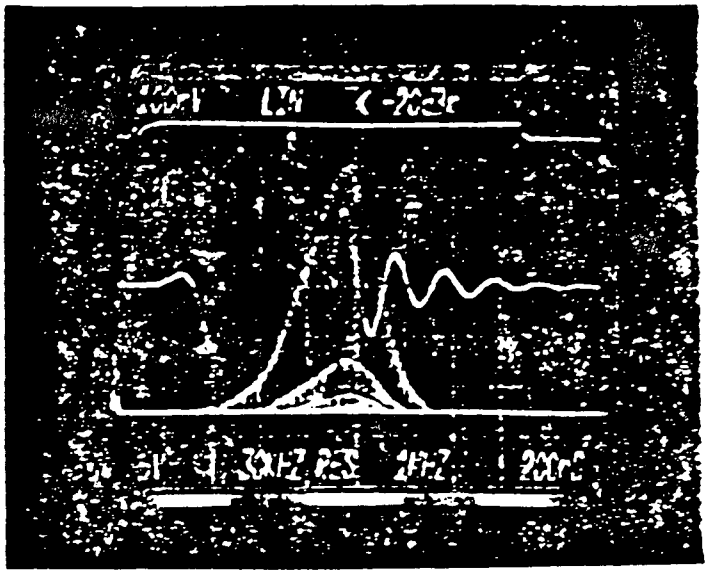
Target 1" Steel ☐ Cylindrical

Relative Sensitivity 12 dB

Energy Setting 2 Impedance 50

☑ Peak or ☐ Center Frequency 4.8 MHz

Inspector SCD Date 10-19-84



Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector [illegible]cted with respect to transducer type. All contact (wearplate) transducers are tested on a [illegible] steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer [illegible] Dual contact transducers are tested on a flat polymer block unless otherwise sp[illegible]ied. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 dB) on the CRT. With the vertical calibration of Trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for Trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for Trace I is the same as that for Trace II. The portion of Trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

[illegible]creen writing figure E provides the horizontal calibration for Trace III. Figures B and [illegible] the spectrum analyzer's attenuator and resolution settings respectively.

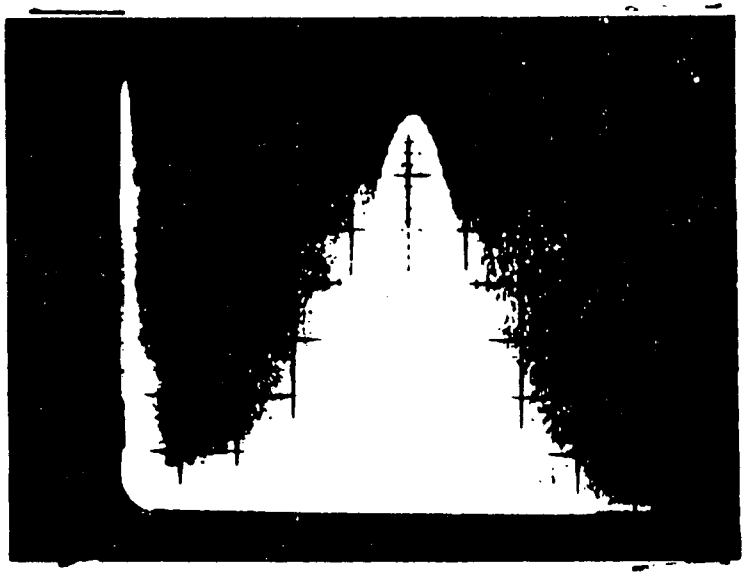
KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

FREQUENCY SPECTRUM & REAL TIME WAVE FORM

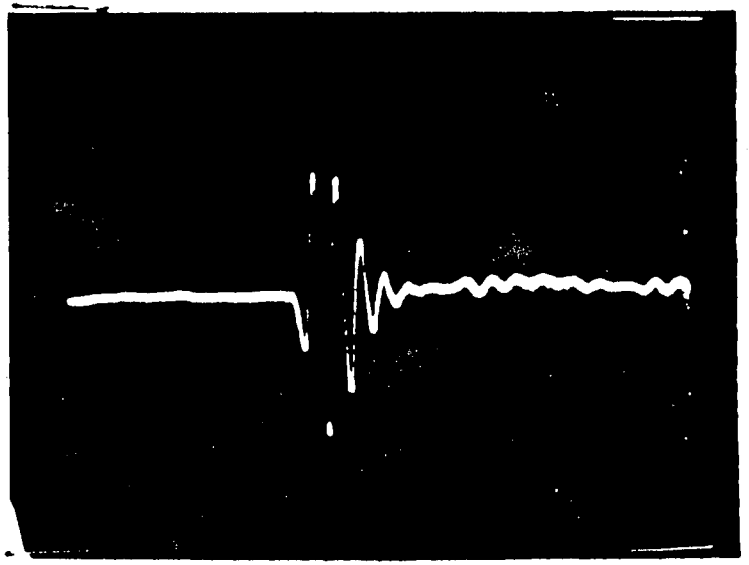
PART NO. 57A9419 SERIAL NO. L83003 DATE 12/5/83 INSP. B.V. FREQ. 2.25 MHZ SIZE 1.0 x 3/8"

UA MODEL 5052UA
REP. RATE 1K
DAMPING 500Ω
ENERGY 4
RVCR ATTN (DB) 20
GAIN 40 DB
H.P. FILTER 1.0

RECIEVED SPECTRUM
from .500" STEEL BALL @ 6.0" WATERPATH
CENTER FREQUENCY 2.5 MHZ DISPERSION .5 MHZ/cm



REAL TIME WAVE FORM
from .500" STEEL BALL @ 6.0" WATERPATH
DAMPING FACTOR 3.5 1ms per. DIV.



AUTOMATION INDUSTRIES, INC.
DIVISION

Q.C. FORM 212
REVISED 12/8

TRANSDUCER CERTIFICATION

Transducer Description

Series GAMMA S/N 031238

Frequency 2.25 MHz Size .375

Model MSWQC Connector MD

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path WA ☐ Spherical

Target 1.0" PLEX ☐ Cylindrical

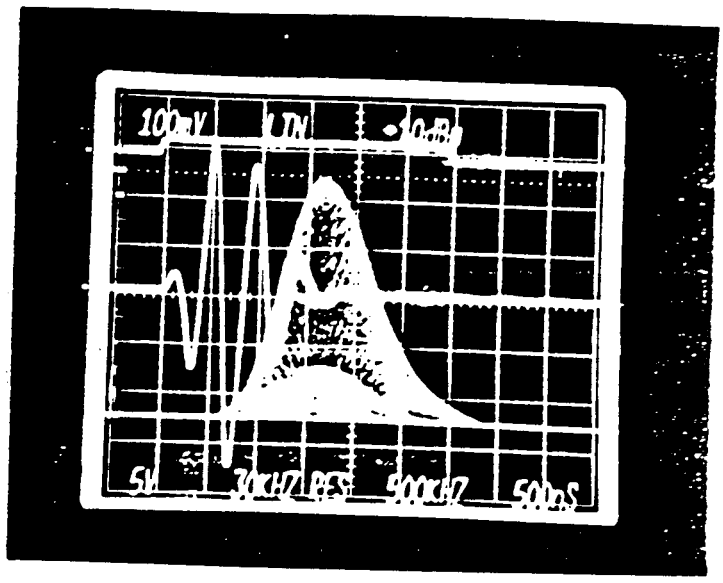
Relative Sensitivity 35 dB

Energy Setting 2 Impedance 50

☑ Peak or ☐ Center Frequency 2.15 MHz

Inspector SCD Date 2-26-86

A B



TRACE I

TRACE II

TRACE III

C D E F

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Dual contact transducers are tested on a flat polymer block unless otherwise specified. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 dB) on the CRT. With the vertical calibration of Trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for Trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for Trace I is the same as that for Trace II. The portion of Trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for Trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

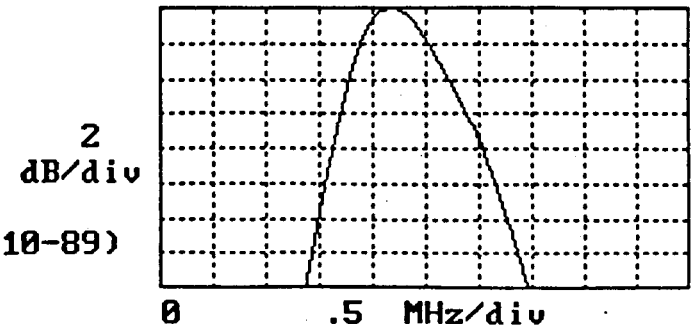
Aerotech

Transducer Certification

DATE: 02-09-1989
MODEL 113-242-590
SERIES: GAMMA STYLE: MSWQC
SERIAL #41775
DIAMETER: .50 in. CONNECTOR: MD
NOMINAL FREQUENCY: 2.25 MHz

TEST SETUP--
TEST BLOCK THICKNESS: 1.000 MATERIAL: PLEX
ENERGY SETTING: 2
IMPEDANCE SETTING: 50 OHMS

TEST DATA--
PEAK FREQUENCY: 2.20 MHz
RELATIVE SENSITIVITY: 38 dB
INSPECTOR: S.DIVEN



EQUIPMENT USED:
UTA-4 (S/N 103 CAL THRU 10-89)
TEK 2430 SCOPE (S/N B012909 CAL THRU 10-89)
TEK PEP301 CONTROLLER
PROCEDURE: WAVEFORM SHOWN IS THE FIRST RETURN ECHO FROM THE INDICATED TARGET

Krautkramer Branson
P.O. Box 350, Lewistown, PA 17044
(717) 242-0327 Fax: 717-242-2606

PANAMETRICS 221 CRESCENT STREET, WALTHAM MASSACHUSETTS 02154 / 617 899 2719 TELEX 923406

CONTACT TRANSDUCER ANALYSIS

Part No. A105S. Serial No. P44257. Frequency 2.25 MHz

Size: 0.75" diameter; _____" by _____". Cable: RG- 58/, length 4 ft.

Echo from back surface of: 1.0" thick fused silica.
_____" thick lucite.
_____" thick polystyrene.
_____"

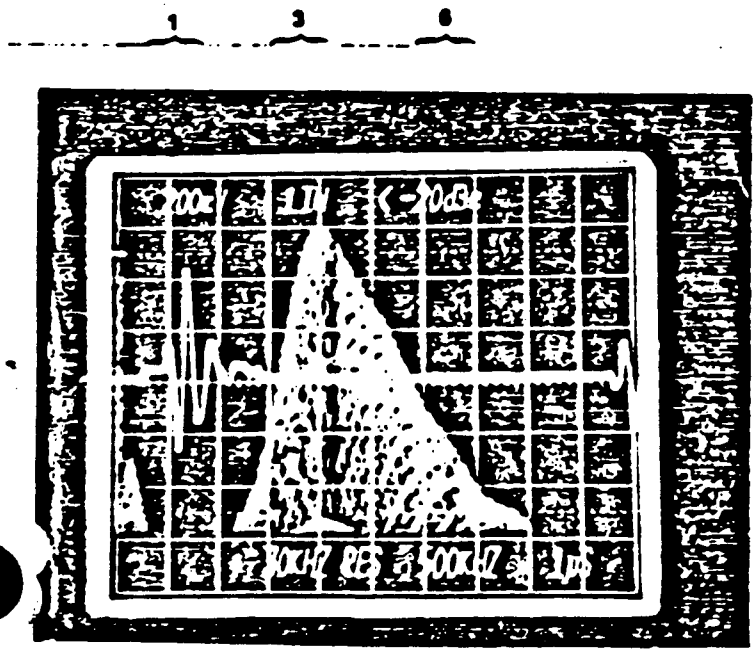
TEST INSTRUMENTATION

___ Panametrics 5052(PR,G) Pulser and Gate # ___

___ Panametrics 5052UA or 5030A # ___

Tektronix	7704A	Oscilloscope System
with	7A26	Dual Trace Amplifier 2 ea
	7B53A	Dual Time Base 3
	7L12	Spectrum Analyzer

Center frequency is determined by multiplying the horizontal scan width (4) by the number of divisions to the spectrum peak.



Waveform

Pulser Receiver Settings:

Energy Setting 1.

Receiver Attenuation 58 dB.

Receiver Damping 100 ohms.

Oscilloscope Settings:

1-Vertical Sensitivity/div.

2- Horizontal Sweep Rate/div.

3-Scale Format.

Spectrum Analysis

Oscilloscope Settings:

4-Horizontal Scan Width/div.

5-Resolution.

6-Input Attenuation.

Technician R Mattia

Date 2/2/81

PANAMETRICS 221 CRESCENT STREET, WALTHAM MASSACHUSETTS 02154 / 617 899 2719 TELEX 923406

CONTACT TRANSDUCER ANALYSIS

Part No. A106 S. Serial No. 847184. Frequency 2.25 MHz

Size: .50" diameter: ——" by ——". Cable: RG-174/U length 4 ft.

Echo from back surface of: 1.0" thick fused silica.
——" thick lucite.
——" thick polystyrene.
——"

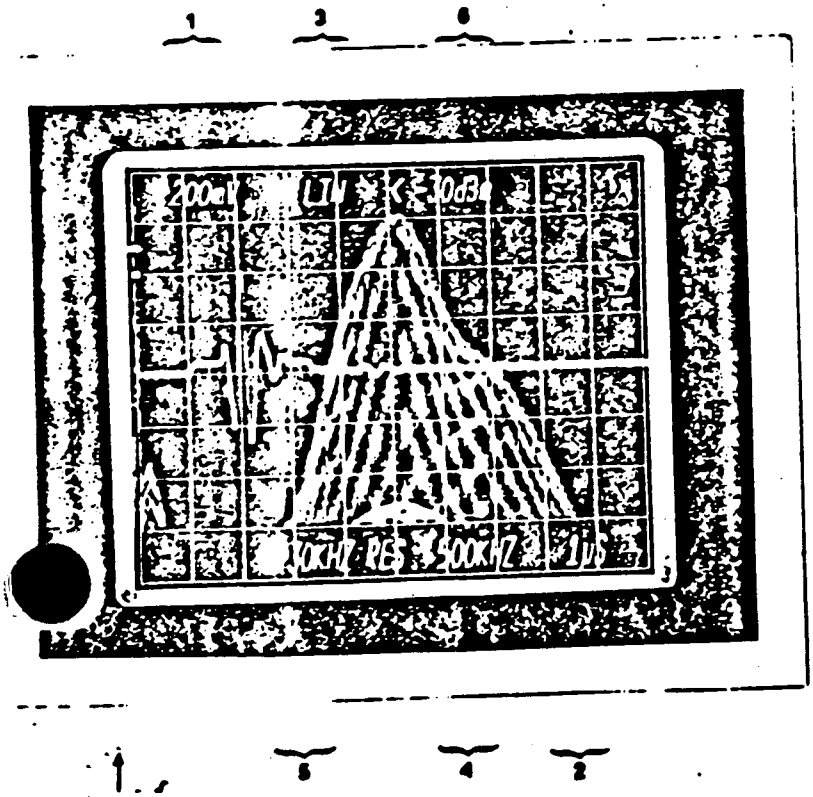
TEST INSTRUMENTATION

___ Panametrics 5052(PR,G) Pulser and Gate # ___

✓ Panametrics 5052UA or 5030A # 3

Tektronix	7704A	Oscilloscope System
with	7A26	Dual Trace Amplifier
	7B53A	Dual Time Base
	7L12	Spectrum Analyzer

Center frequency is determined by multiplying the horizontal scan width (4) by the number of divisions to the spectrum peak.



Waveform

Pulser Receiver Settings:

Energy Setting 1.

Receiver Attenuation 56 dB.

Receiver Damping 100 ohms.

Oscilloscope Settings:

1-Vertical Sensitivity/div.

2- Horizontal Sweep Rate/div.

Spectrum Analysis

3-Scale Format.

4-Horizontal Scan Width/div.

5-Resolution.

6-Input Attenuation.

Technician [signature]

Date 5/11/81

Transducer Description

Series GAMMA

Frequency 2.25 MHz Size .75"

Serial No. C29343

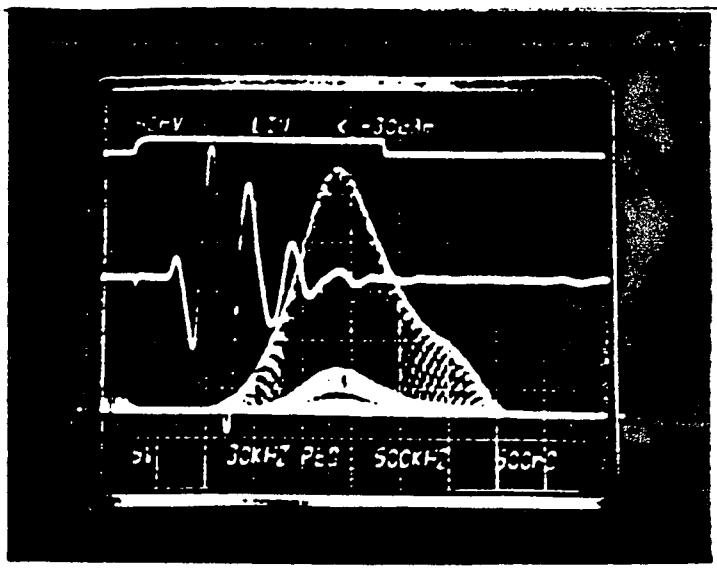
Contact ☐ Immersion ☒ Nonfocused
Water Path ☐ Spherical
_____ ☐ Cylindrical

Style CR Connector BNC

Relative Sensitivity 48 DB

Energy Setting 2 Impedance 50Ω

Inspector MK Date 8-3-83



Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a 1.0" flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 db) on the CRT. With the vertical calibration of trace II fixed at 100 millivolts per division, the amount of attenuation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for trace I is the same as that for trace II. The portion of trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON MODEL# - 113-252-040 TRG
P. O. Box 350
Lewistown, PA 17044

Transducer Description

Series GAMMA

Frequency 5.0 MHz Size .375

Serial No. F16320

☒ Contact ☐ Immersion ☒ Nonfocused
Water Path ☐ Spherical
_____ ☐ Cylindrical

Style F Connector MIN

Relative Sensitivity 58 DB

Energy Setting 2 Impedance 50Ω

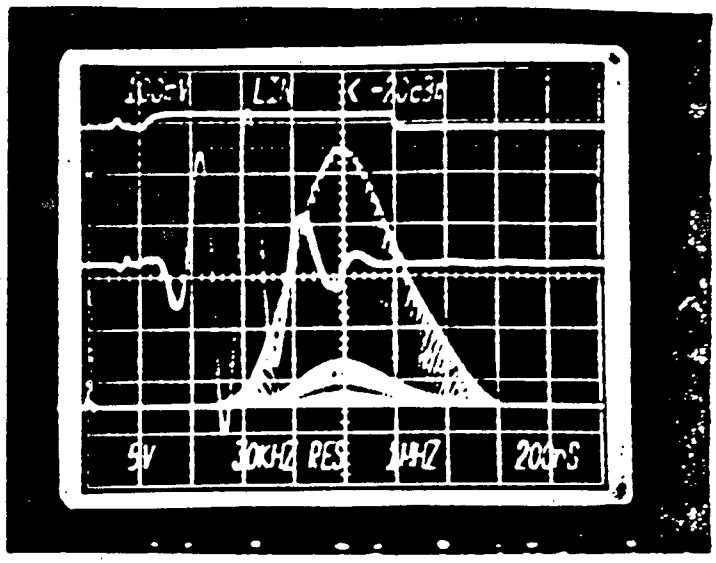
Inspector MK Date 7-21-83

A B

TRACE I

TRACE II

TRACE III



C D E F

Testing Procedure

The real time waveform shown in the photo above is the first return echo from a reflector selected with respect to transducer type. All contact (wearplate) transducers are tested on a 1.0" flat steel (4340) plate while epoxy-faced shear wave transducers are tested on a flat polymer block. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the delay line. Nonfocused immersion transducers are tested in water over a flat steel plate using a water path as specified above. Focused immersion transducers are tested the same as nonfocused transducers except that the water path used is equal to the actual focal length.

Using an AEROTECH Ultrasonic Transducer Analyzer, Model UTA-4, and a Tektronix 7L12 frequency spectrum analyzer in a 7704A Mainframe, the real time waveform, UTA-4 gate signal, and the frequency spectrum of the gated signal are simultaneously displayed and photographed. Using the linear attenuator in the UTA-4 receiver, the amplitude of the real time waveform is adjusted to a six centimeter amplitude (± 1 db) on the CRT. With the vertical calibration of trace II fixed at 100 millivolts per division, the amount of attenutation used provides a relative sensitivity rating for all transducers certified by Krautkramer Branson.

Real Time Waveform - Trace II

Screen writing figures A and F provide the vertical and horizontal screen calibration respectively for trace II.

Gate Marker - Trace I

Screen writing figure C provides the vertical amplitude of the gate marker and is an inconsequential figure. The horizontal calibration for trace I is the same as that for trace II. The portion of trace II that falls within the gate time period is the signal fed to the frequency spectrum analyzer.

Frequency Spectrum - Trace III

Screen writing figure E provides the horizontal calibration for trace III. Figures B and D show the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

Model 113-234-000-TRG

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
1989
ULTRASONIC EQUIPMENT
(INSTRUMENTS)

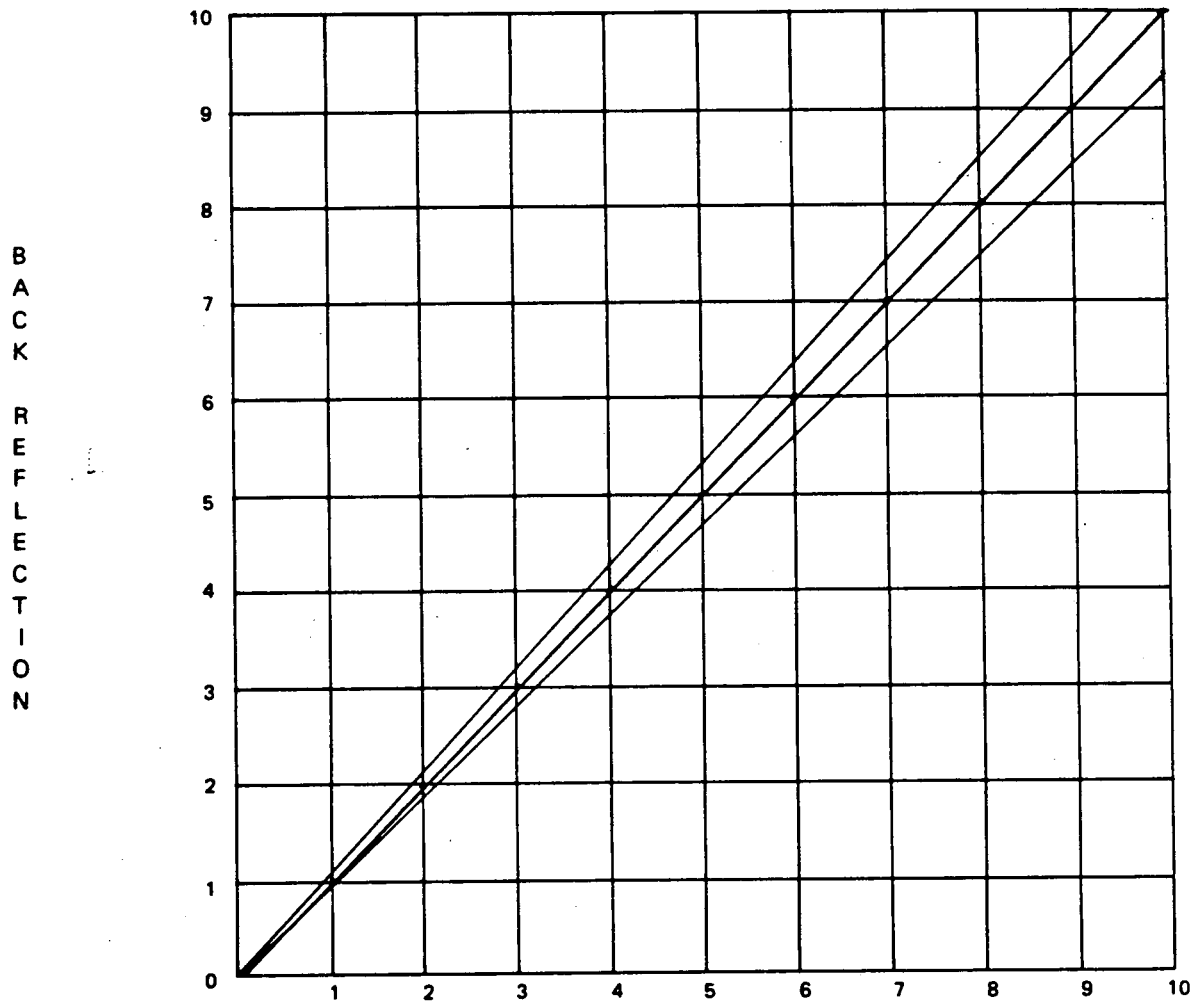
PLANT H.B.ROBINSON UNIT II YEAR 1988/1989

INSTRUMENT NO.	MANUFACTURER	MODEL	SERIAL NO.
1	SONIC	MARK I	06210E
2	SONIC	MARK I	08018E
3	SONIC	MARK I	08078E
4	SONIC	MARK I	08079E
5	SONIC	MARK I	11226E

FORM 49215

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 06210E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.50" FREQ. 2.25 MHz S/N P47184

TEST PERFORMED BY Gary M. Ackerman II REVIEWED BY [illegible] II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII [illegible]
DATE 11-22-88

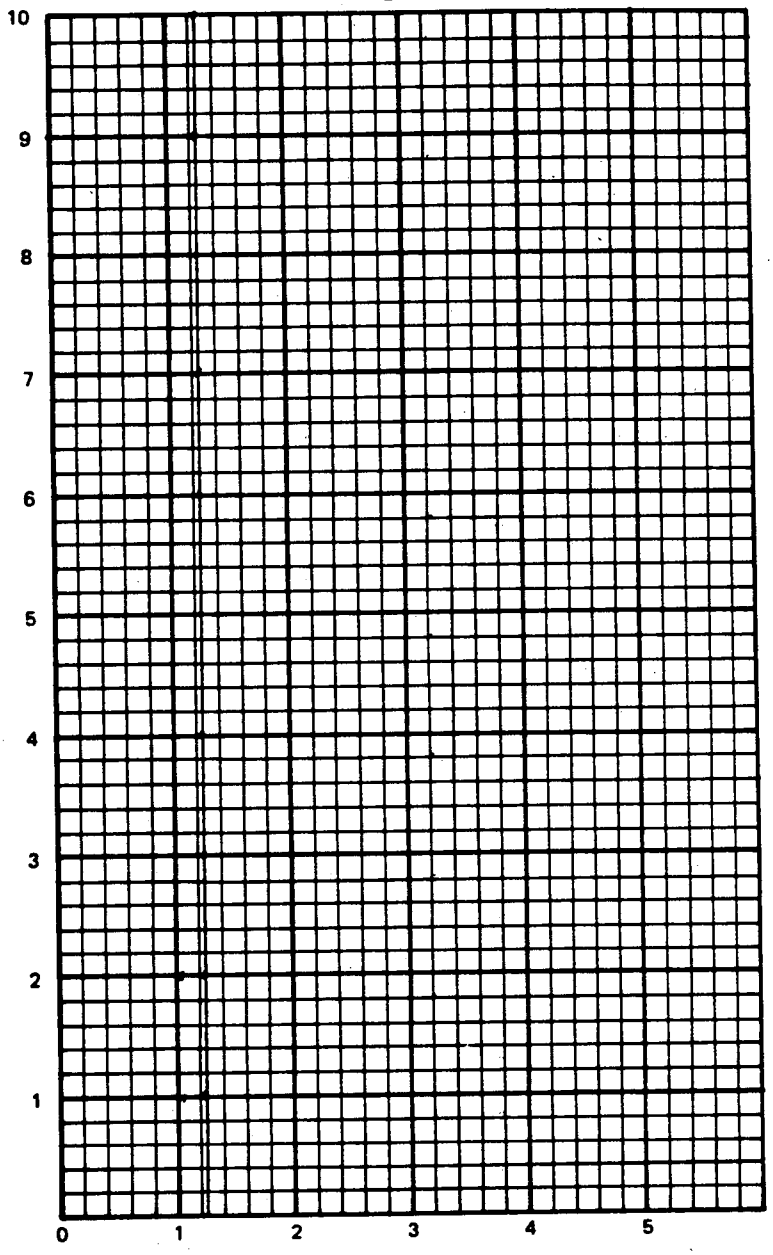
Richard B. Weber 11/20/88
[illegible] 11/21/88

F49006

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY

"A"		"B"
7.7	10	1.29
6.9	9	1.30
6.1	8	1.31
5.4	7	1.29
4.6	6	1.30
3.8	5	1.31
3.0	4	1.33
2.4	3	1.25
1.5	2	1.33
.8	1	1.25
9	8	8 ÷ 9



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 06210E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.50" DIA. FREQ. 2.25 MHZ S/N P47184

TEST PERFORMED BY Harry M. Ackerman I REVIEWED BY Jos. Hughell II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII
DATE 11-22-88

Richard B. Weber 11/20/88
Jr Blank 11/21/88

F49004

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp.	51	50	50	51	50	50	51	50	50	50

dB	22	24	26	28	30	32	34	36	38	40
Amp.	49	50	50	51	50	50	50	50	51	50

dB	42	44	46	48	50	52	54	56	58	60
Amp.	50	51	51	50	51	50	51	51	51	51

INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 06210E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.50" DIA. FREQ. 2.25 MHz S/N P47184

TEST PERFORMED BY Harry M. Ackerman II REVIEWED BY [illegible]

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11/21/88

F49005

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 11-15-88

EXAMINER Paul J. Kovallo II LEVEL II PROCEDURE CLP ISI-10 REV.0

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	0.50" DIA.
MODEL	MARK I	FREQ.	2.25 MHZ.
SERIAL NO.	06210E	SERIAL NO.	P47184
COUPLANT	SONOTRACE 40 #8767	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	48 %	44%	40 %	35 %	30 %	25%	20%	15 %	10 %

LIMITS 2ND SIGNAL MUST BE 50% OF 1ST SIGNAL, WITHIN 5% FSH

AMPLITUDE CONTROL LINEARITY VERIFICATION

ORIGINAL SIGNAL AMPLITUDE	DB CONTROL CHANGE	SIGNAL AMPLITUDE	SIGNAL AMPLITUDE LIMITS
80% FSH	-6DB	40 %	32% - 48%
80% FSH	-12DB	20 %	16% - 24%
40% FSH	+6DB	80 %	64% - 96%
20% FSH	+12DB	80 %	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

ANII REVIEW
ANII [signature]
DATE 11-22-88

Richard B. Weber 11/20/88
[signature] 11/21/88

FORM 45951E

NSID/WMSC

APPENDIX B
CALIBRATION REPORT FORM

Instrument No. WEM 02620 Prepared By Richard A. Haines Date 6-17-88

1. SUBMITTING ACTIVITY ISI - BOP
2. BUILDING LOCATION 'K' Bldg
3. TEST INSTRUMENT UT O'scope
4. MANUFACTURE Sonic
5. MODEL NUMBER Mark I
6. SERIAL NUMBER 06210 E

7. REASON FOR SUBMISSION:
   - CALIBRATION [X]
   - OPERATIONAL FAILURE [ ]
   - MODIFICATIONS [ ]
8. DATE OF LAST SERVICING 3-23-88
9. RECAL DATE 12-17-88 CAL CYCLE 6 month

1. PROCEDURE/INSTRUCTIONS PERFORMED WMSC-ISI-001

2. CALIBRATION EXTENT:
   - FULL [X]
   - LIMITED [ ] RANGES (LIMITED) _____

3. CALIBRATION LOCATION:
   - FACILITY [X] FIELD [ ]
   - INSTRUMENT SHOP [ ]

4. TEMPERATURE 72°F
5. RELATIVE HUMIDITY UNKNOWN

1. TEST INSTRUMENT EVIDENCED:
   - GOOD CONDITION [X]
   - SEVERE ENVIRONMENT [ ]
   - PHYSICAL MISHANDLING [ ]
   - AGE AND LONG SERVICE [ ]

2. TEST INSTRUMENT FOUND:
   - WITHIN ACCEPTANCE TOLERANCE [X]
   - OUTSIDE ACCEPTANCE TOLERANCE* [ ]
   - OUTSIDE ADJUSTMENT TOLERANCE* [ ]
   - TOLERANCE UNDETERMINABLE DUE* TO OPERATIONAL FAILURE [ ]

*(IF CHECKED SEE CALIBRATION COORDINATOR)

3. TEST INSTRUMENT RETURNED:
   - WITHIN ACCEPTABLE TOLERANCE [X]
   - WITHIN LIMITED CALIBRATION (RANGES MARKED ON INSTRUMENT) [ ]
4. MAN-HOURS TO ADJUST AND CALIBRATE 4
5. MAN-HOURS TO CLEAN 1
6. MAN-HOURS TO REPAIR _____
7. MAN-HOURS TO MODIFY _____

CALIBRATION OR TEST EQUIPMENT AND STANDARDS USED IN THIS CALIBRATION

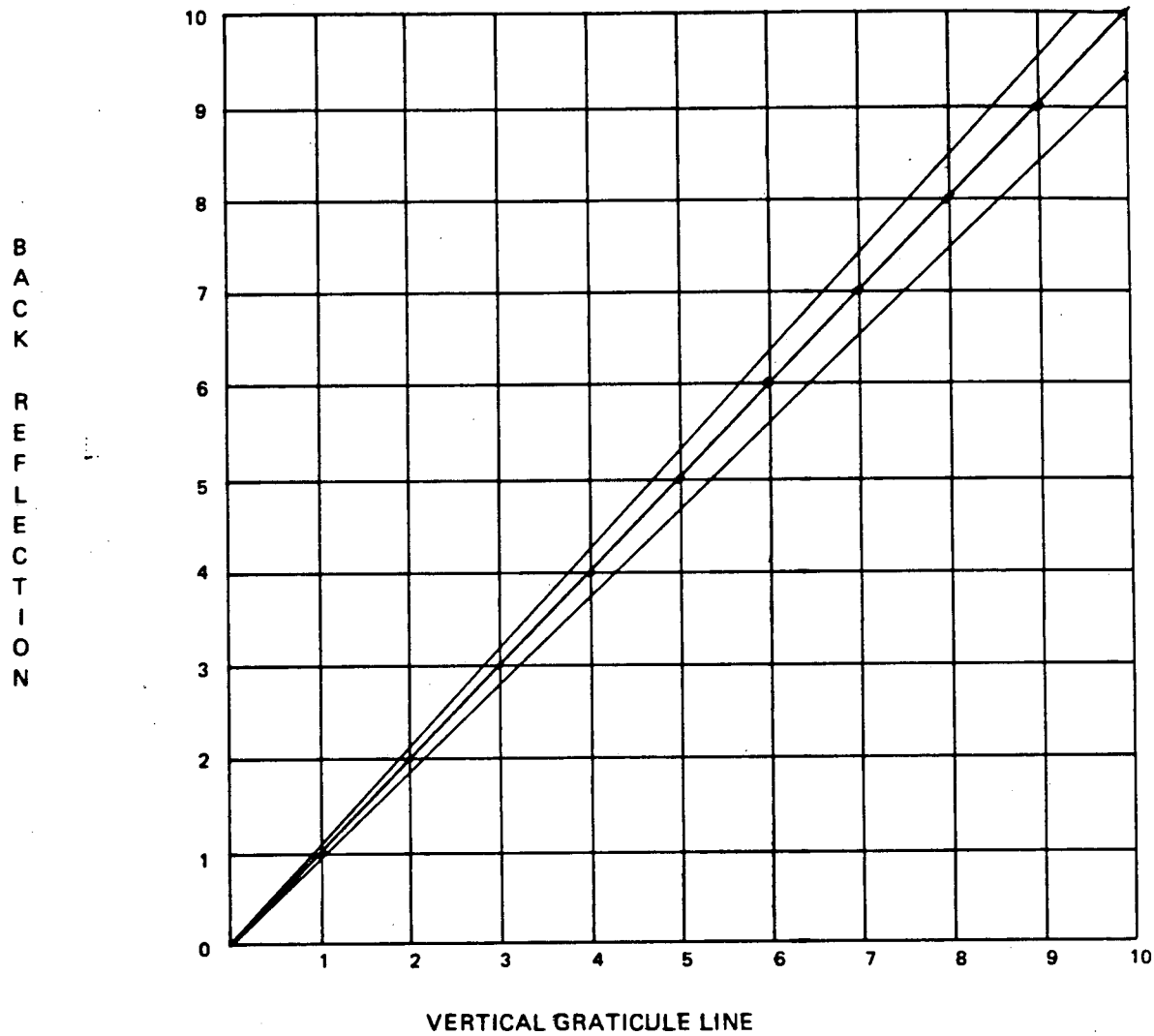
MFGR.	MODEL #	I.D. #	RECALL DATE	MFGR.	MODEL #	I.D. #	RECALL DATE
Hewlett Packard	1741A	WEM 02997	1-25-89				
Fluke	8600A	NSD 0365	1-22-89				

REMARKS

[ ] (SEE REVERSE SIDE IF CHECKED) SIGNATURE _____

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 08018E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.75" DIA FREQ. 2.25 MHZ. S/N P44257

TEST PERFORMED BY [signature] REVIEWED BY [signature]

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII [signature]
DATE 11-22-88

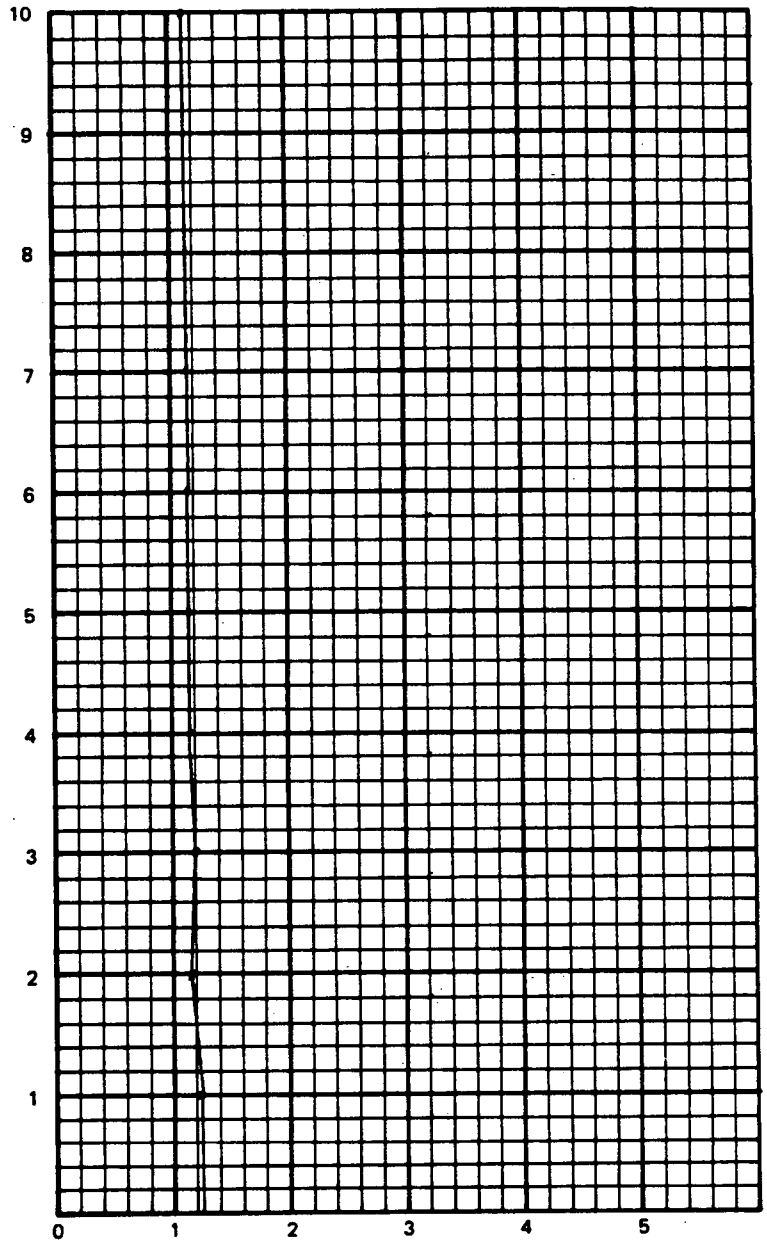
Richard O. Weber 4/20/88
[signature] 11/21/88

F49006

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY

"A"		"B"
8.8	10	1.13
7.9	9	1.13
7.0	8	1.14
6.1	7	1.14
5.2	6	1.15
4.3	5	1.16
3.4	4	1.17
2.5	3	1.20
1.7	2	1.17
.8	1	1.25
9	8	8 ÷ 9



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 08018E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.75" DIA FREQ. 2.25 MHz S/N P44257

TEST PERFORMED BY Robert J Cassat I REVIEWED BY John Klingfield II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII
DATE 11-22-88

Richard B. Weber 11/20/88
J M Black 11/21/88

F49004

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp.	51	51	50	51	51	52	50	50	51	51

dB	22	24	26	28	30	32	34	36	38	40
Amp.	52	50	50	50	50	51	51	51	51	51

dB	42	44	46	48	50	52	54	56	58	60
Amp.	51	50	50	51	51	51	51	51	51	51

INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 08018E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.75" DIA FREQ. 2.25 MHz S/N P44257

TEST PERFORMED BY Robert Clement II REVIEWED BY Jack Blaylock II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII
DATE 11-22-88

Richard B. Weber 11/20/88
J M Black 11/21/88

F49005

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 11-15-88

EXAMINER Paul J. Kovalle II LEVEL II PROCEDURE CPL ISI-10 REV.0

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	0.75" DIA.
MODEL	MARK I	FREQ.	2.25 MHZ.
SERIAL NO.	08018E	SERIAL NO.	P44257
COUPLANT	SONOTRACE 40 #8767	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	49 %	45 %	40 %	35 %	29 %	25 %	19 %	14 %	9 %

LIMITS 2ND SIGNAL MUST BE 50% OF 1ST SIGNAL, WITHIN 5% FSH

AMPLITUDE CONTROL LINEARITY VERIFICATION

ORIGINAL SIGNAL AMPLITUDE	DB CONTROL CHANGE	SIGNAL AMPLITUDE	SIGNAL AMPLITUDE LIMITS
80% FSH	-6DB	39 %	32% - 48%
80% FSH	-12DB	23 %	16% - 24%
40% FSH	+6DB	84 %	64% - 96%
20% FSH	+12DB	73 %	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

ANII REVIEW
ANII [signature]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11/21/88

FORM 45951E

ESSD
7110P:49/052687

NUMBER & REV.
WMSC-ISI-001

APPENDIX B

NSID/WMSC

CALIBRATION REPORT FORM

Instrument No. 080IRE WEM02609 Prepared By KEVIN A. CALL Date 6-21-88

1. SUBMITTING ACTIVITY BOP ISI
2. BUILDING LOCATION RBLDG
3. TEST INSTRUMENT UT OSCOPE
4. MANUFACTURE SONIC
5. MODEL NUMBER MARK I
6. SERIAL NUMBER 080IRE

7. REASON FOR SUBMISSION:
CALIBRATION ☑
OPERATIONAL FAILURE ☐
MODIFICATIONS ☐

CALIBRATED
BY JOK DATE 1-8-88
DUE 7-8-88

8. DATE OF LAST SERVICING 1-8-88
9. RECAL DATE 12-21-88 CAL CYCLE 6 mos

1. PROCEDURE/INSTRUCTIONS PERFORMED WMSC-ISI-001

2. CALIBRATION EXTENT:
FULL ☑
LIMITED ☐ RANGES (LIMITED)

3. CALIBRATION LOCATION:
FACILITY ☑ FIELD ☐
INSTRUMENT SHOP ☐

4. TEMPERATURE 72°F
5. RELATIVE HUMIDITY UNKNOWN

1. TEST INSTRUMENT EVIDENCED:
GOOD CONDITION ☑
SEVERE ENVIRONMENT ☐
PHYSICAL MISHANDLING ☐
AGE AND LONG SERVICE ☐

2. TEST INSTRUMENT FOUND:
WITHIN ACCEPTANCE TOLERANCE ☐
OUTSIDE ACCEPTANCE TOLERANCE* ☑
OUTSIDE ADJUSTMENT TOLERANCE* ☐
TOLERANCE UNDETERMINABLE DUE* TO OPERATIONAL FAILURE ☐

*(IF CHECKED SEE CALIBRATION COORDINATOR)

3. TEST INSTRUMENT RETURNED:
WITHIN ACCEPTABLE TOLERANCE ☑
WITHIN LIMITED CALIBRATION (RANGES MARKED ON INSTRUMENT) ☐

4. MAN-HOURS TO ADJUST AND CALIBRATE 4 HRS
5. MAN-HOURS TO CLEAN
6. MAN-HOURS TO REPAIR
7. MAN-HOURS TO MODIFY

CALIBRATION OR TEST EQUIPMENT AND STANDARDS USED IN THIS CALIBRATION

MFGR.	MODEL #	I.D. #	RECALL DATE	MFGR.	MODEL #	I.D. #	RECALL DATE
HEWLETT PACKARD	1741 A	WEM 02977	1-25-89				
FLUKE	8600 A	WEM 03[illegible]	1-22-89				

REMARKS

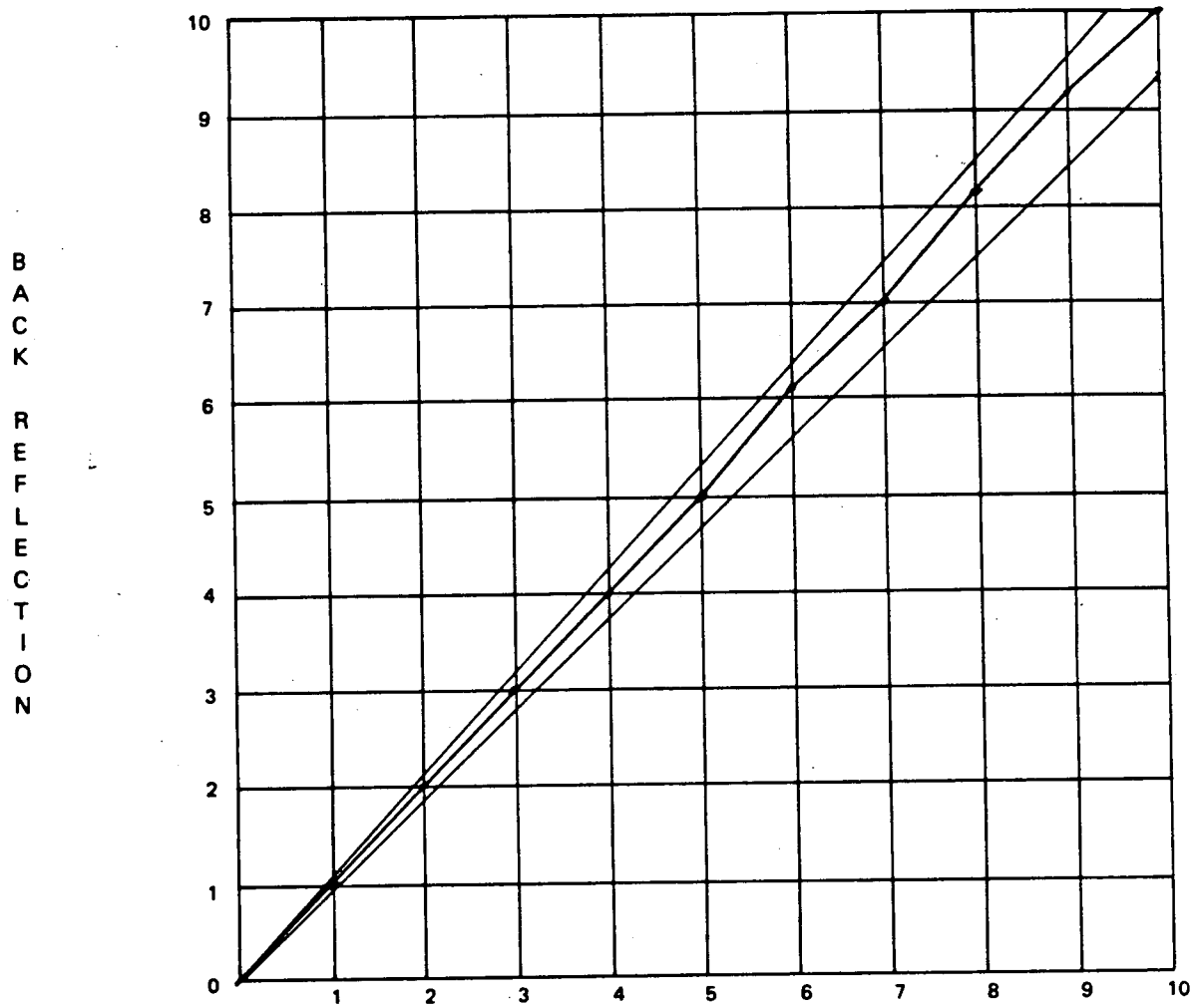
☐ (SEE REVERSE SIDE IF CHECKED) SIGNATURE [illegible]

EFFECTIVE DATE	April 14, 1987	PAGE	28	REVISED DATE

NSID 2053 10-86 wp/01871

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 08078E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.75" DIA. FREQ. 2.25 MHZ S/N P44257

TEST PERFORMED BY Robert J Cassat II REVIEWED BY Jon Blagbell II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII
DATE 11-22-88

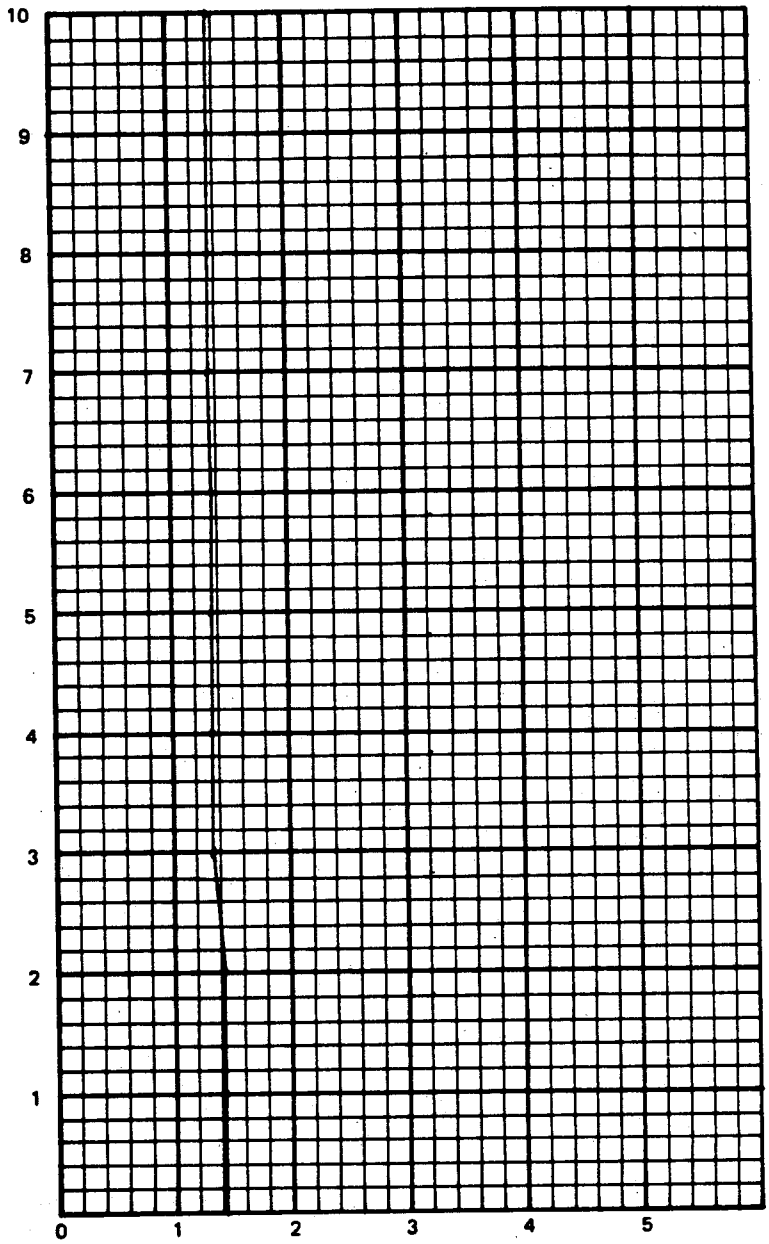
Richard B. Weber 11/20/88
Jon Blagbell 11/21/88

F49006

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY

"A"		"B"
7.2	10	1.38
6.5	9	1.38
5.8	8	1.37
5.1	7	1.37
4.4	6	1.36
3.7	5	1.35
2.9	4	1.37
2.2	3	1.36
1.4	2	1.42
.7	1	1.42
9	8	8 ÷ 9



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 08078E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.75" DIA. FREQ. 2.25 MHz S/N P44257

TEST PERFORMED BY Robert J. Cavanaugh II REVIEWED BY [illegible] II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard O. Weber 11/20/88
[illegible] 11/21/88

F49004

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp.	50	50	50	50	51	51	51	51	50	51

dB	22	24	26	28	30	32	34	36	38	40
Amp.	51	51	50	50	50	50	51	50	50	50

dB	42	44	46	48	50	52	54	56	58	60
Amp.	50	51	51	50	50	51	50	50	50	50

INSTRUMENT: MFR. SONIC MODEL MARK I S/N 08078E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.75" DIA. FREQ. 2.25 MHZ. S/N P44257

TEST PERFORMED BY Robert L Cassert I REVIEWED BY [illegible] II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS: Richard B. Weber 11/20/88
[illegible] 11/21/88

ANII REVIEW
ANII [illegible]
DATE 11-22-88

F49005

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 11-15-88

EXAMINER Paul J. Kovallo II LEVEL II PROCEDURE CPL ISI-10 REV.0

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	0.75" DIA
MODEL	MARK I	FREQ.	2.25 MHz.
SERIAL NO.	08078E	SERIAL NO.	P44257
COUPLANT	SONOTRACE 40 #8767	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	49 %	45 %	40 %	35 %	30 %	25 %	20 %	15 %	10 %

LIMITS 2ND SIGNAL MUST BE 50% OF 1ST SIGNAL, WITHIN 5% FSH

AMPLITUDE CONTROL LINEARITY VERIFICATION

ORIGINAL SIGNAL AMPLITUDE	DB CONTROL CHANGE	SIGNAL AMPLITUDE	SIGNAL AMPLITUDE LIMITS
80% FSH	-6DB	40 %	32% - 48%
80% FSH	-12DB	20 %	16% - 24%
40% FSH	+6DB	78 %	64% - 96%
20% FSH	+12DB	76 %	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

ANII REVIEW
ANII [signature]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11/21/88

FORM 45951E

ESSD
7110P:49/052687

NUMBER & REV.
WMSC-ISI-001

APPENDIX B

NSID/WMSC

CALIBRATION REPORT FORM

Instrument No. WEM 02755 Prepared By Richard A. Haines Date 6-14-88

1. SUBMITTING ACTIVITY ISI-BOP
2. BUILDING LOCATION "R" Bldg.
3. TEST INSTRUMENT UT. O'scope
4. MANUFACTURE Sonic
5. MODEL NUMBER MarK I
6. SERIAL NUMBER 08078E

7. REASON FOR SUBMISSION:
   - CALIBRATION ☑
   - OPERATIONAL FAILURE ☐
   - MODIFICATIONS ☐
8. DATE OF LAST SERVICING 3-18-88
9. RECAL DATE 12-14-88 CAL CYCLE 6 month

1. PROCEDURE/INSTRUCTIONS PERFORMED WMSC-ISI-001 Rev. 0

2. CALIBRATION EXTENT:
   - FULL ☑
   - LIMITED ☐ RANGES (LIMITED) _____

3. CALIBRATION LOCATION:
   - FACILITY ☑ FIELD ☐
   - INSTRUMENT SHOP ☐

4. TEMPERATURE 70°F
5. RELATIVE HUMIDITY Unknown

1. TEST INSTRUMENT EVIDENCED:
   - GOOD CONDITION ☑
   - SEVERE ENVIRONMENT ☐
   - PHYSICAL MISHANDLING ☐
   - AGE AND LONG SERVICE ☐

2. TEST INSTRUMENT FOUND:
   - WITHIN ACCEPTANCE TOLERANCE ☑
   - OUTSIDE ACCEPTANCE TOLERANCE* ☐
   - OUTSIDE ADJUSTMENT TOLERANCE* ☐
   - TOLERANCE UNDETERMINABLE DUE* TO OPERATIONAL FAILURE ☐

*(IF CHECKED SEE CALIBRATION COORDINATOR)

3. TEST INSTRUMENT RETURNED:
   - WITHIN ACCEPTABLE TOLERANCE ☑
   - WITHIN LIMITED CALIBRATION (RANGES MARKED ON INSTRUMENT) ☐
4. MAN-HOURS TO ADJUST AND CALIBRATE 4
5. MAN-HOURS TO CLEAN _____
6. MAN-HOURS TO REPAIR _____
7. MAN-HOURS TO MODIFY _____

CALIBRATION OR TEST EQUIPMENT AND STANDARDS USED IN THIS CALIBRATION

MFGR.	MODEL #	I.D. #	RECALL DATE	MFGR.	MODEL #	I.D. #	RECALL DATE
Hewlett Packard	1741A	WEM 02997	1-25-89				
Fluke	8600A	NSD 0365	1-22-89				

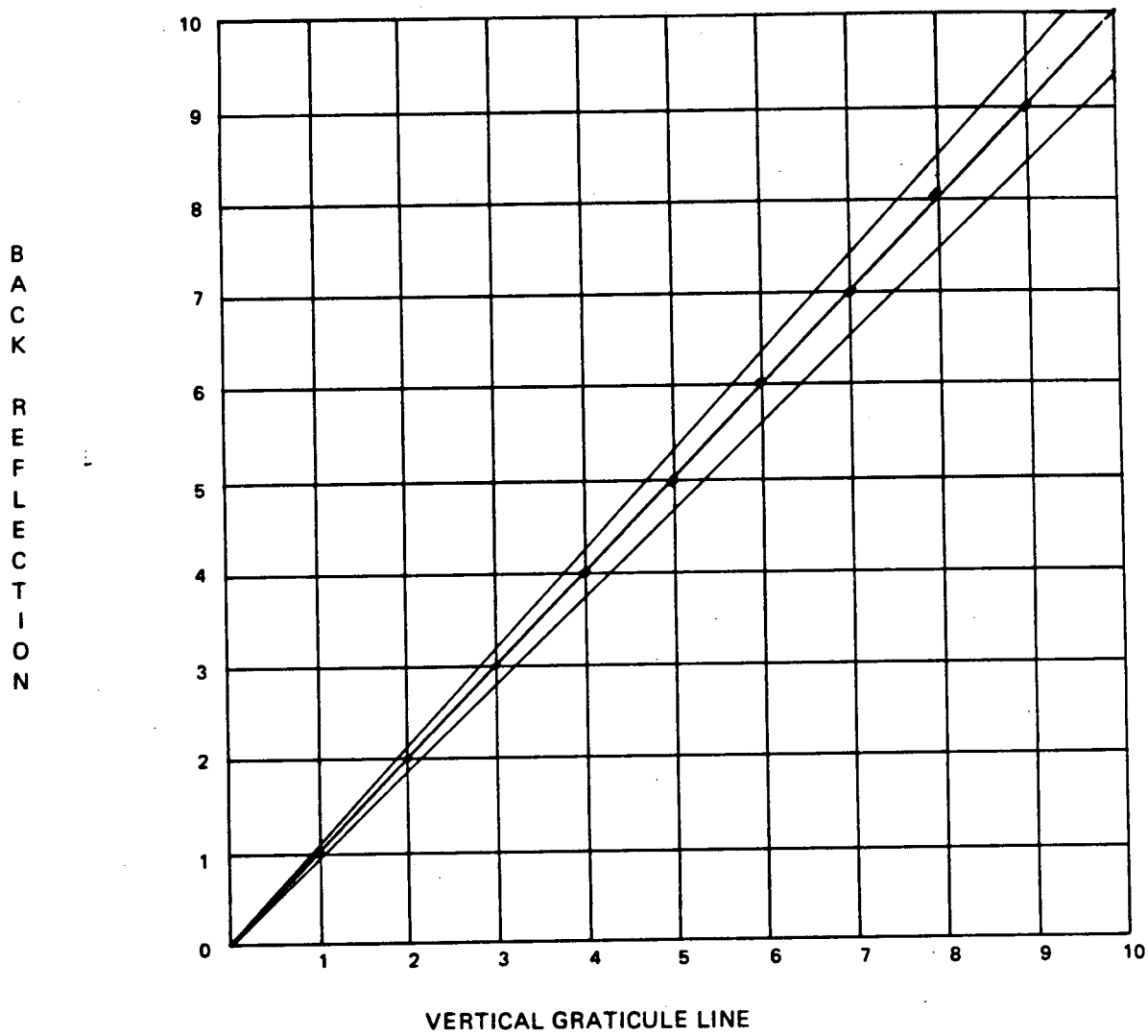
REMARKS

☐ (SEE REVERSE SIDE IF CHECKED) SIGNATURE Richard A. Haines

EFFECTIVE DATE	PAGE	REVISED DATE
April 14, 1987	28	

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 08079E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.50" DIA. FREQ. 2.25 MHZ S/N P47184

TEST PERFORMED BY Harry M. Ackerman II REVIEWED BY John Blaschke III

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII
DATE 11-22-88

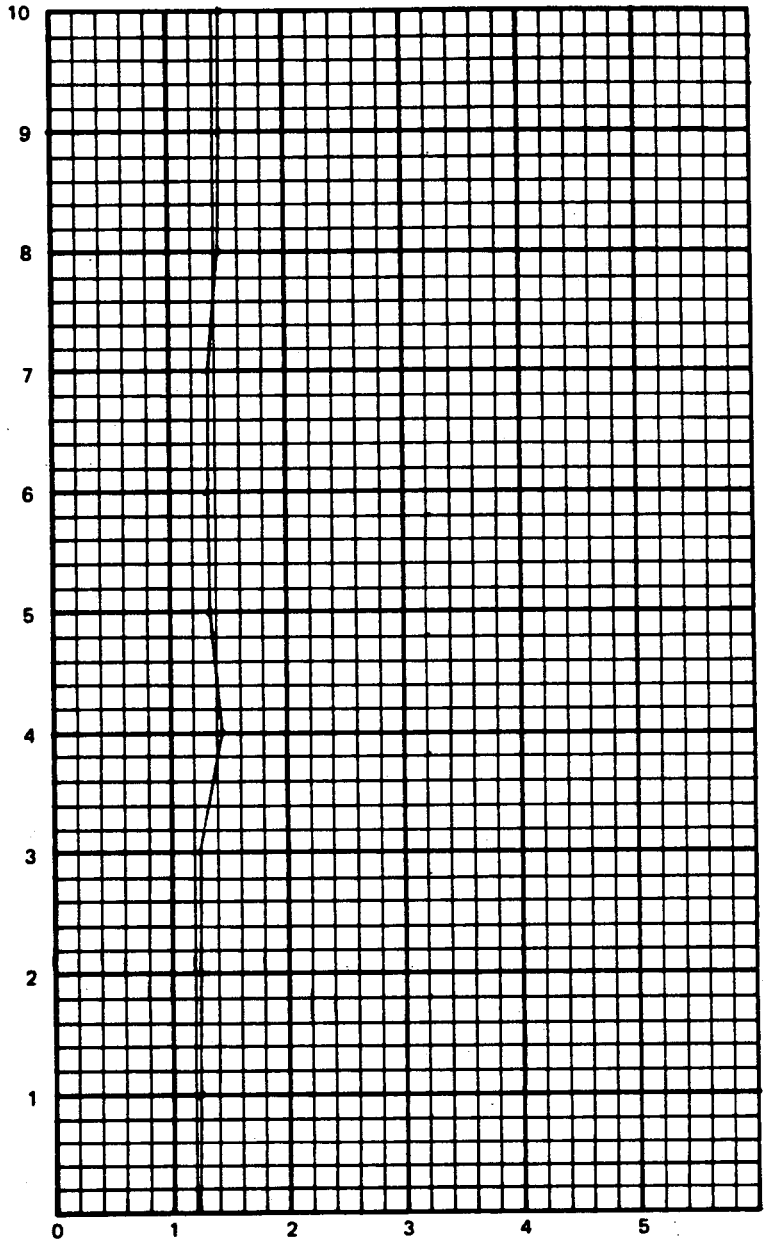
Richard D. Weber 11/20/88
John Blaschke 11/21/88

F49006

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY

"A"		"B"
7.1	10	1.41
6.2	9	1.45
5.6	8	1.43
5.4	7	1.30
4.6	6	1.30
3.7	5	1.35
2.8	4	1.43
2.4	3	1.25
1.5	2	1.33
.8	1	1.25
9	8	8 ÷ 9



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 08079E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.50" DIA FREQ. 2.25 MHZ S/N P47184

TEST PERFORMED BY Harry M. Ackerman I REVIEWED BY [illegible] II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11-21-88

F49004

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp.	50	50	50	51	51	50	50	50	50	49

dB	22	24	26	28	30	32	34	36	38	40
Amp.	50	49	50	49	50	51	50	50	50	49

dB	42	44	46	48	50	52	54	56	58	60
Amp.	49	50	49	50	51	50	50	50	50	50

INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 08079E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.50" DIA FREQ. 2.25 MHZ S/N P47184

TEST PERFORMED BY Nancy M. Ackerman II REVIEWED BY [illegible]

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 11-15-88

REMARKS:

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11/21/88

F49005

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 11-15-88

EXAMINER Paul J. Kovalb II LEVEL II PROCEDURE CPL IST-10 REV.0

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	0.50" DIA.
MODEL	MARK 1	FREQ.	2.25 MHZ.
SERIAL NO.	08079E	SERIAL NO.	P47184
COUPLANT	SONOTRACE 40 # 8767	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	48 %	44 %	40 %	35 %	30 %	25 %	20 %	15 %	10 %

LIMITS 2ND SIGNAL MUST BE 50% OF 1ST SIGNAL, WITHIN 5% FSH

AMPLITUDE CONTROL LINEARITY VERIFICATION

ORIGINAL SIGNAL AMPLITUDE	DB CONTROL CHANGE	SIGNAL AMPLITUDE	SIGNAL AMPLITUDE LIMITS
80% FSH	-6DB	40 %	32% - 48%
80% FSH	-12DB	20 %	16% - 24%
40% FSH	+6DB	78 %	64% - 96%
20% FSH	+12DB	70 %	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

ANII REVIEW
ANII [illegible]
DATE 11-22-88

Richard B. Weber 11/20/88
[illegible] 11/21/88

FORM 45951E

APPENDIX B

NSID/WMSC

CALIBRATION REPORT FORM

Instrument No. WEM 04 327 Prepared By Richard A. Haines Date 6-13-88

1. SUBMITTING ACTIVITY ISI-BOP
2. BUILDING LOCATION "K" 6W9
3. TEST INSTRUMENT UT, O'scope
4. MANUFACTURE Sonic
5. MODEL NUMBER Mark I
6. SERIAL NUMBER 08079E

7. REASON FOR SUBMISSION:
   - CALIBRATION [X]
   - OPERATIONAL FAILURE [ ]
   - MODIFICATIONS [ ]
8. DATE OF LAST SERVICING 2-17-88
9. RECAL DATE 12-13-88 CAL CYCLE 6 month

1. PROCEDURE/INSTRUCTIONS PERFORMED WMSC-ISI-001 Rev. 0

2. CALIBRATION EXTENT:
   - FULL [X]
   - LIMITED [ ]

   RANGES (LIMITED) _____

3. CALIBRATION LOCATION:
   - FACILITY [X]
   - FIELD [ ]
   - INSTRUMENT SHOP [ ]

4. TEMPERATURE 70°F
5. RELATIVE HUMIDITY unknown

1. TEST INSTRUMENT EVIDENCED:
   - GOOD CONDITION [X]
   - SEVERE ENVIRONMENT [ ]
   - PHYSICAL MISHANDLING [ ]
   - AGE AND LONG SERVICE [ ]

2. TEST INSTRUMENT FOUND:
   - WITHIN ACCEPTANCE TOLERANCE [X]
   - OUTSIDE ACCEPTANCE TOLERANCE* [ ]
   - OUTSIDE ADJUSTMENT TOLERANCE* [ ]
   - TOLERANCE UNDETERMINABLE DUE TO OPERATIONAL FAILURE* [ ]

   *(IF CHECKED SEE CALIBRATION COORDINATOR)

3. TEST INSTRUMENT RETURNED:
   - WITHIN ACCEPTABLE TOLERANCE [X]
   - WITHIN LIMITED CALIBRATION (RANGES MARKED ON INSTRUMENT) [ ]
4. MAN-HOURS TO ADJUST AND CALIBRATE 4 hrs
5. MAN-HOURS TO CLEAN _____
6. MAN-HOURS TO REPAIR _____
7. MAN-HOURS TO MODIFY _____

CALIBRATION OR TEST EQUIPMENT AND STANDARDS USED IN THIS CALIBRATION

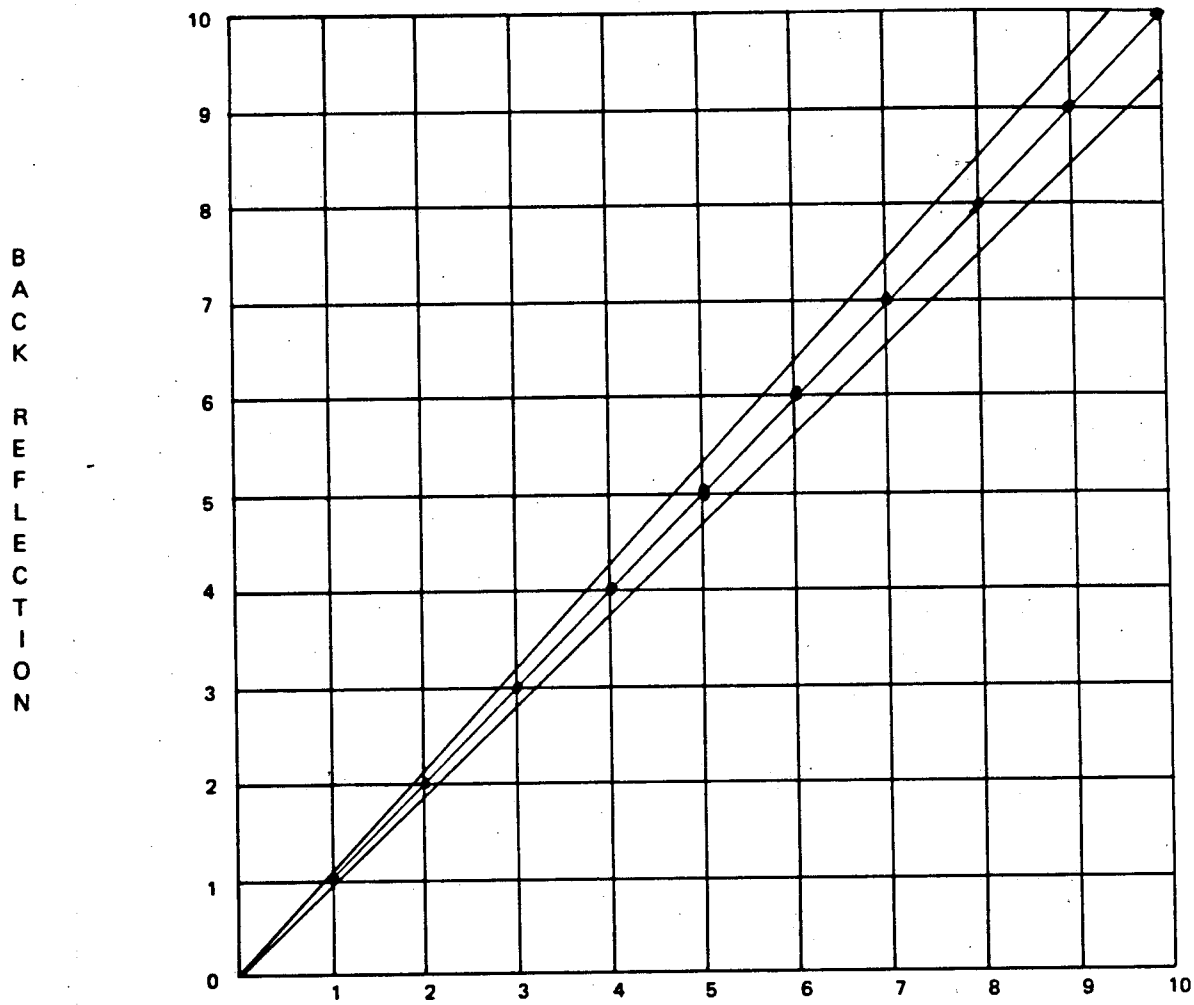
MFGR.	MODEL #	I.D. #	RECALL DATE	MFGR.	MODEL #	I.D. #	RECALL DATE
Hewlett Packard	1741A	WEM 02997	1-25-89				
Fluke	8600A	NSD 0365	1-22-89				

REMARKS

[ ] (SEE REVERSE SIDE IF CHECKED) SIGNATURE Richard A. Haines

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 11226E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.5" FREQ. 2.25 S/N P47184

TEST PERFORMED BY Seth Blaylock II REVIEWED BY Paul J. Kovallo-II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 12-29-88

REMARKS: Richard B. Weber 12/31/88

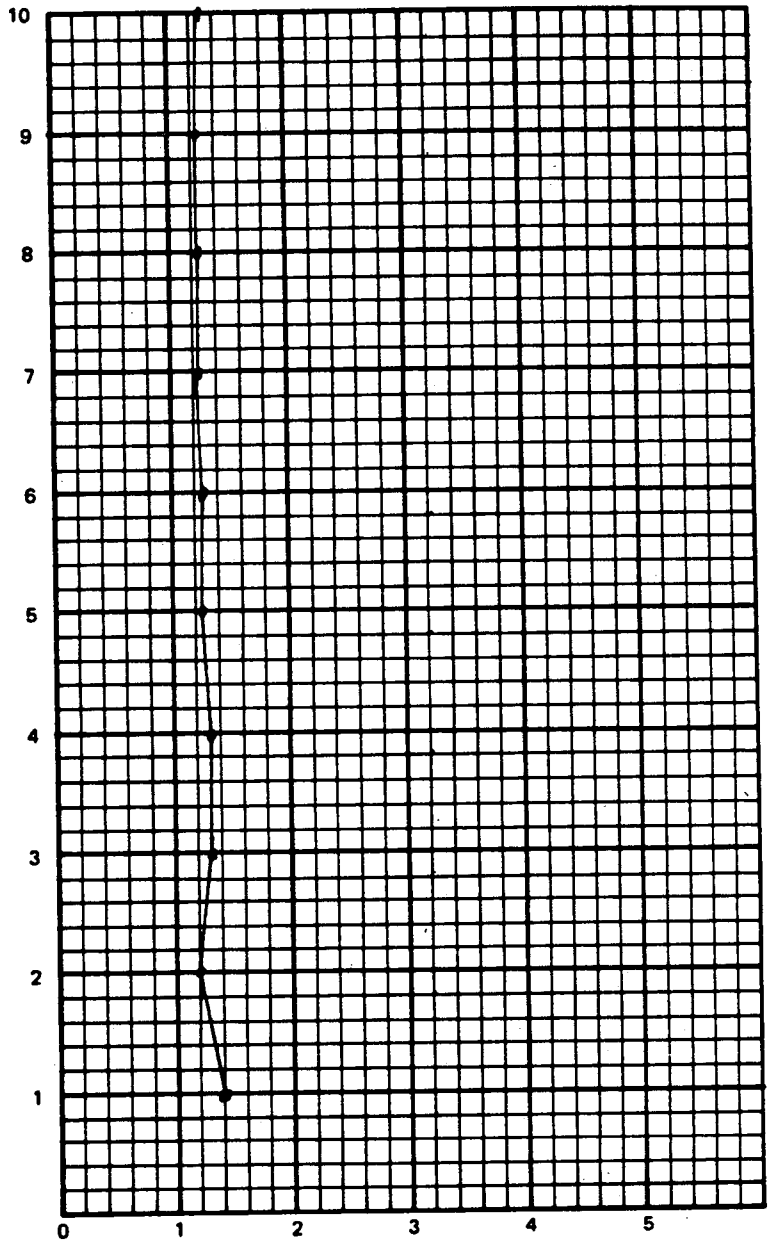
ANII REVIEW
ANII
DATE 12-31-88

F 49006

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY

"A"		"B"
7.9	10	1.27
7.3	9	1.23
6.5	8	1.23
5.7	7	1.23
4.8	6	1.25
4.0	5	1.25
3.1	4	1.3
2.3	3	1.3
1.7	2	1.2
0.7	1	1.4
9	8	8÷9



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 11226E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.5" FREQ. 2.25 S/N P47184

TEST PERFORMED BY [illegible] REVIEWED BY Paul J. Kovallo-II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 12-29-88

REMARKS:

ANII REVIEW
ANII [illegible]
DATE 12-31-88

Richard B. Weber 12/31/88

F49004

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp.	50	50	51	52	51	50	50	50	51	50

dB	22	24	26	28	30	32	34	36	38	40
Amp.	50	50	50	50	50	50	51	50	50	50

dB	42	44	46	48	50	52	54	56	58	60
Amp.	50	50	51	50	50	50	51	51	49	50

INSTRUMENT: MFR. SONIC MODEL MARK I S/N 11226E

TRANSDUCER: MFR. PANAMETRICS SIZE 0.5" FREQ. 2.25 S/N P47184

TEST PERFORMED BY Lee Campbell II REVIEWED BY Paul J. Kovallo-II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 12-29-88

REMARKS: Richard B. Weber 12/31/88

ANII REVIEW
ANII
DATE 12-31-88

F49005

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H. B. ROBINSON UNIT II DATE 12-29-88

EXAMINER John B. CAMPBELL II PROCEDURE CPL-151-10 REV 0
LEVEL II

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	0.5"
MODEL	MARK I	FREQ.	2.25
SERIAL NO.	11226E	SERIAL NO.	P47184
COUPLANT	# 8767 SONOTRACE 40	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	50	44	40	35	31	25	20	15	10

LIMITS 2ND SIGNAL MUST BE 50% OF 1ST SIGNAL, WITHIN 5% FSH

AMPLITUDE CONTROL LINEARITY VERIFICATION

ORIGINAL SIGNAL AMPLITUDE	DB CONTROL CHANGE	SIGNAL AMPLITUDE	SIGNAL AMPLITUDE LIMITS
80% FSH	-6DB	40	32% - 48%
80% FSH	-12DB	20	16% - 24%
40% FSH	+6DB	77	64% - 96%
20% FSH	+12DB	75	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

ANII REVIEW
ANII [signature]
DATE 12-31-88

Richard B. Weber 12/31/88

FORM 45951E

NSID/WMSC

APPENDIX B

CALIBRATION REPORT FORM

Instrument No. WFM C3033 Prepared By Richard A. Haines Date 12-22-88

1. SUBMITTING ACTIVITY ISI-BCP
2. BUILDING LOCATION A
3. TEST INSTRUMENT UT C'SCOPE
4. MANUFACTURE Sonic
5. MODEL NUMBER Mark I
6. SERIAL NUMBER 11226E

7. REASON FOR SUBMISSION:
   - CALIBRATION ☒
   - OPERATIONAL FAILURE ☐
   - MODIFICATIONS ☐
8. DATE OF LAST SERVICING 6-15-88
9. RECAL DATE 6-22-89 CAL CYCLE 6-months

1. PROCEDURE/INSTRUCTIONS PERFORMED WMSC-ISI-001 Rev. 1
2. CALIBRATION EXTENT:
   - FULL ☒
   - LIMITED ☐ RANGES (LIMITED) _____
3. CALIBRATION LOCATION:
   - FACILITY ☒ FIELD ☐
   - INSTRUMENT SHOP ☐
4. TEMPERATURE 72°F
5. RELATIVE HUMIDITY unknown

1. TEST INSTRUMENT EVIDENCED:
   - GOOD CONDITION ☒
   - SEVERE ENVIRONMENT ☐
   - PHYSICAL MISHANDLING ☐
   - AGE AND LONG SERVICE ☐
2. TEST INSTRUMENT FOUND:
   - WITHIN ACCEPTANCE TOLERANCE ☒
   - OUTSIDE ACCEPTANCE TOLERANCE* ☐
   - OUTSIDE ADJUSTMENT TOLERANCE* ☐
   - TOLERANCE UNDETERMINABLE DUE* TO OPERATIONAL FAILURE ☐

*(IF CHECKED SEE CALIBRATION COORDINATOR)

3. TEST INSTRUMENT RETURNED:
   - WITHIN ACCEPTABLE TOLERANCE ☒
   - WITHIN LIMITED CALIBRATION (RANGES MARKED ON INSTRUMENT) ☐
4. MAN-HOURS TO ADJUST AND CALIBRATE 4
5. MAN-HOURS TO CLEAN _____
6. MAN-HOURS TO REPAIR _____
7. MAN-HOURS TO MODIFY _____

CALIBRATION OR TEST EQUIPMENT AND STANDARDS USED IN THIS CALIBRATION

MFGR.	MODEL #	I.D. #	RECALL DATE	MFGR.	MODEL #	I.D. #	RECALL DATE
Tektronix	466/DM 44	NSD C992	3-26-89				

REMARKS

ANII REVIEW
ANII [illegible]
DATE 12-31-88

☐ (SEE REVERSE SIDE IF CHECKED) SIGNATURE [illegible]

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
1989
EXAMINATION CONSUMABLE MATERIALS

PLANT H.B. ROBINSON UNIT II YEAR 1988/1989

	MANUFACTURER	TYPE	BATCH
U/T COUPLANT	ECHO	SONOTRACE 40	8767
DYE PENETRANT			
CLEANER	MAGNAFLUX	SKC/-NF/ZC-7B	88G017
PENETRANT	MAGNAFLUX	SKL-HF/S	85L045
DEVELOPER	MAGNAFLUX	SKD-NF/ZP-9B	88B019
REMOVER	MAGNAFLUX	SAME AS CLEANER	
POWDER			
FILM			
OTHER			

FORM 45937B

BRANCH OFFICES:
Chicago, Illinois
Philadelphia, Pennsylvania

International Testing Laboratories, Inc.

Material Testing and Consulting Engineers
Weighers, Samplers and Assayers
578-582 MARKET STREET
NEWARK, N. J. 07105
PHONES: (201) 589-4772-3-4

Cable Address: INTEL
Telex: 139187

REPORT OF TEST

No. 529146

DATE June 29, 1987

From Echo Ultrasound
R.D. 4, Box 76
Lewistown, Penn. 17044

Sample of : Sonotrace 40

Marked : Batch No. 8767
Spec. ASTM-D-129 and D-808
Purchase Order No. 22515-DAL

Results :

Halogens	:	31.6 ppm
Sulphur	:	3.2 ppm

I, David N. Hoffman, do hereby certify that the above is true and correct.

Sworn to and subscribed
before me this 29th day of June, 198

My Notary Public Commission
expires August 13, 1988.

To Echo Ultrasound
Lewistown, Penn.

INTERNATIONAL TESTING LABORATORIES, INC.

ITL 102 SM 1-87

Date: July 14, 1988

Purchase Order No. _____

SUBJECT: Spotcheck Cleaner/Remover Type: SKC-NF/ZC-7B Batch No. 883017

We hereby certify that when tested at the time of manufacture, the above material:

1. Meets the requirements of and has been tested for sulfur and halogens according to:
   (a) ASME Boiler and Pressure Vessel Code, 1983 Edition, Section V, Nondestructive Examination, including all Addenda through Winter 1983 Addendum, Paragraph T-625 and Article 24 as applicable.
   (b) ASME Boiler and Pressure Vessel Code, 1986 Edition, Section V, Nondestructive Examination, Paragraph T-625 and Article 24 as applicable.
   (c) ASTM E-165-80, Paragraph 7.1.
   (d) NAVSEA 250-1500-1 (Rev. 10 June 1979 and Rev. 11 May 1983) Paragraphs 12.5.1.1 and 12.5.1.1.1.
   (e) MIL-STD-271F(SH), 27 June 1986, Paragraphs 5.3 and 5.3.1.
   (f) MIL-STD-2132A(SH), 15 March 1985, Paragraphs 7.1.1, 7.1.2, and 7.1.3 and Appendix C, Paragraph 30.
   (g) RDT Standard F3-6T, May 1974 and October 1975 including Amendments 1 (4-6-75) and 2 (2-9-78), Article 6, Paragraph T-30.
   (h) General Electric P.S. 9000, Rev. 2 (2-21-80) Paragraphs 2.3 and 2.4.

The following test results were obtained:

Sulfur: NA wt. % of residue. Halogen: NA wt. % of residue

Cleaner residue (see Note 3) 0.0006 g/100g. 0.0008 g/100 ml.

2. We further certify that this material does not contain mercury as a basic element, and no mercury bearing equipment was used in its manufacture.

MAGNAFLUX CORPORATION

C. A. Zeleznik

C. A. Zeleznik - Manager, Quality Assurance
M. Plamoottil - Quality Control Chemist

NOTES:
1. Our batch number appears on the bottom of all spray containers and on the label of all other containers.
2. Most specifications require test results stated in percent but some require parts per million (PPM). To convert "percent" figures to "parts per million" move the decimal four places to the right.
3. NAVSEA 250-1500-1, MIL-STD-271, MIL-STD-2132, RDT F3-6T and ASME Section V all require that materials be subject to a procedure to evaporate off volatile solvents before analysis for sulfur and halogen. According to these specifications, only those residues higher than 0.005 g/100 g shall be analyzed for sulfur and halogen. Lower residues shall be reported.
4. The above certification gives the results obtained at the time of manufacture. Age and use may alter the properties of any material.

Form No. 1589 R-7/85

MAGNAFLUX Corporation 7300 West Lawrence Avenue Chicago, IL 60656 Telephone 312-867-8000

MAGNAFLUX

Date: November 27, 1985

Purchase Order No. _____

SUBJECT: Spotcheck Penetrant, Type: SKL-HF/S, Batch No. 85L045

We hereby certify that when tested at the time of manufacture, the above material:

1. Meets the requirements of and has been tested for sulfur and halogens according to:

   (a) ASME Boiler and Pressure Vessel Code, 1980 Edition, Section V, Nondestructive Examination, with Summer 1980 through Winter 1982 Addenda, Paragraph T-644, and Article 24 as applicable.

   (b) ASME Boiler and Pressure Vessel Code, 1983 Edition, Section V, Nondestructive Examination, including all Addenda through Winter 1983 Addendum, Paragraph T-625 and Article 24 as applicable.

   (c) ASTM E-165-80, Paragraph 7.1.

   (d) NAVSEA 250-1500-1, (Rev. 10 June 1979 and Rev. 11 May 1983), Paragraphs 12.5.1.1 and 12.5.1.1.1.

   (e) MIL-STD-271E, (31 October 1973) and ACN-1 (24 October 1980), Paragraph 5.3.1.

   (f) MIL-STD-271E, NTR-1E, June 16, 1978, Paragraph 5.3.

   (g) MIL-STD-2132 (SH), 16 January, 1981, Paragraphs 5.1.2, 5.1.3 and 5.1.4 or 5.1.5 and Appendix B, Paragraph 30.

   (h) RDT Standard F3-6T, May 1974 and October 1975 including Amendments 1 (4-6-76) and 2 (2-9-78), Article 6, Paragraph T-30.

   (i) General Electric P.S. 9000, Rev. 2 (2-21-80) Paragraphs 2.3 and 2.4.

The following test results were obtained:

Sulfur: 0.0150 wt. % of residue. Halogen: 0.0034 wt. % of residue

Cleaner residue (see Note 3) NA g/100g. NA g/100 ml.

2. Meets the requirements of MIL-I-25135C (Amendment 3 and Interim Amendment 4).

3. Does not contain mercury as a basic element, and no mercury bearing equipment was used in its manufacture.

MAGNAFLUX CORPORATION

A. S. Britten

W. G. Blankenship - Director of Quality Assurance
A. S. Britten - Manager, Chemical Quality Control

NOTES:
1. Our batch number appears on the bottom of all spray containers and on the label of all other containers.
2. Most specifications require test results stated in percent but some require parts per million (PPM). To convert "percent" figures to "parts per million" move the decimal four places to the right.
3. NAVSEA 250-1500-1, MIL-STD-271, MIL-STD-2132, RDT F3-6T and ASME Section V all require that materials be subject to a procedure to evaporate off volatile solvents before analysis for sulfur and halogen. According to these specifications, only those residues higher than 0.005 g/100 g shall be analyzed for sulfur and halogen. Lower residues shall be reported.
4. The above certification gives the results obtained at the time of manufacture. Age and use may alter the properties of any material.

MAGNAFLUX Corporation | 7300 West Lawrence Avenue | Chicago, IL 60656 | Telephone 312-867-8000

MN 79560T — C-900-91576

MAGNAFLUX

Date: February 16, 1988

Purchase Order No. _____

SUBJECT: Spotcheck/Zyglo Developer Type: SKD-NF/ZP-9B Batch No. 88B019

We hereby certify that when tested at the time of manufacture, the above material:

1. Meets the requirements of and has been tested for sulfur and halogens according to:
   (a) ASME Boiler and Pressure Vessel Code, 1983 Edition, Section V, Nondestructive Examination, including all Addenda through Winter 1983 Addendum, Paragraph T-625 and Article 24 as applicable.
   (b) ASME Boiler and Pressure Vessel Code, 1986 Edition, Section V, Nondestructive Examination, Paragraph T-625 and Article 24 as applicable.
   (c) ASTM E-165-80, Paragraph 7.1.
   (d) NAVSEA 250-1500-1 (Rev. 10 June 1979 and Rev. 11 May 1983) Paragraphs 12.5.1.1 and 12.5.1.1.1.
   (e) MIL-STD-271F(SH), 27 June 1986, Paragraphs 5.3 and 5.3.1.
   (f) MIL-STD-2132A(SH), 15 March 1985, Paragraphs 7.1.1, 7.1.2, and 7.1.3 and Appendix C, Paragraph 30.
   (g) RDT Standard F3-6T, May 1974 and October 1975 including Amendments 1 (4-6-76) and 2 (2-9-78), Article 6, Paragraph T-30.
   (h) General Electric P.S. 9000, Rev. 2 (2-21-80) Paragraphs 2.3 and 2.4.

The following test results were obtained:

Sulfur: 0.0561 wt. % of residue. Halogen: 0.0417 wt. % of residue

Cleaner residue (see Note 3) NA g/100g. NA g/100 ml.

2. We further certify that this material does not contain mercury as a basic element, and no mercury bearing equipment was used in its manufacture.

MAGNAFLUX CORPORATION

A. S. Britton

A. S. Britton - Manager, Quality Assurance
M. Plamoottil - Quality Control Chemist

NOTES:
1. Our batch number appears on the bottom of all spray containers and on the label of all other containers.
2. Most specifications require test results stated in percent but some require parts per million (PPM). To convert "percent" figures to "parts per million" move the decimal four places to the right.
3. NAVSEA 250-1500-1, MIL-STD-271, MIL-STD-2132, RDT F3-6T and ASME Section V all require that materials be subject to a procedure to evaporate off volatile solvents before analysis for sulfur and halogen. According to these specifications, only those residues higher than 0.005 g/100 g shall be analyzed for sulfur and halogen. Lower residues shall be reported.
4. The above certification gives the results obtained at the time of manufacture. Age and use may alter the properties of any material.

Westinghouse Electric Corp.
Advanced Energy Systems Division
Madison, PA. 15663

CALIBRATION REPORT

Inst. No. W011 Date: 11/7/88

SUBMITTING ACTIVITY NSD
2. BUILDING LOCATION R
3. TEST INSTRUMENT SURFACE THERMOMETER (item calibrated)
4. MANUFACTURE PACIFIC TRANSDUCER CORP
5. MODEL NUMBER 315 F
6. SERIAL NUMBER W011

7. REASON FOR SUBMISSION
Calibration ☑
Operational Failure ☐
Modifications ☐
8. DATE OF LAST SERVICING INITIAL
9. RECALL PERIOD 12 MONTHS
10. RECALL DATE 11/7/89

1. CALIBRATION: Full ☑ Limited ☐
Ranges (Limited)

2. CALIBRATION LOCATION
Facility ☐ Cal. Lab ☑
Inst. Shop ☐ Sys. Lab ☐

3. TEMPERATURE 73 °F
4. RELATIVE HUMIDITY 34 %

1. TEST INSTRUMENT FOUND:
Within acceptance tolerance ☐
Outside acceptance tolerance ☑
Tolerance undeterminable due to: ☐

2. TEST INSTRUMENT RETURNED:
Within acceptable tolerance ☑
With limited calibration (ranges marked on list) ☐

3. CALIBRATION PROCEDURE:
-Manufacturer's ☐
-AESD Procedure, No. ☐
-Standard Cal. Procedure ☑

NBS TRACEABLE CALIBRATION EQUIPMENT USED

MFGR.	MODEL #	INST. #	RECALL DATE	MFGR.	MODEL #	INST. #	RECALL DATE
TAYLOR	CERTIFIED THERMOMETER			# 63	F3266		
DORIC	477	7562	4/89				

REMARKS

Prepared by: J.E.D. ALLSHOUSE
Signature: James E.D. Allshouse

Westinghouse Electric Corp.
Advanced Energy Systems Division
Madison, PA. 15663

CALIBRATION REPORT

Inst. No. W 012 Date: 11/7/88

SUBMITTING ACTIVITY NSD
2. BUILDING LOCATION R
3. TEST INSTRUMENT SURFACE THERMOMETER (item calibrated)
4. MANUFACTURE PACIFIC TRANSDUCER CORP
5. MODEL NUMBER 315 F
6. SERIAL NUMBER W012

7. REASON FOR SUBMISSION
Calibration ☑
Operational Failure ☐
Modifications ☐
8. DATE OF LAST SERVICING INITIAL
9. RECALL PERIOD 12 MONTHS
10. RECALL DATE 11/7/89

1. CALIBRATION: Full ☑ Limited ☐
Ranges (Limited)

2. CALIBRATION LOCATION
Facility ☐ Cal. Lab ☑
Inst. Shop ☐ Sys. Lab ☐

3. TEMPERATURE 73 °F
4. RELATIVE HUMIDITY 34 %

1. TEST INSTRUMENT FOUND:
Within acceptance tolerance ☐
Outside acceptance tolerance ☑
Tolerance undeterminable due to: ☐

2. TEST INSTRUMENT RETURNED:
Within acceptable tolerance ☑
With limited calibration (ranges marked on list) ☐

3. CALIBRATION PROCEDURE:
-Manufacturer's ☐
-AESD Procedure, No. ☐
-Standard Cal. Procedure ☑

NBS TRACEABLE CALIBRATION EQUIPMENT USED

MFGR.	MODEL #	INST. #	RECALL DATE	MFGR.	MODEL #	INST. #	RECALL DATE
TAYLOR	CERTIFIED THERMOMETER			# 63F3266			
DORIC	477	7562	4/89				

REMARKS

Prepared by: J.E.D. ALLSHOUSE
Signature: James E.D. Allshouse

Westinghouse Electric Corp.
Advanced Energy Systems Division
Madison, PA. 15663

CALIBRATION REPORT

Inst. No. W 020 Date: 11/7/88

SUBMITTING ACTIVITY NSD
2. BUILDING LOCATION R
3. TEST INSTRUMENT SURFACE THERMOMETER (item calibrated)
4. MANUFACTURE PACIFIC TRANSDUCER CORP.
5. MODEL NUMBER 315 F
6. SERIAL NUMBER W 020

7. REASON FOR SUBMISSION
- Calibration [✓]
- Operational Failure [ ]
- Modifications [ ]

8. DATE OF LAST SERVICING INITIAL
9. RECALL PERIOD 12 MONTHS
10. RECALL DATE 11/7/89

1. CALIBRATION: Full [✓] Limited [ ]
Ranges (Limited)

2. CALIBRATION LOCATION
- Facility [ ]
- Cal. Lab [✓]
- Inst. Shop [ ]
- Sys. Lab [ ]

3. TEMPERATURE 73 °F
4. RELATIVE HUMIDITY 34 %

1. TEST INSTRUMENT FOUND:
- Within acceptance tolerance [ ]
- Outside acceptance tolerance [✓]
- Tolerance undeterminable due to: [ ]

2. TEST INSTRUMENT RETURNED:
- Within acceptable tolerance [✓]
- With limited calibration (ranges marked on list) [ ]

3. CALIBRATION PROCEDURE:
- -Manufacturer's [ ]
- -AESD Procedure, No. [ ]
- -Standard Cal. Procedure [✓]

NBS TRACEABLE CALIBRATION EQUIPMENT USED

MFGR.	MODEL #	INST. #	RECALL DATE	MFGR.	MODEL #	INST. #	RECALL DATE
TAYLOR	CERTIFIED	THERMOMETER		# 63F	3266		
DORIC	477	7562	4/89				

REMARKS

Prepared by: J.E.D. ALLSHOUSE
Signature: James E.D. Allshouse

PTC® INSTRUMENTS

PACIFIC TRANSDUCER CORP.

2301 Federal Avenue, Los Angeles, California 90064, U.S.A. • Telephones: (213) 478-1134 • 479-2119

CALIBRATION REPORT AND CERTIFICATE

DATA ON EQUIPMENT TO BE CALIBRATED

Owner:	WESTINGHOUSE ELECTRIC	Purchase Order:	MN23439T
Equipment:	SURFACE THERMOMETER	Control Number:	N/A
		Manufacturer:	PTC
Model:	315F	Serial Number:	1198 THRU 1221
Tolerance:	+- 2% OF FULL SCALE	Date Calibrated:	1/20/88

CALIBRATION DATA

	BEFORE CALIBRATION (As Received)			AFTER CALIBRATION (As Returned)		
	STANDARD	EQUIPMENT	CORRECTION	STANDARD	EQUIPMENT	CORRECTION
Test 1						
Test 2						
Test 3						
Test 4						

Although no specific points were logged, instruments referred to on this certificate were calibrated at 3 or more points over the entire range and found to be within published accuracy.

DATA FOR STANDARD(S) USED IN CALIBRATION

	TEST 1	TEST 2	TEST 3	TEST 4
Instrument(s):	DIGITAL			
Manufacture:	NEWPORT			
Model:	267B-JF1			
Serial:	620025456			
Calibrated:	7/24/87			
Calibration Due:	1/24/88			
Calibrated By:	P.T.C.			
Traceable To:	NBS #233564			

CERTIFIED BY PTC INSTRUMENTS

QUALITY CONTROLLER: Linda A. Wolfe DATE: 1/20/88

LINDA A. WOLFE

Member: American Society for Testing and Materials

Form No. 2152

1989

CALIBRATION BLOCKS

PLANT H.B.ROBINSON UNIT 2

BLOCK IDENTIFICATION	SIZE OR SCHEDULE	MATERIAL	HEAT NO.
CPL-10	2 1/2" T	SA376	D8770
CPL-24	4" 160	SA376	M9290
CPL-34	12" 140	SA312	F0959
CPL-36	14" 140	SA312	1762
CPL-58	8" 160	SA376	M0035
CPL-59	10" 160	SA376	2543-4-1

FORM 45938A

10958

Cameron IRON WORKS, INC.

CORRECTED REPORT

CPL-10

RECEIVED

P. O. BOX 1212 HOUSTON, TEXAS 77003

PLANT NATIONAL VALVE & MFG. CO.

STD. BLOCK NAME KC Pipe

NSD S/N HT # D 8770

MATERIAL SS 316

LOT NO. 1

PAGE 1 of 2

CERTIFICATE OF TESTS

SOLD TO: WESTINGHOUSE ELECTRIC CORP.
Atomic Power Division
P. O. Box 355
Pittsburgh, Pennsylvania 15230
Attn: T.E. Cooper, Account.

SHIP TO:

Customer Order No.	C.I.W. Sales Order No.	Specification
54-C-50171-B	F-8630-4	West. G-676341 & A-376 TP 316, S-2 & S-6

Description of Material

ITEM #7
29.075" I.D. (+1/8, -1/8) X 2.335" M.W. Ref: 34" O.D.

CHEMICAL ANALYSIS

C.I.W. Part Number	Heat No.	C	MN	P	S	SI	CR	NI	MO	Co	V	CU
86-3400-2908-54	D 8767	.07	1.76	.007	.008	.26	13.15			.08		.10
	D 8770	.07	1.76	.016	.010	.23	13.00			.09		.12
	D 8771	.07	1.74	.008	.009	.20	13.50			.07		.11

	CR	MO
D 8767	17.19	2.31
D 8770	17.25	2.32
D 8771	16.95	2.29

MECHANICAL PROPERTIES

C.I.W. Part No. or Size	Quantity	Heat No.	.2% Offset Yield PSI	Tensile PSI	% Elong. In.	% Red. Area	Charpy Impact	Hardness
86-3400-2908-54	2	D 8767	See attachment for mechanical properti					
	2	D 8770	for forging.					
	2	D 8771						

Elevated Temperature Tensile Properties at 650°F.:

Test Ser.# 1809	D 8767	24,400	62,200	42.0	69.9
# 1811	D 8770	20,900	62,000	45.0	68.3
# 1807	D 8771	23,400	64,400	45.0	69.9

Pipe will have min. yield of 120% of the allowable stress at 650°F., 120% of 17,850 is 20,460 psi min. yield strength with .2% offset at 650°F.

Chemical Analysis Jominy Hardenability Grain Size

Dye penetrant Inspect per ASME Sec. VIII Append. 8 Code Case N-10.
Heat Treat Annealed.
1900°F., hold 1 hr. at temp. Water quench.
Flattening Tests: Satisfactory
Pipe ultrasonically inspected and found acceptable.

Sworn to before me this day of May 1967

Notary Public
G. A. TOUCHTON

I certify these tests to be correct as contained in the records of the company.

H. O. THIGPEN, Metallurgist

CORRECTED REPORT

CPL-10

CAMERON IRON WORKS, INC.
Houston, Texas

CERTIFICATE OF TESTS

WESTINGHOUSE ELECTRIC CORP.
Atomic Power Division
P. O. Box 355
Pittsburgh, Pennsylvania 15230
Attn: T. E. Cooper, Account.

13 May 1967

Customer Order No.	CIW Sales Order No.	Specification
54-G-55171-B	F-8639-4	West. G-676341 & A376 TP 316, S-2 & S-6

Description Of Material: Item #7
29.075" I.D. (+1/8, -1/8) X 2.335" M.W. Ref: 34" O.D.

Mechanical Properties:

Forging Ser.No.	CIW Ht.Code	.2% Offset Y.S. psi	Ult. T.S. psi	Elong. %	R.A. %	Length	Weight
1807	D 8771	35,000 36,500	79,600 79,300	56.5 57.0	72.7 71.9	6'8-13/16"	5,850#
	D 8771	36,200 35,800	80,900 79,400	58.0 56.5	72.5 73.0	6'8-13/16"	5,975
1809	D 8767	37,700 35,000	80,300 79,200	54.0 56.0	73.5 72.3	6'8-5/8"	5,900
*1810	D 8767	37,000 33,000	79,000 76,400	63.0 56.5	77.7 71.8	6'8-1/4"	5,775
*1811	D 8770	32,000 36,000	75,800 79,400	57.5 55.5	72.9 71.0	6'8-9/16"	5,800
1812	D 8770	34,000 35,000	76,300 77,900	59.5 57.5	67.4 71.4	6'8-3/4"	5,925

* repeated on later report dated 16 June 1967

PLANT
STD. BLOCK NAME RC PIPE
NSD S/N 4-#D870
MATERIAL SS 316
LOT NO. 1

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH NA

SYST/COMP R.C. PIPE CAL. BLOCK PROCEDURE CPL-TBA-100, REV. 0

EXAMINER [illegible] LEVEL II DATE 11-20-88

EXAMINER _____ LEVEL II DATE _____

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	NA	# 800886
S/N	06210E	C03626	62410	NA	NA
SIZE	NA	0.375"	0.25"	NA	NA
FREQ.	NA	5.0 MHZ	2.25 MHZ	NA	NA
ANGLE	NA	0°	45°	45° WEDGE	NA
COUPLANT: SONOTRACE 40			BATCH # 8767		

			MINIMUM		MAXIMUM		ANGLE		
WELD NUMBER	SURFACE 2°	SURFACE 5°	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. Q	CALCULATED ANGLE	REMARKS
CPL 10	NA	NA	NA	NA	NA	2.6"	3.65"	35°	

ANII REVIEW
ANII [illegible]
DATE 11-26-88

Richard B. Weber 11/23/88
[illegible] 11/24/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

8/8

Babcock & Wilcox

Tubular Products Division

BEAVER FALLS, PA -2 MILWAUKEE, WISCONSIN

4" S/160 A376 T-316

ALLIANCE-OHIO-1

TEST REPORT

CUSTOMER ORDER NO. 173453-00N | DATE 8 28 75 | 81676 2

CAPITOL PIPE & STEEL PRODUCTS INC.
P O BOX 471
PALA CYNWYD PA 19004

CAPITOL PIPE & STEEL PRODUCTS, INC.
U.S. HIGHWAY 115 AND HENDERSON COX RD
ON TO COUNTY ROAD 2487
CHARLOTTE, N.C.

Material was given a heat treatment consisting of heating to a minimum of 19[illegible] for a minimum of 10 minutes and water quenched.

Both raw materials and finished product on this order have been produced in the USA.

SEAMLESS CROLOY 316 EXC. 04 MIN CARB. EF, CD, AW PIPE TO ASTM A 376-72 AND ASME SA 376. CHECK ANALYSIS PER PARA 8.

CPL/24

STEEL WAS MELTED IN THE USA

NO OIL - PICKLED & PASSIVATED

Page 1 of 2

PARTIAL — COMPLETE

ITEM	O.D.	WALL	LENGTH	SPECIAL MARKS	PCS	FOOTAGE	HYDRO TEST LBS PER SQ INCH	TESTS MADE
-A055519-0017300003509	1 0000							
01	4 5 CO.	531	RL 17-24				2800 5. sec. hold	ETCH
								BEND
								FLATTENING ok
								FLARE
								EXPANSION
								FLARE
								CORROSION
								MICRO
								ULTRASONIC
								DYE PENETRANT

Tooling Spec.

5110

ITEM	HEAT NO	CARB	MANG	SUL	PHOS	SIL	CHROM	NI	MO	CU	CB	TI
	See page two											

ITEM	HEAT NO	ULTIMATE STRENGTH	YIELD POINT	% ELONG IN 2"	REDUCT IN AREA	HARDNESS
	See page two					

STRIP [X] RND BD [ ] FULL SECTION [ ]

SWORN TO AND SUBSCRIBED BEFORE ME 8/29/[illegible]

RITA J. FIELDS, Notary Public
W. Mayfield Borough, Luzerne Co.
MY COMMISSION EXPIRES
OCT. 3, 1978

THIS IS TO CERTIFY THE ABOVE TUBES AND PIPE HAVE BEEN INSPECTED AND TESTED IN ACCORDANCE WITH AND HAVE MET ALL THE REQUIREMENTS OF THE SPECIFICATIONS

THE BABCOCK & WILCOX COMPANY BY

Paul D. Price

Paul D. Price

1529

6

CERTIFICATE OF TESTS

...N NO.	CUSTOMER ORDER NO.	SPECIFICATION
-A036619	73453-0011	

CHEMICAL ANALYSIS

ITEM	HEAT NO.	CARB.	MANG.	SUL	PHOS.	SIL.	CHROM	NI.	MO.	CU.	C.B.	TI.
	M9290	.054	1.47	.024	.026	.55	16.89	12.89	2.29			CPL/24
	tube ck	.0[illegible]	1.46	.022	.028	.57	16.85	12.86	2.29			
	tube ck	.05[illegible]	1.47	.022	.028	.56	16.87	12.89	2.28			
	M9497	.054	1.90	.009	.022	.44	17.38	13.27	2.22			
	tube ck	.053	1.89	.010	.022	.43	17.43	13.25	2.22			
	tube ck	.054	1.91	.010	.022	.43	17.42	13.20	2.23			
	M9287	.060	1.75	.017	.023	.58	16.97	13.39	2.30			
	tube ck	.069	1.75	.018	.023	.59	16.99	13.24	2.29			
	tube ck	.067	1.76	.017	.023	.58	16.97	13.31	2.30			
	M9593	.055	1.93	.018	.026	.58	17.11	13.34	2.22			
	tube ck	.054	1.95	.016	.026	.57	17.13	13.36	2.24			
	tube ck	.060	1.98	.018	.026	.56	17.12	13.28	2.23			

ITEM	HEAT NO.	ULTIMATE STRENGTH	YIELD POINT	% ELONG. IN 2"	REDUCTION IN AREA	HARDNESS
	M9290	83900	41300	58		
	M9497	82700	39000	69		
	M9287	80300	38600	64		
	M9593	83600	41200	62		

H530

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH N/A

SYST/COMP 4" SCH 160 CAL. BLOCK PROCEDURE CPL-TBA-100 REV 0

EXAMINER Donald B. Smith II / Ralph Churchfield I DATE 11-20-88
LEVEL II

EXAMINER _____ DATE _____
LEVEL II

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	N/A	#800886
S/N	06Z10E	C03626	62410	N/A	N/A
SIZE	N/A	0.375"	0.250"	N/A	N/A
FREQ.	N/A	5MHZ	2.25 MHZ	N/A	N/A
ANGLE	N/A	0°	45°	45° WEDGE	N/A
COUPLANT: SONOTRACE 40			BATCH # 8767		

WELD ITEM	SURFACE 2°	SURFACE 5°	THICKNESS DIR. 1° LOCATION	THICKNESS CALCULATED THICKNESS	THICKNESS DIR. 1° LOCATION	THICKNESS CALCULATED THICKNESS	ANGLE DIR. D	ANGLE CALCULATED ANGLE	REMARKS
CPL 24	N/A	N/A	N/A	N/A	N/A	0.58	1.0"	41°	

ANII REVIEW
ANII [signature]
DATE 11-25-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 11/23/88
[signature] 11/23/88

TIOGA
PIPE SUPPLY COMPANY INC. 2450 Wheatsheaf Lane Phila., Pa. 19137

Certificate of Analyses and Tests

CUSTOMER TUBESALES

SPECIFICATION ASTM A312 COMP. 304

MATERIAL SMLS STAINLESS STEEL PIPE

CPL/34

DATE 3/30/76

YOUR ORDER # 5C-2814

OUR ORDER # 26847

ITEM	SIZE O.D.	WALL	MFG.	YIELD	ULTIMATE	ELONG	HYDRO TEST	HEAT	C.	Mn.	P.	Su.	Si.	Cr.	Mo.	NI	
1	10.750	1.000	TSI	41500	81200	64.0	2512	TH6649	.05	1.60	.030	.010	.41	18.10		9.07	
2	12.750	1.125	CIW	42100	80200	64.4	2315	F0959	.07	1.40	.029	.029	.43	18.27		10.45	
3	14.000	1.250	MPD	40000	78600	61.0	2673	1762	.07	1.45	.016	.013	.72	18.30		10.70	
4	14.000	1.406	MPD	43300	80600	55.5	2678	1990	.08	1.11	.020	.022	.57	19.32		9.69	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	

TUBESALES

THESE TEST REPORTS APPLY TO
Westinghouse Electric
P.O. NO. 544 X4 2314 77X
T/S NO. 5-2814
FOOTAGE _____ DATE 11/19/76

OTHER TESTS FLATTENING OK

THIS IS TO CERTIFY THAT THE MATERIAL FURNISHED ON THE ABOVE ORDER CONFORMS TO THE CHEMICAL AND PHYSICAL ANALYSIS AS COPIED FROM REPORTS FURNISHED US BY OUR SUPPLIERS, OR BY TESTS PERFORMED BY APPROVED LABORATORIES.

BY: Martin Fleisher

SUBSCRIBED AND SWORN TO BEFORE ME THIS 30TH DAY OF MARCH 19 76

Kosson

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH NA

SYST/COMP 12" SCH. 140 CAL. BLOCK PROCEDURE CPL-TBA-100 REV. 0

EXAMINER [illegible] LEVEL II DATE 11-20-88

EXAMINER _____ LEVEL II DATE _____

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	NA	# 800886
S/N	06210E	C03626	62410	NA	NA
SIZE	NA	0.375"	0.25"	NA	NA
FREQ.	NA	5 MHz.	2.25 MHz.	NA	NA
ANGLE	NA	0°	45°	45° WEDGE	NA
COUPLANT: SONOTRACE 40 BATCH # 8767					

			MINIMUM		MAXIMUM		ANGLE		
WELD ITEM:	SURFACE 2°	SURFACE 5°	DIR 1° LOCATION	CALCULATED THICKNESS	DIR 1° LOCATION	CALCULATED THICKNESS	DIR D	CALCULATED ANGLE	REMARKS
CPL 34	NA	NA	NA	NA	NA	1.07"	1.55"	36°	

ANII REVIEW
ANII [illegible]
DATE 11-26-88

Richard B. Weber 11/23/88
[illegible] 11/24/88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

CPL-36

TIOGA
PIPE SUPPLY COMPANY INC 2450 Wheatsheaf Lane Phila., Pa. 19137

Certificate of Analyses and Tests

CUSTOMER TUBESALES

SPECIFICATION ASTM A312 COMP. 304

MATERIAL SMLS STAINLESS STEEL PIPE

DATE 3/30/76

YOUR ORDER # 5C-2814

OUR ORDER # 26847

ITEM	SIZE O.D.	WALL	MFG.	YIELD	ULTIMATE	ELONG	HYDRO TEST	HEAT	C.	Mn.	P.	Su.	Si.	Cr.	Mo.	NI	
1	10.750	1.000	TSI	41500	81200	64.0	2512	TH6649	.05	1.60	.030	.010	.41	18.10		9.07	
2	12.750	1.125	CIW	42100	80200	64.4	2315	F0959	.07	1.40	.029	.029	.43	18.27		10.45	
3	14.000	1.250	MPD	40000	78600	61.0	2673	1762	.07	1.45	.016	.013	.72	18.30		10.70	
4	14.000	1.406	MPD	43300	80600	55.5	2678	1990	.08	1.11	.020	.022	.57	19.32		9.69	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	

TUBESALES

THESE TEST REPORTS APPLY TO

Westinghouse Austin

P.O. NO. 544 x4 2314 77X

T/S NO. 2-2814

FOOTAGE _____ DATE 11/19/76

OTHER TESTS FLATTENING OK

THIS IS TO CERTIFY THAT THE MATERIAL FURNISHED ON THE ABOVE ORDER CONFORMS TO THE CHEMICAL AND PHYSICAL ANALYSIS AS COPIED FROM REPORTS FURNISHED US BY OUR SUPPLIERS, OR BY TESTS PERFORMED BY APPROVED LABORATORIES.

BY: [signature]

SUBSCRIBED AND SWORN TO BEFORE ME THIS 30TH DAY OF MARCH 19 76

[signature]

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH N/A

SYST/COMP 14" SCH 120 CAL. BLOCK PROCEDURE CPL-TBA-100 REV0

EXAMINER [illegible] II / Ralph Churchfield I DATE 11-20-88
LEVEL II

EXAMINER _____ DATE _____
LEVEL II

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	N/A	#800886
S/N	06210E	C03626	62410	N/A	N/A
SIZE	N/A	0.375"	0.250"	N/A	N/A
FREQ.	N/A	5MHZ	2.25MHZ	N/A	N/A
ANGLE	N/A	0°	45°	45° WEDGE	N/A

COUPLANT: SONOTRACE 40 BATCH #8767

WELD IDENT.	SURFACE 2°	SURFACE 5°	MINIMUM DIR. T* LOCATION	MINIMUM CALCULATED THICKNESS	MAXIMUM DIR. T* LOCATION	MAXIMUM CALCULATED THICKNESS	ANGLE DIR. D	ANGLE CALCULATED ANGLE	REMARKS
CPL 36	N/A	N/A	N/A	N/A	N/A	1.28"	1.95	37°	
									ANII REVIEW ANII [illegible] DATE 11-25-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 11/23/88
[illegible] 11/23/88

BABCOCK & WILCOX

Tubular Products Division

ALLIANCE, OHIO-1 | BEAVER FALLS, PA.-2 | MILWAUKEE, WISCONSIN-3

TEST REPORT

CUSTOMER ORDER NO. 5A05850-N

DATE | DATE SHIPPED

5

SOLD TO: GUYON ALLOYS, INC.
950 SOUTH 4TH STREET
HARRISON, NEW JERSEY 07029

SB-8-160-SS

pg 1

NUCLEAR

Material was given a heat treatment consisting of heating to a minimum of 1900°F for a minimum of 10 minutes and water quenched.

STEEL WAS MELTED IN THE USA

SMLS CRCLOY 316 EF CD AW PIPE TO ASTM A 312 & ASTM A 376 & ASME SA 312 & ASME SA 376 EXP .04 MIN CARBON WITH CHECK ANALYSIS ON TWO PIPES EA LOT AND HEAT PER PARA 8 OF A/SA-312 AND A/SA-376

MARK: 10 OIL - PICKLED & PASSIVATED

CPL/58

Page 1 of 2

B & W ORDER NO. | O.D. | WALL | FROM | CODE NO. | "P" PARTIAL | "C" COMPLETE

ITEM	O.D.	WALL	LENGTH	SPECIAL MARKS		PCS.	FOOTAGE	HYDRO TEST LBS PER SQ. INCH	TESTS MADE
-A 042971-20293600035 09110000									ETCH
02	8 625	906 RL	12-19		C	8	141 80	2800 5 sec. hold	BEND
									FLATTENING ok
									FLANGE
									EXPANSION
									FLARE Intergramular
									CORROSION ok
									MICRO
									ULTRASONIC
									DYE PENETRANT

Dravo Corporation
E2936-120
Item 1

Q. A. APPROVED
BY Jerry DATE 12-3-75
BUREAU VERITAS INC.

SNH-34-9723-006-243-1

ITEM	HEAT NO.	CARB	MANG	SUL	PHOS.	SIL	CHROM.	NI.	MO.	CU.	C.B.	TI.
	See page two											

ITEM	HEAT NO.	ULTIMATE STRENGTH	YIELD POINT	% ELONG IN 2"	REDUCT IN AREA	HARDNESS
	See page two					

STRIP ☐ STD RD ☒ FULL SECTION ☐

NUCLEAR ENERGY SERVICES
Ken Brice LII 12-10-87
REVIEWED BY | DATE

DOCUMENT REVIEWED
BY 79 F L LUCAS
U. E. & C.

SWORN TO AND SUBSCRIBED BEFORE ME 11/14/75

NOTARY PUBLIC
Notary Public
W. Mifflin Borough, Allegheny Co., Pa.
My Commission Expires

THIS IS TO CERTIFY THE ABOVE TUBES AND PIPE HAVE BEEN INSPECTED AND TESTED IN ACCORDANCE WITH AND HAVE MET ALL THE REQUIREMENTS OF THE SPECIFICATIONS.

VJ

THE BABCOCK & WILCOX COMPANY BY

COMMISSION EXPIRES

FORM NO. 934

8-160-55 pg 2.

5

CERTIFICATE OF TESTS

B & W ORDER NO.	CUSTOMER ORDER NO.	SPECIFICATION
042971	A05850-N	

CHEMICAL ANALYSIS

ITEM	HEAT NO.	CARB.	MANG.	SUL.	PHOS.	SIL.	CHROM.	NI.	MO.	CU.	C.B.	TI.
	M0033	.054	1.75	.007	.023	.58	17.03	13.37	2.25			
	tube ck	.055	1.76	.007	.021	.55	17.04	13.28	2.23			
	tube ck	.056	1.77	.007	.020	.56	17.01	13.26	2.22			
	M0035	.052	1.69	.010	.030	.35	17.22	13.62	2.31			
	tube ck	.048	1.71	.011	.029	.35	17.28	13.49	2.30			
	tube ck	.047	1.70	.011	.028	.35	17.31	13.51	2.30			
	M0036	.046	1.68	.021	.022	.48	17.46	13.09	2.27			
	tube ck	.047	1.71	.022	.021	.46	17.42	13.20	2.27			
	tube ck	.047	1.71	.022	.020	.46	17.42	13.12	2.26			

NUCLEAR ENERGY SERVICES

J.G. Brise 12-15-82

REVIEWED BY DATE

NUCLEAR ENERGY SERVICES

R. Schlatter 7/16/83

REVIEWED BY DATE

ITEM	HEAT NO.	ULTIMATE STRENGTH	YIELD POINT	% ELONG. IN 2"	REDUCTION IN AREA	HARDNESS
	M0033	82000	37400	55		
	M0035	82900	37700	55		
	M0036	80900	35900	56		

SNH-34-3760-006-248-1

DOCUMENT REVIEWED
BY: 79 E.L. LUCAS
U.E. & C.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH N/A

SYST/COMP 8" SCH/160 CAL. BLOCK PROCEDURE CPL-TBA-100 REV.0

EXAMINER Neil A. Bynum II LEVEL II DATE 11-19-88

EXAMINER Paul J. Knollo II LEVEL II DATE 11-19-88

		TRANSDUCER					
	INSTRUMENT	"T"	TRANSMITTER		RECEIVER/ REFLECTOR		CAL. BLOCK
MAKE	SONIC	AERDTECH	KBA	AERDTECH	N/A	N.A	# 800886
S/N	06210E	57615	031238	F28235	N/A	N/A	N/A
SIZE	N/A	.375"	.375"	.250"	N.A	N/A	N/A
FREQ.	N/A	2.25MHZ	2.25MHZ	2.25MHZ	N/A	N/A	N/A
ANGLE	N/A	0°	45°	58°	45°	60°	N/A
COUPLANT: SONOTRACE 40				BATCH # 8767			

			THICKNESS		THICKNESS		ANGLE		
WELD IDENT.	SURFACE 2°	SURFACE 5°	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. D	CALCULATED ANGLE	REMARKS
CPL 58	N/A	N/A	N/A	N/A	N/A	.89"	2.25"	55°	60° ANGLE CHECK TAKEN AND THICKNESS TAKEN ON TOP OF CAL. BLOCK.
CPL 58	N/A	N/A	N/A	N/A	N/A	.89"	1.60"	42°	45° THICKNESS AND ANGLE CHECK TAKEN ON TOP CENTER OF CAL. BLOCK.

ANII REVIEW
ANII
DATE 11-25-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Fisher 11/23/88
Jim Black 11/23/88

1 Block #9040
H B. ROBINSON
PIPING BLOCK CPL/59

TIOGA PIPE SUPPLY COMPANY INC 2450 Wheatsheaf Lane Phila., Pa 19137

Certificate of Analyses and Tests

CUSTOMER NUCLEAR ENERGY SERVICES

DATE 1/19/88

SPECIFICATION ASME SA376 TY 316

YOUR ORDER # N127 22

MATERIAL SEAMLESS STAINLESS STEEL PIPE

OUR ORDER # 664495

ITEM	SIZE O.D.	WALL	MFG.	YIELD	ULTIMATE	ELONG	HYDRO TEST	HEAT	C.	Mn.	P.	Su.	Si.	Cr.	Mo.	NI		
1	10.750	1.125	C W	36700	80000	57.0	2800	2543-4-1	.06	1.60	.022	.025	.34	17.45	2.20	11.55		
2																		
3																		
4																		
5																		
6																		
7																		
8	HEAT TREATED 1950 DEGREES FOR 1/2 HOUR & RAPIDLY COOLED.																	
9																		
10																		
11																		
12																		
13																		
14																		

OTHER TESTS FLATTENING TEST - OK

NUCLEAR ENERGY SERVICES
Lou Bisen LTI 1-20-88
REVIEWED BY DATE

THIS IS TO CERTIFY THAT THE MATERIAL FURNISHED ON THE ABOVE ORDER CONFORMS TO THE CHEMICAL AND PHYSICAL ANALYSIS AS COPIED FROM REPORTS FURNISHED US BY OUR SUPPLIERS, OR BY TESTS PERFORMED BY APPROVED LABORATORIES

BY Louise Lorman

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____

DAY OF _____ 19 _____

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH NA

SYST/COMP 10" SCH 160 CAL. BLOCK PROCEDURE CPL TBA-100 REV 0

EXAMINER Arnold A. Bolin II (LEVEL II) Gary M. Ackerman I DATE 11-20-88

EXAMINER _____ (LEVEL II) DATE _____

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE	SONIC	KBA	PANAMETRICS	NA	# 800886
S/N	06210E	C03626	62410	NA	NA
SIZE	NA	0.375"	0.25"	NA	NA
FREQ.	NA	5 MHZ	2.25 MHZ	NA	NA
ANGLE	NA	0°	45°	45° WEDGE	NA
COUPLANT: SONOTRACE 40 BATCH #8767					

							ANGLE		
WELD IDENT	SURFACE 2°	SURFACE 5°	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. 1° LOCATION	CALCULATED THICKNESS	DIR. D	CALCULATED ANGLE	REMARKS
CPL 59	NA	NA	NA	NA	NA	1.18"	2.05"	41°	
									ANII REVIEW
									ANII [signature]
									DATE 11-25-88

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

Richard B. Weber 11/23/88
[signature] 11/23/88

THE MARK OF RELIABILITY

APPLIED TEST SYSTEMS, INC.

348 New Castle Road • P.O. Box 1529 • Butler, PA 16003
Telephone: 412/283-1212 • Telex: 86-6727 ATS BUTLER

CERTIFICATE OF COMPLIANCE
ULTRASONIC TEST BLOCK

ORDER NO. G881605

CUSTOMER Newco, Inc.

P.O. Box 4013

Florance, SC 29502

DATE Nov. 22, 1988

PURCHASE ORDER NO. 2788

ITEM	TEST BLOCK	SER. NO.	MATERIAL	TEST BLOCK SPECIFICATION
1	1 in. angle beam	801101	304 Stainless Steel	ATS Dwg. 1-1079 and ASTM E164.

These test blocks have been manufactured in accordance with applicable specifications, and have been inspected and found to be dimensionally accurate using measuring equipment traceable to the National Bureau of Standards.

Steve Schnur Quality Control Inspector Becky M. Wagner Block Operator

THE MARK OF RELIABILITY

APPLIED TEST SYSTEMS, INC.
348 New Castle Road • P.O. Box 1529 • Butler, PA 16003
Telephone: 412/283-1212 • Telex: 86-6727 ATS BUTLER

CERTIFICATE OF COMPLIANCE
ULTRASONIC TEST BLOCK

ORDER NO. G881439

CUSTOMER R. L. Holiday Company Inc.
525 McNeilly Road
Pittsburgh, Pa 17044

DATE 25 Oct. 1988

PURCHASE ORDER NO. P7439

ITEM	TEST BLOCK	SER. NO.	MATERIAL	TEST BLOCK SPECIFICATION
3.	4-Step Block	800886	304 Stainless Steel	ATS DWG. 2-1157

These test blocks have been manufactured in accordance with applicable specifications, and have been inspected and found to be dimensionally accurate using measuring equipment traceable to the National Bureau of Standards.

Michael S. Campbell Quality Control Inspector Gary G. [illegible] Test Block Operator

File: 06-15508

ATTACHMENT 6.1
Page 1 of 3

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date.....11-04-88
Admin. Supv. Original.....1	PROCEDURE REVIEW AND APPROVAL FORM	PCN.....16093
ONS Review.....1		Revision No.....0
Training Review.....1		Spec Proc. No.....SP-822
D. Weber Assigned Copies.....4		Temp. Change No.....N/A
Total (Minus Original)....7		Temp. Change Expires N/A (21 Days)

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-822

Pages Effected Entire Procedure 1-15

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-ISI-8 R/0 Visual Examination.

B. Reason for Revision: (List any commitments causing this change.)
To provide instructions to inspection personnel on the performance of visual examinations.

C. Does this Revision require other changes to the P.O.M? YES ____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES ____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by Richard B. Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure describes the visual examination techniques and documentation methods used in performing visual examinations. It is instructional only to the extent of determining what and how to examine components and document the results. There is no direct effect on plant equipment as a result of an instruction contained in this procedure, therefore no unreviewed safety question arises due to its use.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES ____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES ____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES ____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES ____ NO ✓

(5) Does this item require a change to Technical Specifications? YES ____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES ____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Wilson DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES ____ NO ✓

ALARA REVIEW REQUIRED? YES ____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES ____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO ____

B. REVISION RECOMMENDED BY: [signature] DATE 9/23/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) [illegible] DATE 10/25/88
ISI
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B.
Richard Weber — Richard B. Weber — 9/23/88
Safety Reviewer — Signature — Date

RICK DAYTON RAD — Rick Dayton — 10/25/88
Safety Reviewer 10/25/88 — Signature — Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

N/A
CNS Review — Date

PNSC Chairman — Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.

C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE ____

APPROVED: [illegible] — 10/28/88 — 11-04-88
MANAGER/FUNCTIONAL AREA — APPROVED DATE — EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 822

VISUAL EXAMINATION

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/26/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 16	0

SP- 822 Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

VISUAL EXAMINATION

FOR

H. B. ROBINSON

PREPARED BY: B. J. Lefebvre

B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: S R Armbrister

S. R. Armbrister, Manager
Inspection Services

VISUAL EXAMINATION PROCEDURE

1.0 SCOPE

1.1 This procedure is applicable to and describes examination techniques and recording requirements for visual examination of nuclear power plant parts, systems, components and their supports. Technical contents are based on Section XI of the ASME Boiler and Pressure Vessel Code 1977 Edition up to and including Summer 1978 Addenda.

1.2 The objective of this procedure is limited to the detection by nondestructive examination, of indications that may be related to serviceability, general mechanical condition, structural integrity, operability and leakage, that can be detected or determined by visual observation and "eye-ball" or simple measurements and manipulation. It is not intended to verify correct or complete installation of items against engineering drawings or other specifications.

Visual observation for evidence of leakage is limited to liquid leakage (usually water or oil) that is identified or related by a wetness, steam vapor or residue, e.g., boric acid. This procedure is not applicable for evidence or detection of air or gas leakage or to leakage that may be determined by pressure drop or flow rate tests.

1.3 Procedure CPL-DOC-101 Preservice and Inservice Documentation and the Examination Program Plan (EPP) are considered part of this procedure and are to be used as applicable.

1.4 Examinations in accordance with this procedure are intended to satisfy visual examination requirements of Section XI of the ASME Boiler and Pressure Vessel Code noted in 1.1.

2.0 DEFINITIONS

2.1 Visual examination ABNORMALITY - A condition that is or appears to be contrary to such as design, construction or installation requirements or practice. No evidence of degradation. Usually related to preservice or baseline conditions.

Examples:

- Arc strike on pressure retaining boundary
- Cotter pins - not spread
- Spring readings off scale
- Bolting tight but: not seated, not seated square, split washer not compressed, inadequate thread engagement

2.2 DEGRADATION - Deterioration caused by such as usage, environment damage or age.

Examples:

- Cracked and deformed parts
- Corrosion and erosion
- Leakage and nonfunctioning leakage collecting systems
- Stripped threads
- Loose bolting or fasteners
- Empty fluid reservoirs

2.3 LOSS OF INTEGRITY - A condition whereby the item is not performing or could not perform its intended function.

Examples:

- Separated welds
- Detached mechanical connections
- Empty fluid reservoir

2.4 EVIDENCE OF DISTRESS - An observation that the condition of the item or any part thereof has or appears to have degraded excessively but, not to the extent of loss of integrity.

2.5 Nondestructive EXAMINATION - (NDE) - Denotes the performance of any nondestructive examination method, including visual, and of simple manipulation, gaging and measurements in support of the examination.

Examinations are conducted to determine the presence or absence of irregularities or flaws that would impair or preclude the intended function of an item.

2.6 Nondestructive examination METHOD - Denotes a basic technology of the examination.

Examples: Radiography (RT); Ultrasonic (UT); Magnetic Particle (MP); Liquid Penetrant (LP or PT); Visual (VT or VE) .....

2.7 Nondestructive examination TECHNIQUE - Denotes a specific way of utilizing an NDE method. A technique is distinguished from another technique by at least one particular important variable.

Examples: X-rays and gamma rays are techniques of radiography; contact and immersion are techniques of ultrasonics; direct and remote are techniques of visual.

NOTE: Numbers appended to a method; e.g. VT-1, VT-2, VT-3 etc., do not indicate techniques. Such numbers are more appropriate for specifying where, when, why and on what to conduct the examination - not how.

For visual examination, methods/technique is more appropriately specified by appending D(Direct) or R(Remote) to the method, e.g., VT-D or VE-R.

2.8 Nondestructive TEST (NDT)- Denotes the application of physical conditions - usually pressure, operation, chemical or environmental.

TESTS are conducted to determine functional readiness of an item for service or acceptability for continued service.

3.0 GENERAL

3.1 EXAMINATION PERSONNEL

Personnel performing examinations to this procedure shall be certified to at least LEVEL-II for VISUAL examination. Such personnel may employ certified LEVEL I - VISUAL and/or TRAINEE-VISUAL personnel as assistants. However, résponsibility for satisfactory examination, results, and documentation shall be solely that of the LEVEL-II or III and he shall sign data sheets provided by such assistants.

Certification of all visual examination personnel shall be in accordance with the appropriate requirements of QA 2.4 Qualifications of Nondestructive Examination Personnel or an approved subcontractor's written practice and what is specified in the Section XI of the ASME B and PV Code that is noted in the EPP. See 1.3.

3.2 EQUIPMENT

Commercially available equipment, such as: portable lighting, mirrors, telescopes, borescopes, binoculars, magnifying lenses, fiber optics, T.V. cameras, simple gauges and tools, etc., may be used as is deemed necessary by the examiner to conduct the examination or, to reduce risk of injury or radiation exposure. Use of such equipment shall not reduce requirements specified for RESOLUTION.

3.3 LIGHTING

Natural or artificial lighting at the surface being examined, shall be sufficient to allow the examiner to achieve the required RESOLUTION.

3.4 RESOLUTION

Resolution shall be considered adequate for both DIRECT and REMOTE techniques when the combination of access, lighting and angle(s) of vision, either aided or unaided, allow the examiner to resolve a black line (1/32 of an inch wide or less) on an 18 percent neutral gray card if it were placed on the surface to the examined or in a situation similar to the surface to be examined.

3.5 ACCESS

Proper and safe access to the examination area and surfaces shall be the responsibility of the utility and shall include but not limited to:

A. Removal of insulation and other barriers that preclude "line of Sight" observation of the required surfaces, such as the interior of pumps and valves.

B. Ladders, scaffolds, ramps, etc., which as a minimum (except for pressure retaining bolting in place) allow use of REMOTE techniques.

C. Appropriate radiation shielding and/or decontamination consistent with the examiner'(s) ALARA exposure considerations.

D. Notification that all proper "TEST" parameters are in effect or completed when visual examinations are to be conducted in conjunction with or following a TEST.

Such notification shall be written and may simply be in the form of signed and dated (including time) notation on the data sheet.

4.0 TECHNIQUES

4.1 Examinations shall be conducted by either the DIRECT or the REMOTE technique.

4.1.1 DIRECT technique is achieved when access is sufficient to provide the examiner with a line of vision distance (directly or aided) that is not more than 2 feet from the surface to be examined and, at an angle of not less than 30 degrees to the surface. Mirrors may be used to improve the angle of vision.

4.1.2 REMOTE technique is achieved when the examiners' line of vision distance (directly or aided) is more than 2 feet from the surface to be examined. REMOTE technique may be substituted for DIRECT by employing appropriate and suitable equipment described in Section 3.0.

4.1.3 LIGHTING, RESOLUTION and ACCESS shall be as described in Section 3.0.

5.0 EXAMINATIONS

5.1 Examinations shall be conducted by utilizing either DIRECT or REMOTE techniques in accordance with 4.0 except as allowed in 5.1.1.

5.1.1 For the detection of evidence of leakage during conduct of pressure, hydrostatic or functional tests, and for

examinations of installed piping or component supports, the "RESOLUTION" requirement of 4.1.3 is not required.

5.2 The item to be examined and the method/technique to be used shall be as specified in the EPP.

5.2.1 If the method/technique is not specified, or if it is specified as VT-1, VT, VE, VT-D, or VE-D, the techniques as defined in 4.1 through 4.1.3 shall apply.

5.2.2 If the method/technique is specified as either VT-2, VT-3, VT-4, VT-R, VE-R, etc., the technique as defined in 4.1 through 4.1.3 shall apply, except the "Resolution" requirement of 4.1.3 need not apply.

5.3 Examinations shall be conducted to detect evidence of abnormality, degradation, distress and for loss of integrity. All indications of such conditions shall be investigated by the examiner so that he can assess them in terms of the recording criteria of 6.0.

5.4 The following provides additional specific examination requirements and examples of conditions to be detected. These and other conditions detected are to be considered by the Level II examiner during his assessment in terms of the recording criteria of 6.0.

BOLTING

Pressure Retaining - Installed

Insulation must be removed to the extent required to expose the entire bolted connection, including the juncture of the joined parts.

Loose parts
Missing parts
Abnormal corrosion

SP- 822 Rev. 0

Boric acid residue (on or near)
Erosion or cutting due to leakage
Damaged threads
Gaps under head or nut (not seated properly)
Split washer not fully compressed
Cross threads
Less than full thread engagement of nuts
Ineffective locking devices

Pressure Retaining - Removed

Cracks
Abnormal corrosion/erosion
Abnormal wear
Deformation/damage
Degraded coatings/plating

Non Pressure Retaining - Load Bearing

Loose parts
Missing parts
Abnormal corrosion/wear
Gaps under head or nut
Split washer not fully compressed
Cross threads
Stripped threads
Less than complete thread engagement of nuts
Ineffective locking devices

INTEGRAL ATTACHMENTS - To Pressure Retaining Boundary

Cracks
Evidence of leakage
ARC strikes on adjacent pressure retaining boundary
Abnormal corrosion

SP- 822 Rev. 0

INTERNAL SURFACES - Vessels, Pumps and Valves

Cracks
Corrosion/erosion
Loose parts
Debris
Scratches on sealing and bearing surfaces
Pitting (unusual or abnormal)
Wear on mating or moving surfaces
Indications of overheating
Galling

SUPPORTS, HANGERS and SNUBBERS - Installed, Only

Examination shall include all attachments to the component, to the building structure and, all connectings, parts and joints at intermediate locations.

Cracks
Loose and missing parts
Abnormal corrosion/wear
Gaps under head of nut or bolt
Split washer not fully compressed
Cross threads
Stripped threads
Less than complete thread engagement of nuts
Ineffective locking devices
Elongated bolt holes
Cracked or deteriorated concrete at building anchors
Restricted movement
Abnormal deflection
Fluid level below minimum limits
Fluid leakage

SP- 822 Rev. 0

Indicators exceed hot or cold limits

Misalignment

Extraneous matter on close tolerance machines or sliding surfaces

Deformed parts

LEAKAGE - During conduct of system pressure or functional TEST. See 3.5 D.

Non Insulated Systems and Components

Examination shall be conducted so as to observe the accessible pressure retaining surfaces. When such external surfaces are not accessible for direct observation, the building structure and equipment surfaces underneath and adjacent these systems and components shall be observed for evidence of leakage.

Insulated Systems and Components

Examinations shall be conducted so as to observe the accessible exposed surfaces and joints of the insulation for leakage and for abnormal discoloration and residues. Discoloration and residues, particularly if due to rust or boric acid, may require removal of insulation to determine their source.

Essentially horizontal surfaces of insulation shall be examined at each insulation joint. Essentially vertical surfaces of insulation need only be examined at the lowest elevation where leakage may be detectable.

When the insulation surfaces are not accessible for direct observation, the surrounding area to which leakage may be channeled, including the floor areas and equipment surfaces underneath the component shall be examined for evidence of leakage.

Collection Systems

Where leakage is normally expected and collected (such as valve stems, pump seals and the reactor vessel flange gaskets) operation of the collection system is to be determined by proper channeling or retention of the leakage.

Evidence of leakage may be indicated by such as:

Surface wetness (not due to condensation)
Dripping
Puddles
Steam or vapor
Unlikely "sweating"
Wet, damp or soggy non metallic insulation
Boric acid crystals
Oxidation residue trails
Abnormal or unlikely locations of corrosion

6.0 RECORDING OF INDICATIONS

6.1 The following indications shall be considered as - recordable indications - and recorded as RI.

All loss of integrity (see 2.3)
All evidence of distress (see 2.4)
All abnormality (see 2.1)
All degradation (see 2.2) that is accessed by the examiner as being such as abnormal, excessive, severe, major or unusual.

All leaks and evidence of leaks from pressure retaining boundaries.

6.2 All indications of degradation that is not recordable in accordance with 7.1 shall be considered as - non recordable indications - and recorded as NRI.

6.3 The absence of indications and indications that are not required to be assessed shall be considered as - no indications - and recorded as NI.

Indications not required to be assessed such as: fabrication marks (punches, stamps, rolling, forming and machining), chipped paint, weld spatter not on close tolerance or sliding surfaces, superficial scratches or abrasion and normal corrosion of exposed ferritic material.

7.0 All data and results shall be documented in accordance with instruction CPL-DOC-101. Enter a remark on the data sheet to indicate the type (VT-1, VT-3) of examination that was conducted. A single remark is sufficient if it is applicable to all of the identities on the sheet and is so noted.

8.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice - Inspection Report.

File: 06-15508

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date....11-04-8
Admin. Supv. Original.....1	PROCEDURE REVIEW AND APPROVAL FORM	PCN.....46096
ONS Review.....1		Revision No.....0
Training Review.....1		Spec Proc. No.....SP-82
D. Weber Assigned Copies.....4		Temp. Change No.....N/A
Total (Minus Original)....7		Temp. Change Expires N/A (21 Day

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-825

Pages Effected Entire Procedure 1-13

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-ISI-10 R/0 Qualification of Ultrasonic Manual Equipment

B. Reason for Revision: (List any commitments causing this change.)
To ensure qualification of manual ultrasonic equipment

C. Does this Revision require other changes to the P.O.M? YES____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B. Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure ensures equipment used for Ultrasonic examinations is qualified in accordance with Section XI ASME Code Requirements. No plant equipment is directly affected by this procedure. No Tech. Spec. or UFSAR Changes are required, therefore no unreviewed safety questions arises due to actions performed with this procedure.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES____ NO ✓

(5) Does this item require a change to Technical Specifications? YES____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Weber DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES____ NO ✓

ALARA REVIEW REQUIRED? YES____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO____

B. REVISION RECOMMENDED BY: [signature] DATE 9/23/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

N/A

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) [signature] DATE 10/25/88
I&I
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B.
Richard Weber — Richard B. Weber — 9/23/88
Safety Reviewer — Signature — Date

RICK DAYTON — RAD 10/25/88 — Rick Dayton — 10/25/88
Safety Reviewer — Signature — Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

N/A
CNS Review — Date

N/A
PNSC Chairman — Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.
C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE ____

APPROVED: [signature] — 10/28/88 — 11-04-88
MANAGER/FUNCTIONAL AREA — APPROVED DATE — EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 825

QUALIFICATION OF ULTRASONIC MANUAL EQUIPMENT

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/28/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 14	0

SP-825 Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

QUALIFICATION OF ULTRASONIC MANUAL EQUIPMENT

FOR

H. B. ROBINSON UNIT 2

PREPARED BY: B. J. Lefebvre

B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: S Armbrister

Steve Armbrister, Manager
Inspection Services

QUALIFICATION OF ULTRASONIC MANUAL EQUIPMENT

1.0 SCOPE

1.1 This procedure defines requirements for Qualification of Ultrasonic Manual Equipment to satisfy requirements of the ASME Boiler and Pressure Vessel Code 1977 Edition up to and including Summer 1978 Addenda.

1.2 Ultrasonic Manual Equipment shall be qualified on site to the requirements of this procedure at the beginning and end of each period of examinations. Qualifications may be valid for a period not to exceed three months, at the site for which qualified.

1.3 Personnel performing Qualification of Instruments and review to this procedure shall be certified to at least Level I UT.

2.0 ULTRASONIC EXAMINATION INSTRUMENTS

The ultrasonic examination instruments shall be portable battery operated with 8 hour battery packs and battery chargers or portable A.C. operated units. The instrument shall be of the pulse-echo type. It shall generate, receive, and present cathode-ray tube (CRT) screen pulses in the frequency range from one to at least six megahertz (MHz) minimum. The presentation on the CRT screen shall be the "Video type" and characterized by a clean, crisp trace.

2.1 The horizontal linearity of the examination instrument shall be within plus or minus 5 percent over the linear range which shall extend for a minimum of 90 percent of the sweep length presented on the CRT screen.

2.2 The examination instrument shall have a calibrated gain control (attenuator) adjustable in discrete 1 or 2 decibel steps over a range of at least 60 decibels. The accuracy of the gain control settings shall be within 1 DB, as determined in accordance with 3.3 (45% to 55% FSH).

2.3 The examination instrument shall be capable of maintaining vertical linearity such that the calculated ratios determined from signals developed in accordance with 3.2, do not deviate by more than 0.2 through 90% of full screen height.

2.4 Examination instrument utilizing battery power should include internal stabilization resulting in no greater variation than plus or minus 1 decibel following warm-up during battery operating life. There shall be an alarm or meter incorporated in battery powered instruments to signal a drop in voltage prior to instrument shut-off because of battery exhaustion.

3.0 LINEARITY DETERMINATION

The linearity requirements specified in the previous section shall be verified by performing checks utilizing a 2.25 MHz, 1-inch maximum diameter straight beam search unit in accordance with the following:

Each check shall be accomplished with a straight beam transducer and a ferritic steel calibration block that is 1/2" to 2" thick, and from which reflectors and reflector differences required to conduct the check can be achieved. All readings must be estimated to the nearest 1% of full screen. The controls or switches of the instruments, filter, reject and clipping shall be set to the minimum or off setting. Instruments that do not incorporate an uncalibrated gain or sensitivity control are exempt from the requirements of 3.3, but must meet requirements of 4.2.

3.1 Horizontal Linearity

Horizontal linearity shall be checked, as follows:

a. Place search unit on the test block and adjust the gain control to obtain clear multiple back surface reflections.

b. Adjust the delay control (zero adjustment) to align the initial pulse with the left (zero) side of the CRT graticule and the first back reflection with the number 1 CRT graticule.

c. Adjust the material calibration control to align the leading edge of the tenth multiple back surface signal with the right (10) side of the CRT graticule.

d. Repeat steps (b) and (c) until the first received signal is aligned at one and the tenth is aligned at 10.

e. Measure and record the distance along the horizontal sweep between the leading edge of each multiple back surface signal. For 100 percent linearity the location of each signal should coincide with each of the ten marked divisions on the CRT graticule.

f. Document results on form similar to that illustrated in Figure 1.

3.2 Vertical Linearity

With the instrument settings and test conditions as established in steps (a) (b) (c) (d) and (e) of 3.1 above check the vertical linearity by the following: (sweep may be shifted for better readings)

a. Adjust the instrument gain such that the eighth multiple back surface signal is one division of screen height amplitude.

b. Note and record the amplitude of both the eighth and ninth multiple back surface signals.

c. Adjust the instrument gain to increase the eighth back surface signal to an amplitude of two divisions of screen height.

d. Note and record the amplitude of both the eighth and ninth multiple back surface signals.

e. Continue adjusting the instrument gain to progressively increase the amplitude of the eighth multiple back surface reflection by one division each time. Note and record the amplitudes of the eighth and ninth multiple signals between each progressive increase.

f. Continue until the eighth signal reaches full screen height.

g. Document results on forms similar to that illustrated in Figure 2.

3.3 Attenuator/Sensitivity Control

The instrument calibrated gain control shall be verified by the following procedure.

a. The calibrated gain control or switches of the instrument shall be set such that the calibrated gain is set at the minimum.

b. The uncalibrated gain control shall be set at the maximum.

c. Place the search unit on the calibration block and adjust the uncalibrated gain control to obtain at minimum or maximum

amplitude settings a back surface response of 4 divisions amplitude. Multiple back surface signals may be utilized.

d. Increase the calibrated gain by 2 DB.

e. Note and record the amplitude of the selected back surface signal.

f. By adjusting the uncalibrated gain control reduce the back surface signal to 4 divisions as before.

g. Progressively increase the instrument calibrated gain in 2 DB steps, noting and recording the amplitude and re-setting to 4 divisions of screen height after every step.

h. Continue until the change in response for each 2 DB incremental step has been recorded up to the maximum of 60 DB.

i. Document results on form similar to that illustrated in Figure 3.

4.0 SUPPLEMENTAL LINEARITY EVALUATION

This section is intended to satisfy the "instrument" calibration requirements of Section XI ASME Boiler and Pressure Vessel Code 1977 Edition up to and including Summer 1978 Addenda. This section will be performed at the beginning and end of each period of extended use. Qualifications may be valid for period not to exceed three months. Results are to be documented on a form similar to that illustrated in Figure 4. Checks are to be conducted as follows.

4.1 Screen Height Linearity Verification

a. Position the search unit on an applicable calibration block described in 3.0 so that indications can be observed from any 2 separate reflectors. Adjust the search unit position to give a

2 to 1 ratio of amplitudes between the two indications, with the larger set at 80% of full screen height. Without moving the search unit, adjust sensitivity (gain) to successively set the larger indication from 100% to 20% of full screen height, in 10% increments (or 2 DB steps if a fine control is not available), and read the smaller indication at each setting. The reading must be within 5% full screen height. The readings must be estimated to the nearest 1% of full screen.

4.2 Amplitude Control Linearity Verification

a. Position the search unit on an applicable calibration block described in 3.0 so that ay convenient reflector can be peaked and adjusted to 80% FSH. With the increases and decreases in attenuation shown in the following table, the indication must fall within the specified limits.

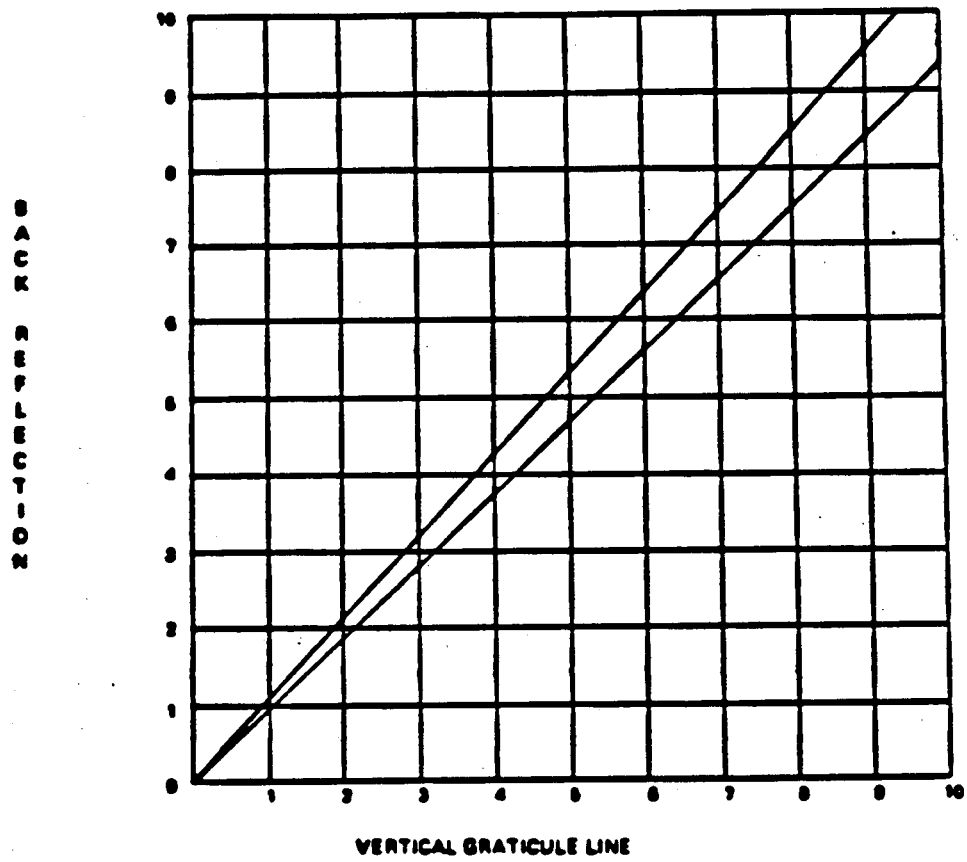
Indication set at % of full screen	DB Control Change	Indication limits, % of full screen
80%	- 6DB	32% - 48%
80%	- 12DB	16% - 24%
40%	+ 6DB	64% - 96%
20%	+ 12DB	64% - 96%

NOTE: Minus denotes decrease in amplitude; Plus denotes increase.

The readings must be estimated to the nearest 1% of full screen.

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT MFR. _____ MODEL _____ S/N _____

TRANSDUCER MFR. _____ SIZE _____ FREQ. _____ S/N _____

TEST PERFORMED BY _____ REVIEWED BY _____

LINEARITY IS ☐ ACCEPTABLE ☐ UNACCEPTABLE DATE _____

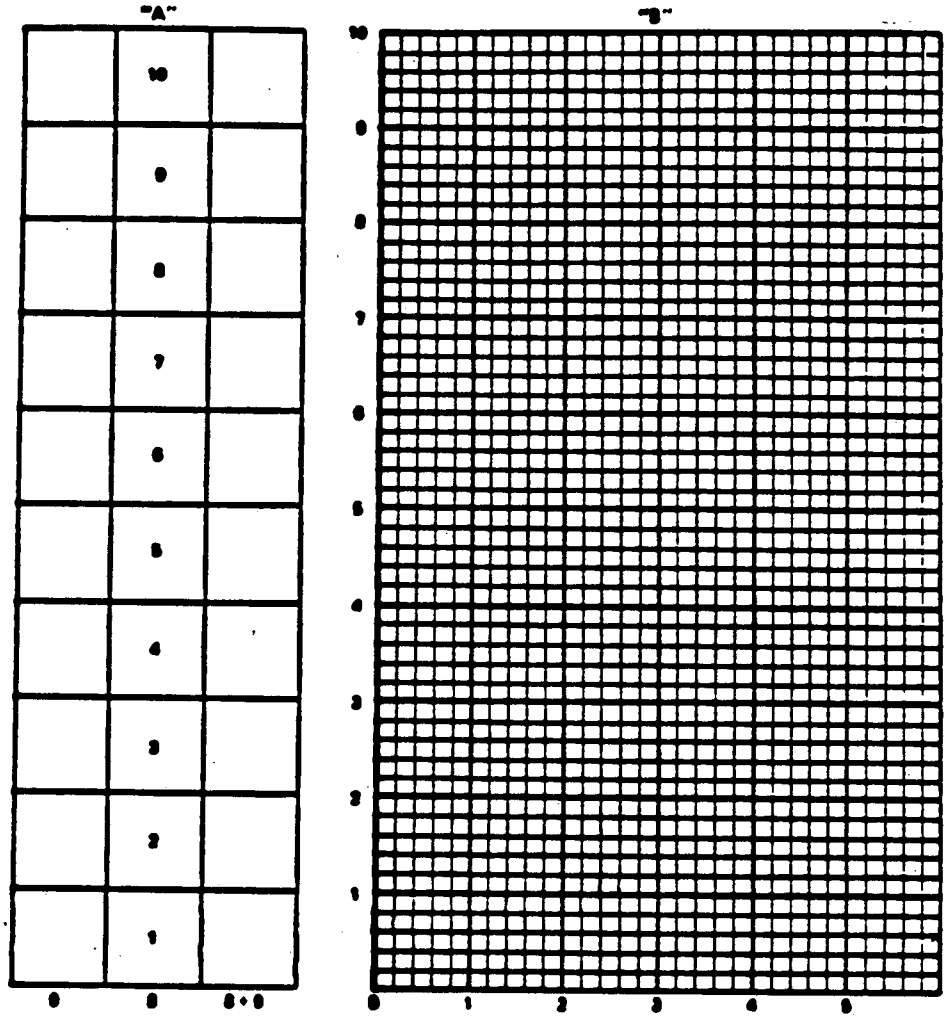
REMARKS _____

FIGURE 1

SP- 825 Rev. 0

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY



INSTRUMENT. MFR. _____ MODEL _____ S/N _____

TRANSDUCER MFR. _____ SIZE _____ FREQ. _____ S/N _____

TEST PERFORMED BY _____ REVIEWED BY _____

LINEARITY IS ☐ ACCEPTABLE ☐ UNACCEPTABLE DATE _____

REMARKS _____

FIGURE 2

SP- 825 Rev. 0

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp										

dB	22	24	26	28	30	32	34	36	38	40
Amp										

dB	42	44	46	48	50	52	54	56	58	60
Amp										

INSTRUMENT MFR. _____ MODEL _____ S/N _____

TRANSDUCER MFR. _____ SIZE _____ FREQ _____ S/N _____

TEST PERFORMED BY _____ REVIEWED BY _____

LINEARITY IS ☐ ACCEPTABLE ☐ UNACCEPTABLE DATE _____

REMARKS _____

FIGURE 3

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT _____ UNIT _____ DATE _____

EXAMINER _____ LEVEL II PROCEDURE _____

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	_____	SIZE	_____
MODEL	_____	FREQ	_____
SERIAL NO	_____	SERIAL NO	_____
COUPLANT	_____	ANGLE	_____

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	80%	60%	20%	80%	60%	40%	20%	20%
2ND SIGNAL	____	____	____	____	____	____	____	____	____

LIMITS 2ND SIGNAL MUST BE 80% OF 1ST SIGNAL, WITHIN 5% FSH

AMPLITUDE CONTROL LINEARITY VERIFICATION

ORIGINAL SIGNAL AMPLITUDE	DB CONTROL CHANGE	SIGNAL AMPLITUDE	SIGNAL AMPLITUDE LIMITS
80% FSH	-6DB	_____	35% - 45%
80% FSH	-12DB	_____	15% - 25%
40% FSH	+6DB	_____	65% - 85%
20% FSH	+12DB	_____	65% - 85%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE. PLUS DENOTES INCREASE

FIGURE 4

5.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice - Inspection Report.

File: 06-15508

ATTACHMENT 6.1
Page 1 of 3

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date.... 11-04-88
Admin. Supv. Original..... 1	PROCEDURE REVIEW AND APPROVAL FORM	PCN..... 16099
ONS Review..... 1		Revision No..... 0
Training Review..... 1		Spec Proc. No..... SP-828
D. Weber Assigned Copies..... 4		Temp. Change No..... N/A
Total (Minus Original).... 7		Temp. Change Expires N/A (21 Day

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-828

Pages Effected Entire Procedure 1-12

I. A. Proposed Revision: Addition of new procedure - Special Procedure CBL-ISI-11 R/0 Liquid Penetrant Examination

B. Reason for Revision: (List any commitments causing this change.)
To ensure that liquid penetrant examinations are conducted in accordance with Section XI A.S.M.E. Code

C. Does this Revision require other changes to the P.O.M? YES ____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES ____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B. Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure contains instructions to perform, evaluate and document results of penetrant examinations. Materials used are industry standard and control of chemicals are controlled to preclude any detrimental affects. Therefore, no unreviewed safety question arises due to the implementation of this procedure.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES____ NO ✓

(5) Does this item require a change to Technical Specifications? YES____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Weber DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES____ NO ✓

ALARA REVIEW REQUIRED? YES____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO____

B. REVISION RECOMMENDED BY: [signature] DATE 9/23/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

N/A

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) [illegible] DATE 10/25/88
ESE
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B. Richard Weber — Richard B. Weber — 9/23/88
Safety Reviewer — Signature — Date

RICK DAYTON — Rick Dayton — 10/25/88
Safety Reviewer 10/25/88 — Signature — Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

N/A

CNS Review — Date

PNSC Chairman — Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.

C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE ____

APPROVED: [illegible] — 10/25/88 — 11-04-88
MANAGER/FUNCTIONAL AREA — APPROVED DATE — EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 828

LIQUID PENETRANT EXAMINATION

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/28/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 13	0

SP- 828 Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

LIQUID PENETRANT EXAMINATION

H. B. ROBINSON

PREPARED BY: B. J. Lefebvre

B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: S. Armbrister

Steve Armbrister, Manager
Inspection Services

LIQUID PENETRANT EXAMINATION

1.0 SCOPE

1.1 This document defines requirements and procedures for conducting standard technique (60°F to 125°F) solvent removable liquid penetrant examinations of ferritic or austenitic materials, in either wrought, forged, or cast (non porous) product forms, including welds on or joining such materials or product forms. Technical contents are based on Section XI of the ASME Boiler and Pressure Vessel Code 1977 Edition up to and including Summer 1978 Addenda.

1.2 Procedure CPL-DOC-101, Preservice and Inservice Documentation, and the Examination Program Plan (EPP) noted therein are considered part of this procedure and are to be used as applicable.

1.3 Examinations in accordance with this procedure are intended to satisfy surface examination requirements based on Section XI of the ASME Boiler and Pressure Vessel Code that is noted in 1.1.

2.0 GENERAL

2.1 Personnel

2.1.1 Personnel performing examinations to this procedure shall be certified to at least LEVEL II for liquid penetrant examinations, based on a written procedure prepared in accordance with SNT-TC-1A, as may be modified by Section XI of the ASME Boiler and Pressure Vessel Code noted in 1.1. Personnel certified to any LEVEL for liquid penetrant examinations may be employed as assistants. However, responsibility for satisfactory examination,

results and documentation shall be solely that of the Level-II or III who must conduct the investigation and interpretation per 4.0 and he shall co-sign data sheets provided by such assistants.

2.2 Material/Equipment

2.2.1 Liquid penetrant materials shall have been tested for contaminants in accordance with Section V of the ASME Boiler and Pressure Vessel Code of the Edition and Addenda noted in 1.0 for Section XI. Acceptable certified test results, containing applicable batch numbers and manufacturer, shall indicate that (a) contaminant residues are not in excess of 0.005g/100g or, (b) that neither sulphur nor halogens are in excess of 1% of the residue by weight.

2.2.2 Liquid penetrant materials shall be selected from those listed in TABLE 1 and shall be in conformance with 2.2.1 LINES A, B, OR C SHALL NOT BE USED INTERCHANGEABLY.

2.2.3 Clean, absorbent and essentially lint free cloth or paper shall be used for cleaning and removing excess materials.

2.2.4 Portable lighting shall be used when ambient light is insufficient to show "color contrast".

2.3 Surface Area Condition

2.3.1 The surface area subject to examination and adjacent surface areas within at least 1 inch on all sides shall be free of paint, slag, spatter, oily films and other extraneous matter that would interfere with the examination.

2.3.2 The surface area subject to examination shall be free of abrupt mechanical surfaces that prevent adequate and timely manual cleaning and removal of excess penetrant. Weld surfaces having deep ripples or abrupt edges at the toes may, in the sole judgment of the examiner, require mechanical conditioning.

2.3.3 Surface condition, and access support (e.g. scaffolds, lighting, etc.) when required shall be the responsibility of the utility.

2.4 Extent of Examination

2.4.1 The item to be examined, including the required extent of adjacent surfaces to be examined, shall be as defined in the Examination Program Plan. This information shall be provided to the examiner assigned to conduct the examination.

Examination of the required surface shall be to the maximum extent practical. Any area which precludes 100% coverage of the required surface shall be documented as a Limitation to Examination. Reference 1.2.

3.0 PROCEDURE

3.1 Temperature

3.1.1 During the examination, temperature of the examination surface and of the penetrant materials being used are to be not less than 60°F and not more than 125°F.

3.1.2 When there is reasonable reason to suspect that either end of the temperature range is being approached or exceeded,

the examiner shall verify the actual temperature and document it on the Surface Examination Data Sheet. Otherwise, the examiner is to note on the same Data Sheet that he signs, a statement indicating that: "Exam. Temp. Within Limits."

3.1.3 For multiple examination surfaces that are, (1) on a single component, or that (2) are between two consecutive valves on piping systems, a single temperature verification or statement is sufficient.

3.2 Precleaning

3.2.1 The surface to be examined shall be thoroughly cleaned, using the appropriate volatile cleaning solvent from TABLE 1. Final wipe in the precleaning process shall be made with a clean and dry absorbent cloth or paper to ensure maximum removal of excess cleaner.

3.2.2 For rough or as welded surfaces, cleaner may be sprayed on the area directly, and at least 10 minutes shall elapse between final dry wipe and application of penetrant material.

3.2.3 For smooth or finished surfaces, cleaning may be accomplished with a clean cloth or paper highly dampened with cleaning solvent (cleaner not sprayed on the area) and at least 5 minutes shall elapse between final dry wipe and application of penetrant material.

3.2.4 Precleaning shall be such that the subsequent application of penetrant material wets the surface freely, and does not bead or "ball-up".

3.3 Penetrant Application

3.3.1 The surface to be examined shall be completely covered with penetrant material by either spraying or brushing. Overspraying and dripping to adjacent parts or surfaces shall be controlled. (Examiners - Note 6.1) The surface shall be kept wet for a minimum of 10 minutes to a maximum of 20 minutes.

3.3.2 If the penetrant beads or "balls-up" on the surface to be examined, it shall be removed and precleaning repeated.

3.4 Penetrant Removal

3.4.1 As much excess surface penetrant as possible shall be removed by wiping the surface thoroughly with a clean lint free dry cloth or absorbent paper.

3.4.2 Remaining excess surface penetrant shall be removed by wiping the surface with a clean lint free cloth or absorbent paper lightly moistened with cleaner (or penetrant remover). Flushing of the surface with any liquid following application of penetrant and prior to developing is prohibited.

3.4.3 A final wipe shall be made with a clean and dry absorbent cloth or paper to ensure dryness of the surface.

3.5 Developing

3.5.1 Developer shall be applied as soon as practical (but not later than 2 hours) after final dry wipe in penetrant removal. Developer shall be thoroughly agitated to disperse solids prior to application.

3.5.2 Developer shall be applied by spraying to achieve a thin even film or coating that covers the area being examined.

3.5.3 Examination for indications shall be started while the developer is being applied, however, final interpretation of developed indications shall not be made until the penetrant has been allowed to bleed out for at least 7 minutes and not longer than 30 minutes.

4.0 INVESTIGATING AND INTERPRETING INDICATIONS

4.1 Only bleed-out indications with a major axis dimension of 1/16 inch and greater need be investigated, to determine if they are caused by a valid surface discontinuity (crack, lap, lack of fusion, seam, cold shut, porosity, blow hole, etc.) or if they are false (not due to valid surface discontinuity).

4.1.1 Heavy or sharp bleed-out, such as may occur at natural geometric discontinuities (e.g., deep weld ripples and abrupt toes, corners, etc.) may mask valid indications and may be difficult to interpret accurately. Such cases shall be re-examined and may, in the sole judgment of the examiner who must make the interpretation and sign for the examination, require additional surface conditioning or preparation prior to examination. Such bleed-out shall be considered as valid indications until re-examined and interpreted to be otherwise.

4.1.2 Valid surface indications shall be recorded as required by 5.0.

5.0 INDICATIONS TO BE RECORDED

5.1 The following valid indications shall be considered as--recordable indication and recorded as RI. Provide sketch or describe to show location, size, and orientation.

a. Linear and curvilinear having length of 1/16 inch or longer. Include all rounded and all linear/curvilinear within 1/2 inch in all directions from the principal indication.

b. Rounded having a major axis dimension of 1/8 inch or greater and including all smaller rounded within 1/2 inch in any direction.

c. Two or more rounded (less than 1/8 inch) that are separated by 1/8 inch or less. If indications are numerous, describe a square or rectangular size within which they are contained.

d. Any indication due to surface condition, that cannot be interpreted as false.

5.2 All valid indications not recordable as required by 5.1 shall be considered as non-recordable indications and noted as NRI. The general location of such indications shall be recorded by examiners remarks, comments, or by a sketch.

5.3 All other indications and the absence of indications shall be considered as--no indication--and noted as NI.

6.0 POST CLEANING

6.1 Following the examination, all areas shall be wiped clean of developer, overspray and drippings resulting from 3.2.1. Areas containing recordable indications (RI) may be left as is to help

reviewers find and locate the area. A cleaner from Table 1 may be used as necessary.

7.0 EXAMINATION RESULTS AND DOCUMENTATION

7.1 All data relative to the examination and results shall be recorded in accordance with instruction CPL-DOC-101.

TABLE 1

	Cleaner	Penetrant	Developer
A.	Spotcheck, SKC-NF	Spotcheck SKL-HF/SKL-S*	Spotcheck, SKD-NF
B.	Spotcheck, SKC-S	Spotcheck SKL-HF/SKL-S	Spotcheck, SKD-S
C.	Double-check, DR-60	Double-check DP-51	Double-check D100

* Also identified as SKL-HF/S

8.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice-Inspection Report.

File: 06-15508

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date... 11-04-
Admin. Supv. Original..... 1	PROCEDURE REVIEW AND APPROVAL FORM	PCN..... 1609
ONS Review..... 1		Revision No..... 0
Training Review..... 1		Spec Proc. No..... SP-8
D. Weber Assigned Copies..... 4		Temp. Change No..... N/A
Total (Minus Original).... 7		Temp. Change Expires N/A (21 D

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-824

Pages Effected Entire Procedure 1-10

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-ISI-15 R/0 Manual Ultrasonic Examination of Bolting

B. Reason for Revision: (List any commitments causing this change.)
To ensure ultrasonic examination of Studs, Bolts and Nuts is accomplished in accordance with Section XI A.S.M.E. Code.

C. Does this Revision require other changes to the P.O.M? YES ____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES ____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B. Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure was developed to detect cracking should any be present in pressure retaining Studs, Bolts & Nuts. No adverse affect on the component will result due to this examination. Proper controls are included to preclude use of undesirable chemical properties in compounds, therefore this procedure enhances safety and no unreviewed safety question arises due to its use.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES ____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES ____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES ____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES ____ NO ✓

(5) Does this item require a change to Technical Specifications? YES ____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES ____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Weber DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES ____ NO ✓

ALARA REVIEW REQUIRED? YES ____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES ____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO ____

B. REVISION RECOMMENDED BY: [signature] DATE 9/23/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) [illegible] DATE 10/20/88
I&I
Signature

(2) [illegible] DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. ___Nuclear Plant Operations ___Reactor Engineering ✓Mechanical
___Electrical I&C ___Structural/Seismic/Thermal ___Metallurgy
___Chemistry/Radiochemistry ___Health Physics ___Admin.Controls

B. Richard Weber — Richard B. Weber — 9/23/88
Safety Reviewer — Signature — Date

RICK DAYTON [illegible] RAD 10/25/88 — Rick Dayton — 10/25/88
Safety Reviewer — Signature — Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

CNS Review N/A Date

PNSC Chairman Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ___ TEMPORARY CHANGE CANCELLED.

C. ___ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE ___

APPROVED: [illegible] — 10/28/88 — 11-04-88
MANAGER/FUNCTIONAL AREA — APPROVED DATE — EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ___ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP-824

MANUAL ULTRASONIC EXAMINATION OF BOLTING

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/28/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 11	0

SP-824

Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

MANUAL ULTRASONIC EXAMINATION OF BOLTING

FOR

H. B. ROBINSON UNIT 2

PREPARED BY: B. J. Lefebvre

B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: S R Armbrister

S. R. Armbrister, Manager
Inspection Services

SP-824 Rev. 0

MANUAL ULTRASONIC EXAMINATION OF BOLTING

1.0 SCOPE

1.1 This procedure is applicable to and describes requirements for manual ultrasonic examinations of bolts, studs and nuts. Technical contents are based on the ASME Code, including Section XI-IWA-2240 when dictated and to implement upgraded technology or good practice.

1.2 Procedure CPL-DOC-101 Preservice and Inservice Documentation and the Examination Program Plan noted therein are considered part of this procedure and are to be used as applicable.

1.3 Examinations in accordance with this procedure are intended to satisfy volumetric examination requirements of Section XI of the ASME Boiler and Pressure Vessel Code 1977 Edition Summer 1978 Addenda.

2.0 GENERAL REQUIREMENTS

2.1 Personnel performing examinations to this procedure shall be certified to at least Level II for ultrasonic examinations, based on a written procedure prepared in accordance with SNT-TC-1A, as may be modified by the applicable ASME Section XI noted in 1.3. Personnel certified to any LEVEL for ultrasonic examinations may be employed as assistants. Responsibility for satisfactory examination, results, and documentation shall be solely that of the Level II or III and he shall sign datasheets provided by such assistants.

2.2 Ultrasonic flaw detection instruments shall be of the pulse echo type with an A-Scan presentation and shall be qualified to the requirements of CPL-ISI-10 at the beginning of each period of extended use. Qualification may be valid for a period not to exceed three months.

SP-824 Rev. 0

2.3 Piezoelectric transducers used shall be as follows:

2.3.1 Bolts and studs 4 inch and greater in diameter - 1.0" diameter 2.25 MHZ straight beam.

2.3.2 Bolts and studs less than 4 inch in diameter and all nuts -0.250, 0.375, or 0.50 inches in diameter and either 2.25 or 5.0 MHZ straight beam.

2.4 Couplant shall be a suitable liquid, semi-liquid or paste, such as Echogel, Exosen, Sonotrace, Trim, Ultragel, or Glycerin, that is certified as containing not more than 1% by weight, of residual sulphur and halogens.

2.5 The item to be examined, including the required extent of adjacent volume to be examined, shall be as defined in the Examination Program Plan. This information shall be provided to the examiner assigned to conduct the examination. Examination of the required volume shall be to the maximum extent practical. For preservice examinations only, the extent that cannot be examined shall be noted. See paragraph 7.0.

2.6 Transducer scan surfaces shall be essentially free of dirt, spatter, paint, coatings and irregularities that impair smooth uninterrupted contact of the search unit and coupling of the sound beam into the material.

2.6.1 Surface condition and access support (e.g., scaffolds, lighting, etc.) if required, shall be the responsibility of the utility.

3.0 CALIBRATION

3.1 For bolts and studs less than 4 inch in diameter and all nuts the calibration shall be accomplished by setting the first back surface reflection from the part being examined to 80 percent of FSH (Full Screen Height).

3.2 For bolts and studs 4 inch and greater in diameter, calibration shall be established by using a calibration block similar to the one illustrated in Figure 1 and a DAC (Distance Amplitude Curve) similar to the experimentally determined curve in Figure 2.

3.2.1 Use the multiple back surface reflections from the calibration standard to adjust the instrument sweep so that more than one half of the bolt or stud length will be displayed on the screen.

3.2.2 Adjust the first peaked signal from the calibration hole to 70% amplitude on the screen and lock the gain or sensitivity control. Mark this pulse position and amplitude point and the position and amplitude point of the first multiple from the hole on the screen to establish a DAC curve for the first 10 inches of metal travel as illustrated in Figure 2, Curve A.

3.2.3 Establish a DAC curve for the remaining length of the examination zone by increasing sensitivity by 12 DB (using switches or detent controls only) and marking the curve according to Figure 2, Curve B. Note: The 12 DB increase in sensitivity is a 4x increase that will raise the experimentally developed DAC curve into a more accurately interpretable area of the screen.

3.3 Calibration shall be verified at the beginning of each day of examination and at the end of each examination category or every four hours, whichever is less, and with any change of examination personnel or equipment. A DECREASE in sensitivity of more than 2 DB shall require recalibration and reexamination of all items examined since the previous acceptable calibration or check. An INCREASE in sensitivity of more than 2 DB shall require recalibration and re-investigation of all indications recorded since the previous acceptable calibration or check.

4.0 EXAMINATIONS

4.1 Bolts and studs less than 4 inch in diameter shall be examined from one end surface only. Examination of these bolts and studs may be conducted while installed providing the geometry and surface condition of the exposed ends are conducive to a meaningful examination.

4.2 Bolts and studs 4 inch and greater in diameter shall be examined from both end surfaces, when accessible or when disassembled. When only one surface is accessible the examination length is restricted to 33 7/8 inches.

4.3 All nuts shall be examined from the top or bottom surface only and only when disassembled.

4.4 Scanning shall be accomplished in concentric circular patterns or along the radius lines with at least a 10 percent scan overlap, such that the entire end surface is scanned. A short saw-tooth scan pattern may be used to improve discrimination of reflections from threaded areas.

4.5 Reflections from the threaded areas shall be carefully observed to detect and investigate possible indications emanating from these sections.

5.0 INTERPRETATION AND INVESTIGATION

5.1 All non-geometric indications from threaded areas shall be evaluated and recorded. All other indications exceeding 20 percent of the DAC curve shall be investigated to determine maximum response, location and probable cause.

5.2 For bolts and studs 4 inch and greater in diameter, indications that are 50 percent of the DAC curve or greater shall be recorded on the ultrasonic indication record sheet to the extent that shape, orientation, and location can be assessed.

5.3 For bolts and studs less than 4 inch in diameter and all nuts indications that are 50 percent or greater than the back surface calibration amplitude shall be evaluated and recorded on the ultrasonic indication sheet to the extent that shape, orientation, location and possible identity of the indication producing area can be assessed.

5.4 Indications judged to be caused by beam redirection and or wave mode change shall be verified by use of another transducer size and/or frequency and noted on the data sheet. Signals rsulting from the thread surfaces or other designed geometry need not be recorded.

6.0 POST CLEANING

6.1 Examined areas shall be dry wiped to remove excess wet couplant, if necessary.

7.0 EXAMINATION RESULTS AND DOCUMENTATION

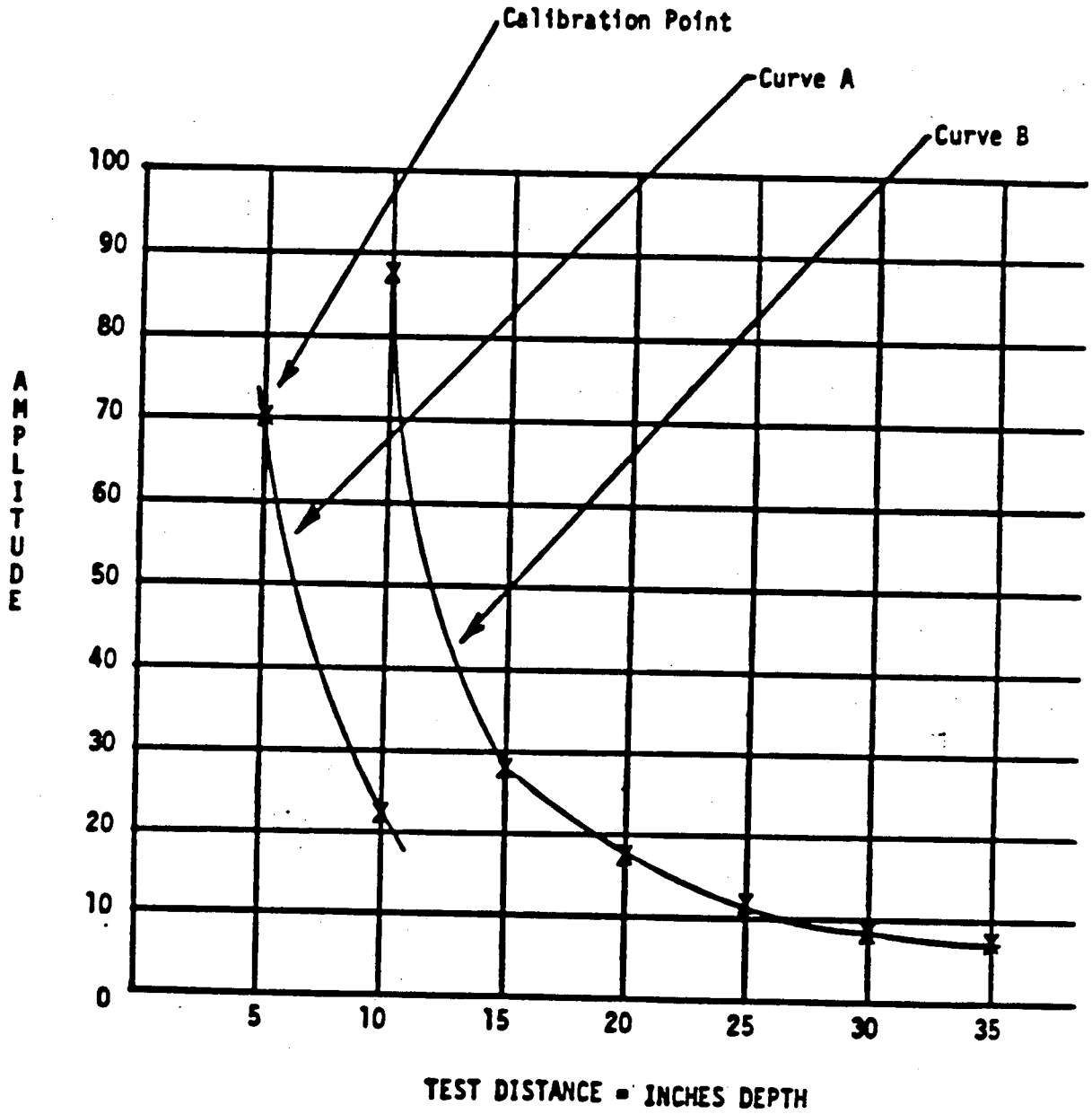
7.1 All data relative to examinations shall be recorded in accordance with CPL-DOC-101.

ILLUSTRATIVE ONLY

FIGURE 2

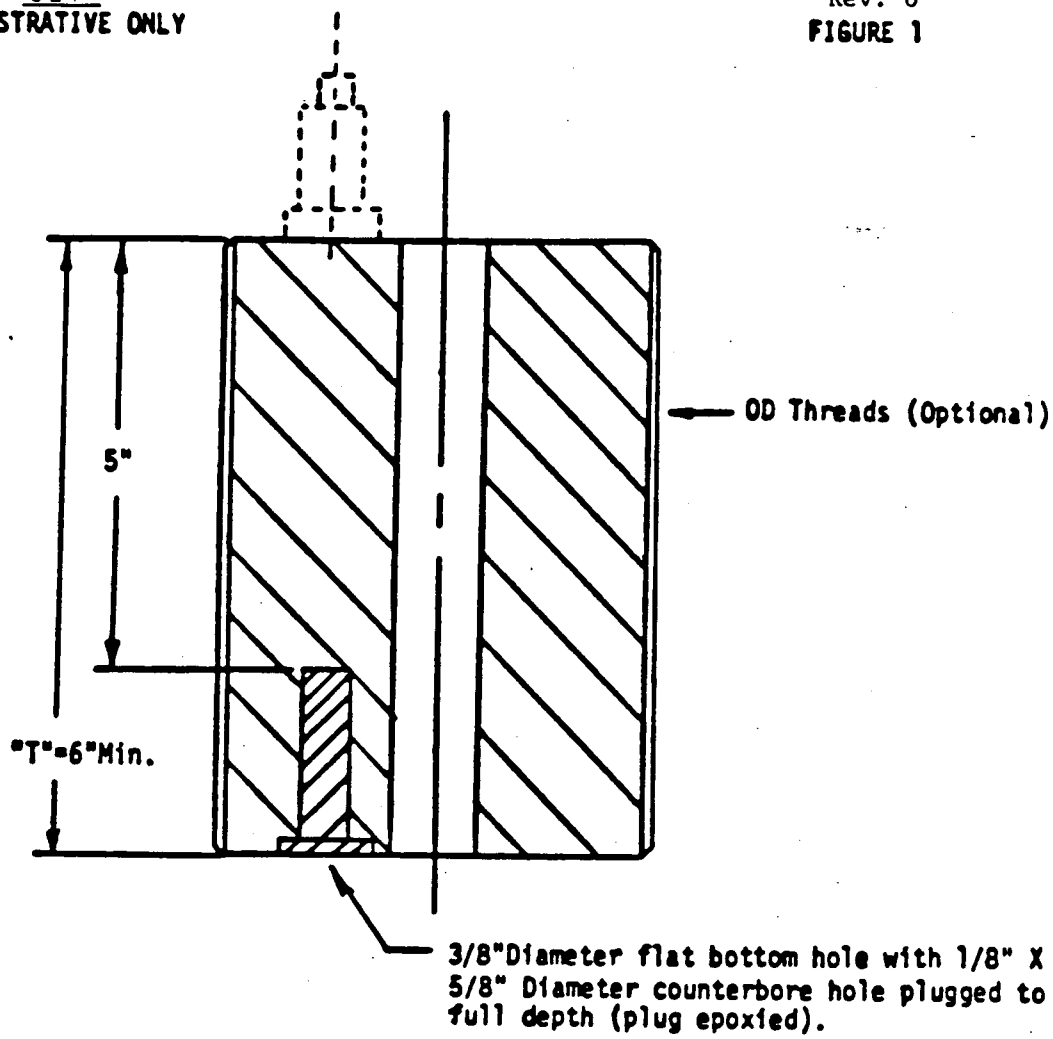
DISTANCE AMPLITUDE CORRECTION

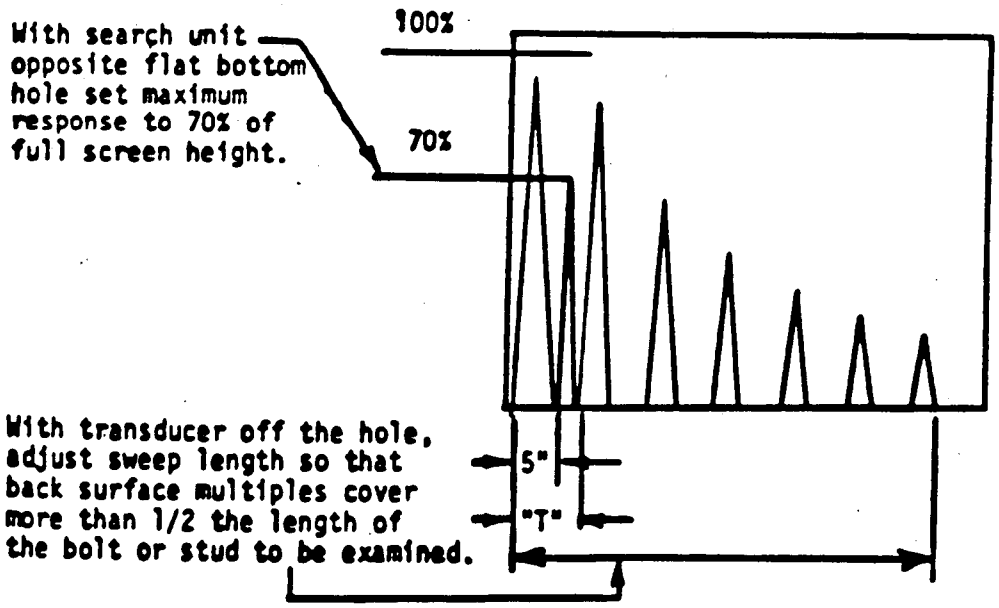
REFLECTION AMPLITUDE % SCREEN HEIGHT



ILLUSTRATIVE ONLY

FIGURE 1





8.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice-Inspection Report.

File: 06-15508

ATTACHMENT 6.1
Page 1 of 3

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date....11-04-86
Admin. Supv. Original.....1	PROCEDURE REVIEW AND APPROVAL FORM	PCN.....16100
ONS Review.....1		Revision No.....0
Training Review.....1		Spec Proc. No.....SP-82
D. Weber		Temp. Change No.....N/A
Assigned Copies.....4		Temp. Change Expires N/A (24 Day
Total (Minus Original)....7		

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-829

Pages Effected Entire Procedure 1-14

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-IST-41 R/0 Manual Ultrasonic Examination of Reactor Coolant Pump Flywheels.

B. Reason for Revision: (List any commitments causing this change.)
To ensure Flywheels are examined in an acceptable manner.

C. Does this Revision require other changes to the P.O.M? YES____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B. Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure is developed to detect cracking should any be present in reactor coolant pump flywheels. It enhances safety by determining the structural integrity of the flywheel without causing any detrimental affects. Therefore no unreviewed safety question arises due to use of this procedure.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES____ NO ✓

(5) Does this item require a change to Technical Specifications? YES____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Weber DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES____ NO ✓

ALARA REVIEW REQUIRED? YES____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO____

B. REVISION RECOMMENDED BY: [signature] DATE 9/13/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: N/A TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) [signature] DATE 10/25/88
TSE
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B.
Richard L. Weber — Richard B. Weber — 9/23/88
Safety Reviewer — Signature — Date

RICK DAYTON RAD 10/25/88 — Rick Dayton — 10/25/88
Safety Reviewer — Signature — Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

N/A
CNS Review — Date

PNSC Chairman — Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.

C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE ____

APPROVED: [signature] — 10/28/88 — 11-04-88
MANAGER/FUNCTIONAL AREA — APPROVED DATE — EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 829

MANUAL ULTRASONIC EXAMINATION OF REACTOR COOLANT PUMP FLYWHEELS

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/28/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 15	0

SP- 829

Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

MANUAL ULTRASONIC EXAMINATION OF REACTOR COOLANT PUMP FLYWHEELS

FOR

H. B. ROBINSON UNIT 2

PREPARED BY: B. J. Lefebvre

B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: S R Armbrister

S. R. Armbrister, Manager
Inspection Services

SP-829 Rev. 0

MANUAL ULTRASONIC TESTING OF REACTOR COOLANT PUMP FLYWHEELS

1.0 SCOPE

This procedure establishes the requirements for the ultrasonic straight beam methods for examining R. C. Pump Flywheels.

This procedure is written in compliance with the applicable tech. specification and NRC Reg. Guide 1.14.

2.0 EQUIPMENT

2.1 Ultrasonic flaw detection units shall be of the pulse echo type with a A-Scan presentation and shall be qualified to the requirements of CPL-ISI-10 at the beginning of each period of extended use. Qualifications may be valid for a period not to exceed three months.

2.2 The search units shall be straight beam type of a nominal frequency of 2.25 mHz. Other frequencies in the range 1.0 mHz to 5.0 mHz may be utilized if product grain structure precludes achieving the necessary penetration or sensitivity required. Test frequency must be reported on the data sheet. Search units shall be of the piezoelectric material comparable with zirconate titanate. Search unit configuration will include a special design internal probe for gage hole insertion and not to exceed 1 inch diameter for flywheel periphery inspection.

2.3 Couplant shall be a suitable liquid, semi-liquid or paste, such as Echogel, Exosen, Sonotrace, Trim, Ultragel or glycerin, that is certified as containing not more than 1% by weight, of residual sulphur and halogens.

2.4 Examined areas shall be dry wiped to remove excess couplant.

3.0 PERSONNEL QUALIFICATION

3.1 Personnel performing examinations to this procedure shall be certified to at least Level II for ultrasonic examinations, based on a written procedure prepared in accordance with SNT-TC-1A, as may be modified by the applicable ASME Section XI. Personnel certified to any level for ultrasonic examinations may be employed as assistants.

4.0 SURFACE CONDITION AND MATERIAL PREPARATION

4.1 The area or item to be examined is as specified in the Examination Program Plan. The extent of examination shall be to the maximum extent practical.

4.2 Surfaces from which the examinations are conducted shall be clean and free from all foreign matters, pits, nicks, or dents, etc., that would adversely affect or limit the examination. If such conditions are detected, they shall be rectified prior to conducting the examination.

5.0 CALIBRATION

Calibration shall be in accordance with the following, dependent upon the test being performed:

5.1 For the "Keyway Corner" Examination

5.1.1 Sight the bore of the flywheel using the special "gage hole" probe. (See Figure 1).

5.1.2 Bring this bore reflection to 90% (minimum) of screen height.

5.2 For the "Radial Gage Hole" Examination

5.2.1 Sight two (2) of the "ream bolt" holes using the gage hole probe. (See Figure 2). The hole selected for longest metal path shall be a minimum 27 inches distance. Set the near hole to 80% of CRT.

5.2.2 Construct a distance amplitude correction curve using the side of these two (2) holes. Extend the calibrated sweep length to 35 inches maximum metal path.

5.3 For the "Periphery" Examination

5.3.1 Sight one (1) of the "ream bolt" holes from the top plate and once again from the bottom plate. (See Figure 3). Set the lower plate response to a minimum 80 percent of CRT height.

5.3.2 Construct a distance amplitude correction curve using the side of the hole.

5.4 Calibration shall be verified at the beginning of each day of examination, and at the end of each examination category or every four hours, whichever is less, and with any change of examination personnel. A DECREASE in sensitivity of more than 2DB shall require calibration and re-examination of all items examined since the previous acceptable calibration or check. An INCREASE in sensitivity of more than 2DB shall require recalibration and re-investigation of all indications recorded since the previous acceptable calibration or check.

6.0 SCANNING

Scanning when possible shall be at a gain setting of two times the primary reference level and in accordance with the following, dependent upon the examination being performed.

6.1 For the "Keyway Corner" Examination

6.1.1 Scanning of the keyway corners shall be accomplished starting at the top of the gage hole and "rolling" the sonic beam from bore reflection over to examine the keyway and back. The probe shall then be inserted no more than 3/4 of the sonic elements active length and an additional scan is performed until the entire length of the keyway has been examined.

6.1.2 Each gage hole shall be used to examine the keyway corners for indications propagating from the keyway at approximately 90° to the sound path. (See Figure 4).

6.2 For the "Radial Gage Hole" Examination

6.2.1 Scanning shall be made by inserting and retracting the probe no more than 3/4 of the search unit active width (1/2 inch) for each insertion.

6.2.2 Each of the four (4) gage holes shall be used to scan the complete accessible portion of the flywheel cross section. (See Figure 5).

6.3 For the "Periphery" Examination

6.3.1 Scanning from the edge shall include the area from the edge up to and including the gage holes. (See Figure 6).

6.3.2 The transducer, where possible, shall be moved progressively across and along the flywheel edge so as to scan the entire edge overlapping each previous scan by at least 10 percent of the transducer diameter.

7.0 EVALUATION OF INDICATIONS

All indications that produce a response greater than the following shall be investigated to the extent that the operator can determine the size, identity, and location of the reflectors.

7.1 For the "Keyway Corner" examination: All indications that exhibit a deviation from the normal geometry pattern of the keyways shall be recorded.

7.2 For the "radial gage hole" or "periphery" examinations: All indications having a response greater than the distance amplitude correction curve shall be recorded.

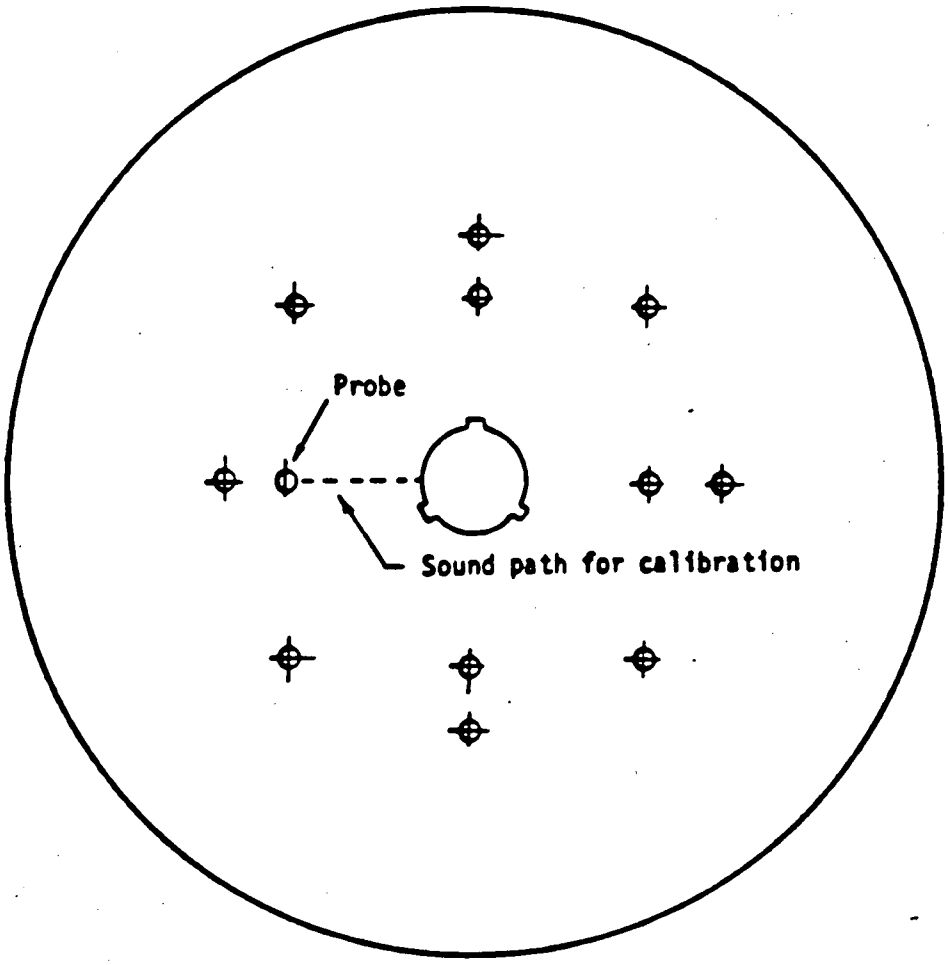
8.0 DATA RECORDING

All data relative to the examinations and results shall be recorded in accordance with CPL-DOC-101.

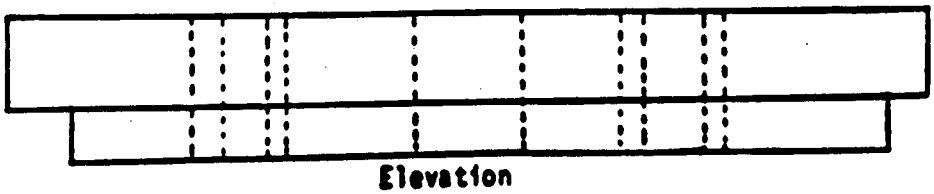
SP-829
Illustrative Only
Figure 1

Rev. 0

Reactor Coolant Pump Flywheel



Plan



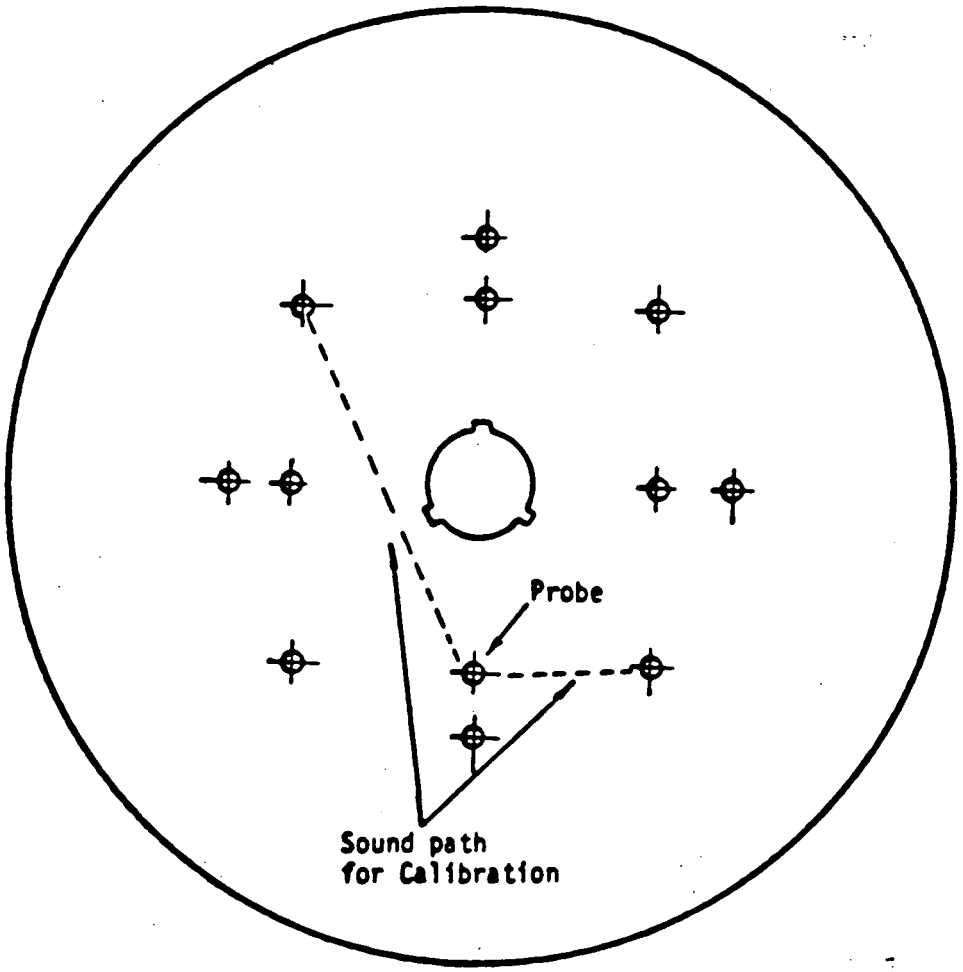
Elevation

SP-829 Rev. 0

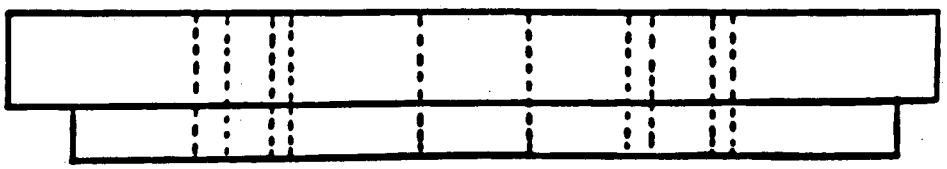
Illustrative Only

Figure 2

Reactor Coolant Pump Flywheel



Plan



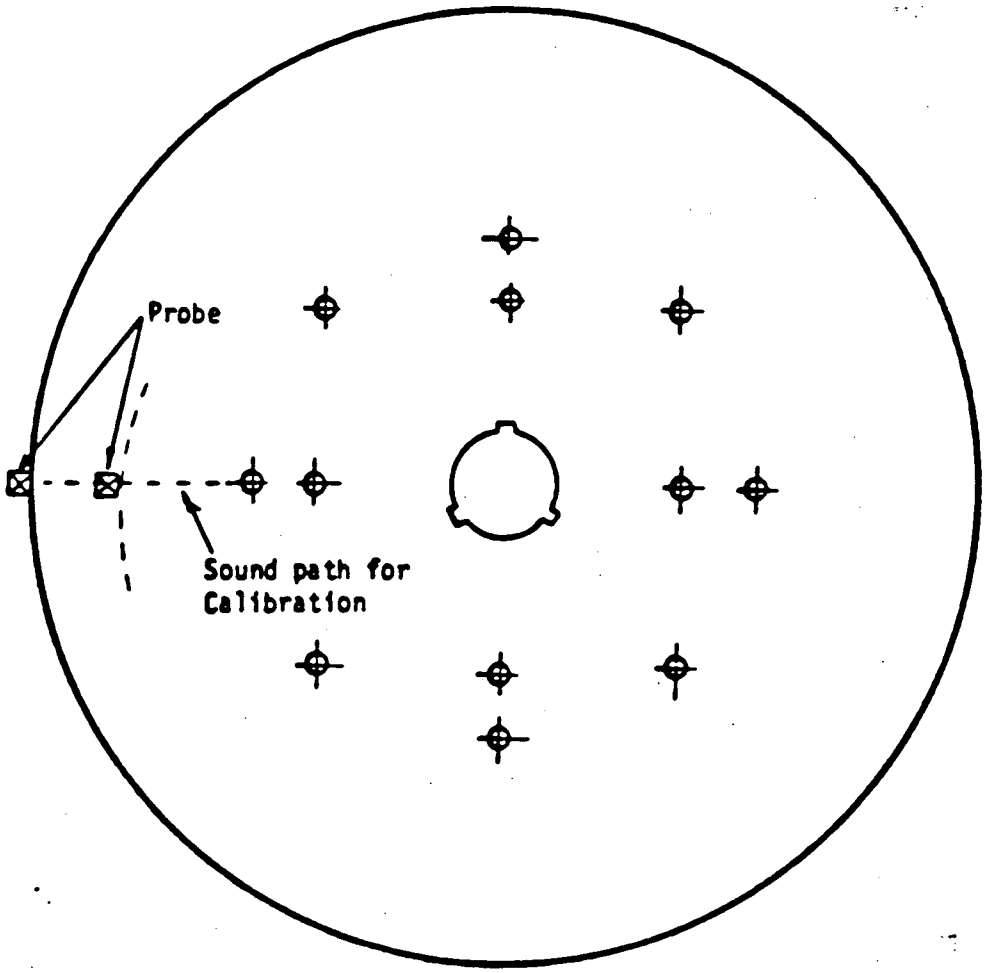
Elevation

SP- 829
Illustrative Only

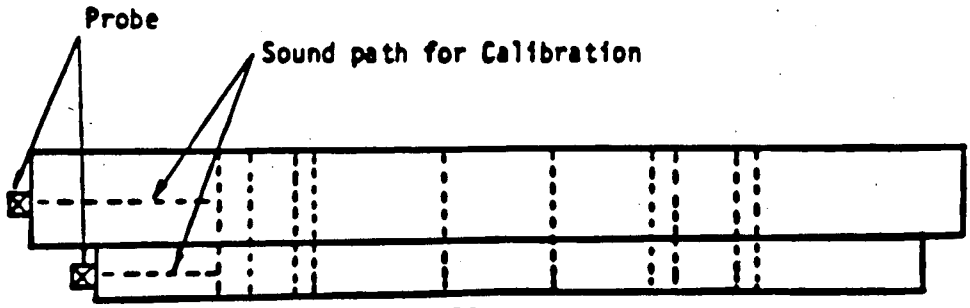
Rev. 0

Figure 3

Reactor Coolant Pump Flywheel



Plan



Elevation

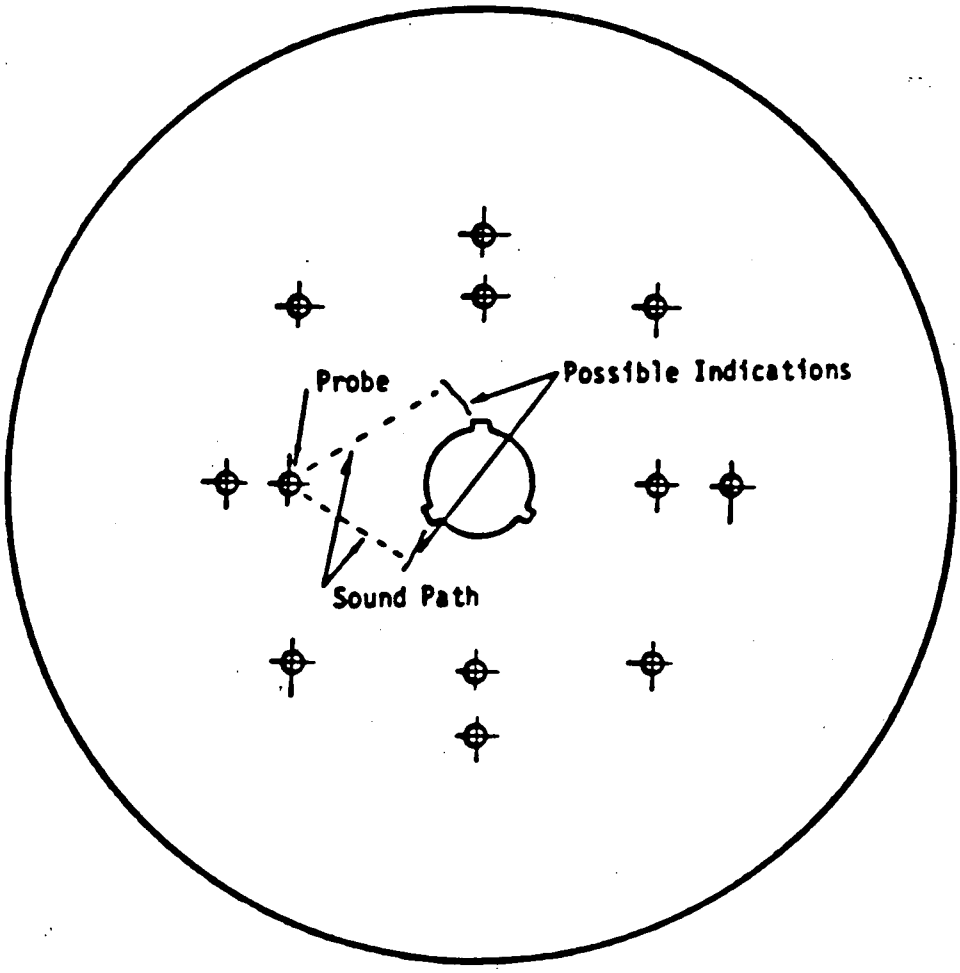
SP- 829

Rev. 0

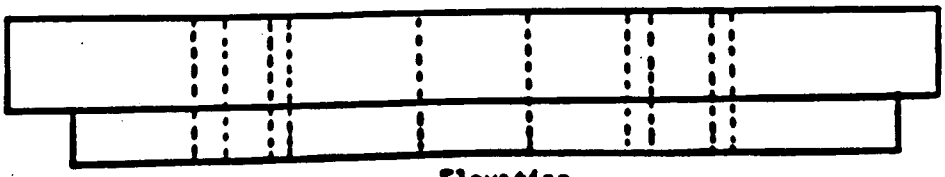
Illustrative Only

Figure 4

Reactor Coolant Pump Flywheel



Plan

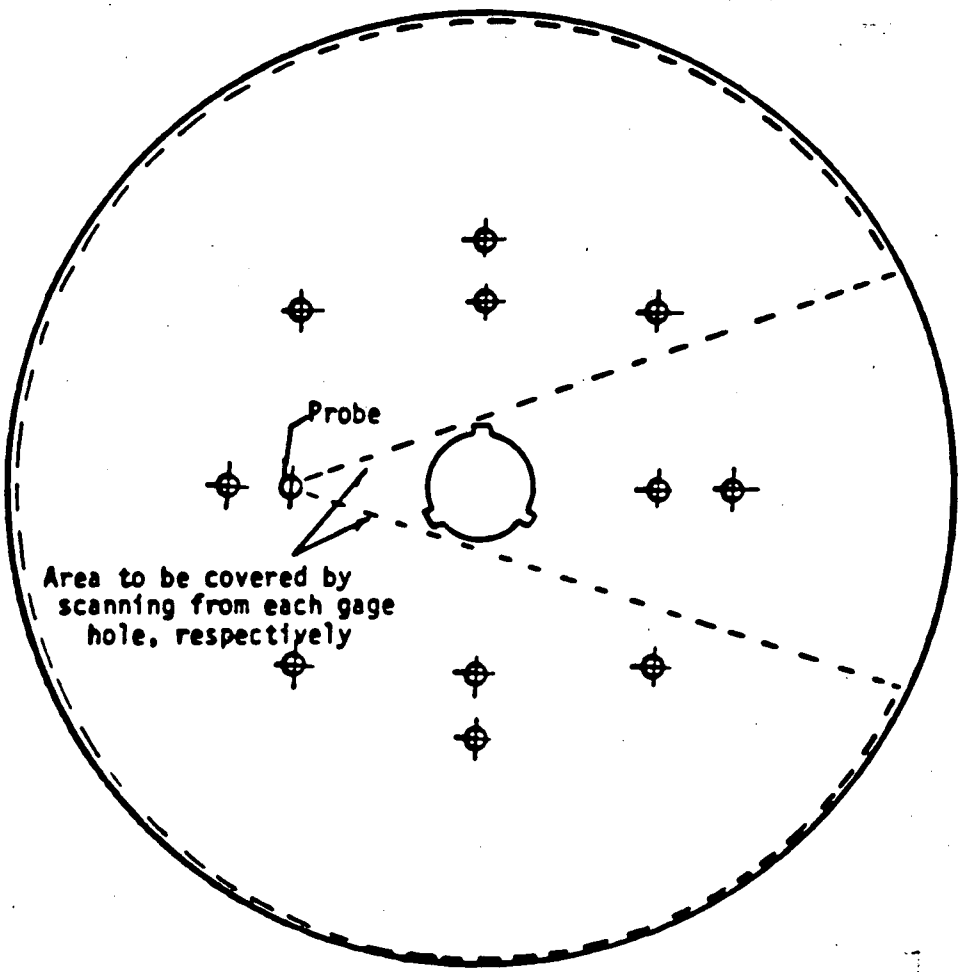


Elevation

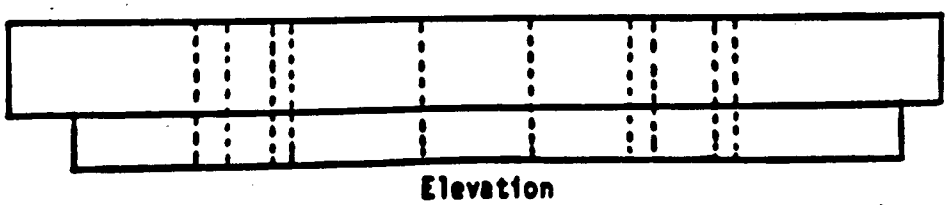
SP- 829
Illustrative Only
Rev. 0

Figure 5

Reactor Coolant Pump Flywheel



Plan

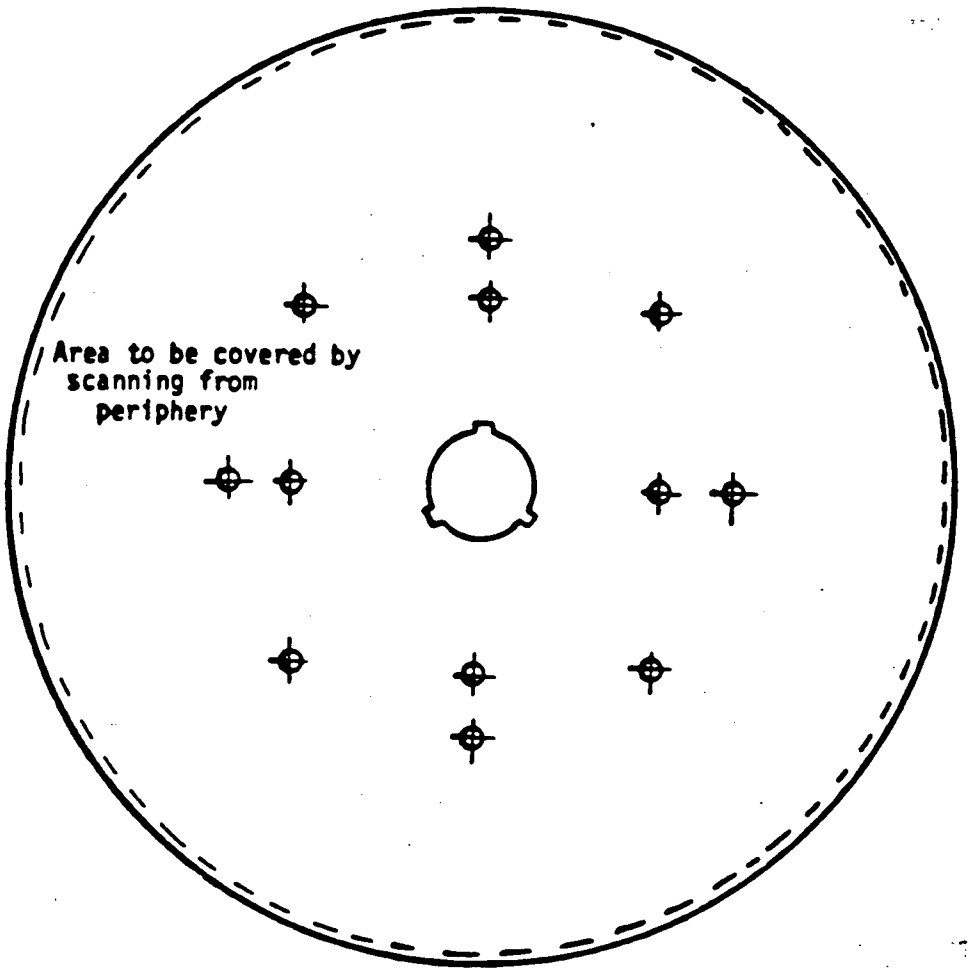


Elevation

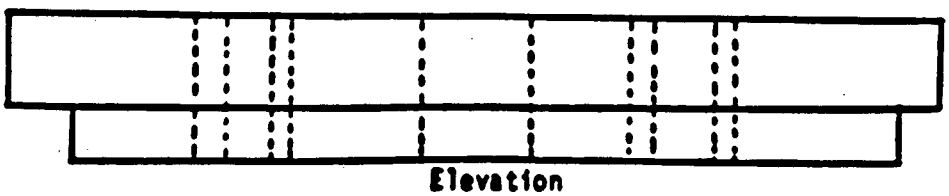
SP- 829
Illustrative Only
Figure 6

Rev. 0

Reactor Coolant Pump Flywheel



Plan



Elevation

9.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice-Inspection Report.

File: 06-15508

ATTACHMENT 6.1
Page 1 of 3

DISTRIBUTION:		H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date.... 11-04-88
Admin. Supv. Original.....	1	PROCEDURE REVIEW AND APPROVAL FORM	PCN..... 16100
ONS Review.....	1		Revision No..... 0
Training Review.....	1		Spec Proc. No..... SP-829
D. Weber Assigned Copies.....	4		Temp. Change No..... N/A
Total (Minus Original)....	7		Temp. Change Expires N/A (2. Day)

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-829

Pages Effected Entire Procedure 1-14

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-ISI-41 R/0 Manual Ultrasonic Examination of Reactor Coolant Pump Flywheels.

B. Reason for Revision: (List any commitments causing this change.)
To ensure Flywheels are examined in an acceptable manner.

C. Does this Revision require other changes to the P.O.M? YES ____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES ____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B. Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure is developed to detect cracking should any be present in reactor coolant pump flywheels. It enhances safety by determining the structural integrity of the flywheel without causing any detrimental affects. Therefore no unreviewed safety question arises due to use of this procedure.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES ____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES ____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES ____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES ____ NO ✓

(5) Does this item require a change to Technical Specifications? YES ____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES ____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Weber DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES ____ NO ✓

ALARA REVIEW REQUIRED? YES ____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES ____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO ____

B. REVISION RECOMMENDED BY: [signature] DATE 9/13/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) [signature] DATE 10/25/88
TJE
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B.
[signature] Richard B. Weber 9/23/88
Safety Reviewer Signature Date

RICK DAYTON [signature] RAD 10/25/88 Rick Dayton 10/25/88
Safety Reviewer Signature Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

N/A
CNS Review Date

PNSC Chairman Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.

C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE ____

APPROVED: [signature] 10/28/88 11-04-88
MANAGER/FUNCTIONAL AREA APPROVED DATE EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP-829

MANUAL ULTRASONIC EXAMINATION OF REACTOR COOLANT PUMP FLYWHEELS

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/28/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 15	0

SP- 829

Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

MANUAL ULTRASONIC EXAMINATION OF REACTOR COOLANT PUMP FLYWHEELS

FOR

H. B. ROBINSON UNIT 2

PREPARED BY: B. J. Lefebvre

B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: S R Armbrister

S. R. Armbrister, Manager
Inspection Services

SP-829 Rev. 0

MANUAL ULTRASONIC TESTING OF
REACTOR COOLANT PUMP FLYWHEELS

1.0 SCOPE

This procedure establishes the requirements for the ultrasonic straight beam methods for examining R. C. Pump Flywheels.

This procedure is written in compliance with the applicable tech. specification and NRC Reg. Guide 1.14.

2.0 EQUIPMENT

2.1 Ultrasonic flaw detection units shall be of the pulse echo type with a A-Scan presentation and shall be qualified to the requirements of CPL-ISI-10 at the beginning of each period of extended use. Qualifications may be valid for a period not to exceed three months.

2.2 The search units shall be straight beam type of a nominal frequency of 2.25 mHz. Other frequencies in the range 1.0 mHz to 5.0 mHz may be utilized if product grain structure precludes achieving the necessary penetration or sensitivity required. Test frequency must be reported on the data sheet. Search units shall be of the piezoelectric material comparable with zirconate titanate. Search unit configuration will include a special design internal probe for gage hole insertion and not to exceed 1 inch diameter for flywheel periphery inspection.

2.3 Couplant shall be a suitable liquid, semi-liquid or paste, such as Echogel, Exosen, Sonotrace, Trim, Ultragel or glycerin, that is certified as containing not more than 1% by weight, of residual sulphur and halogens.

2.4 Examined areas shall be dry wiped to remove excess couplant.

3.0 PERSONNEL QUALIFICATION

3.1 Personnel performing examinations to this procedure shall be certified to at least Level II for ultrasonic examinations, based on a written procedure prepared in accordance with SNT-TC-1A, as may be modified by the applicable ASME Section XI. Personnel certified to any level for ultrasonic examinations may be employed as assistants.

4.0 SURFACE CONDITION AND MATERIAL PREPARATION

4.1 The area or item to be examined is as specified in the Examination Program Plan. The extent of examination shall be to the maximum extent practical.

4.2 Surfaces from which the examinations are conducted shall be clean and free from all foreign matters, pits, nicks, or dents, etc., that would adversely affect or limit the examination. If such conditions are detected, they shall be rectified prior to conducting the examination.

5.0 CALIBRATION

Calibration shall be in accordance with the following, dependent upon the test being performed:

5.1 For the "Keyway Corner" Examination

5.1.1 Sight the bore of the flywheel using the special "gage hole" probe. (See Figure 1).

5.1.2 Bring this bore reflection to 90% (minimum) of screen height.

5.2 For the "Radial Gage Hole" Examination

5.2.1 Sight two (2) of the "ream bolt" holes using the gage hole probe. (See Figure 2). The hole selected for longest metal path shall be a minimum 27 inches distance. Set the near hole to 80% of CRT.

5.2.2 Construct a distance amplitude correction curve using the side of these two (2) holes. Extend the calibrated sweep length to 35 inches maximum metal path.

5.3 For the "Periphery" Examination

5.3.1 Sight one (1) of the "ream bolt" holes from the top plate and once again from the bottom plate. (See Figure 3). Set the lower plate response to a minimum 80 percent of CRT height.

5.3.2 Construct a distance amplitude correction curve using the side of the hole.

5.4 Calibration shall be verified at the beginning of each day of examination, and at the end of each examination category or every four hours, whichever is less, and with any change of examination personnel. A DECREASE in sensitivity of more than 2DB shall require calibration and re-examination of all items examined since the previous acceptable calibration or check. An INCREASE in sensitivity of more than 2DB shall require recalibration and re-investigation of all indications recorded since the previous acceptable calibration or check.

6.0 SCANNING

Scanning when possible shall be at a gain setting of two times the primary reference level and in accordance with the following, dependent upon the examination being performed.

6.1 For the "Keyway Corner" Examination

6.1.1 Scanning of the keyway corners shall be accomplished starting at the top of the gage hole and "rolling" the sonic beam from bore reflection over to examine the keyway and back. The probe shall then be inserted no more than 3/4 of the sonic elements active length and an additional scan is performed until the entire length of the keyway has been examined.

6.1.2 Each gage hole shall be used to examine the keyway corners for indications propagating from the keyway at approximately 90° to the sound path. (See Figure 4).

6.2 For the "Radial Gage Hole" Examination

6.2.1 Scanning shall be made by inserting and retracting the probe no more than 3/4 of the search unit active width (1/2 inch) for each insertion.

6.2.2 Each of the four (4) gage holes shall be used to scan the complete accessible portion of the flywheel cross section. (See Figure 5).

6.3 For the "Periphery" Examination

6.3.1 Scanning from the edge shall include the area from the edge up to and including the gage holes. (See Figure 6).

6.3.2 The transducer, where possible, shall be moved progressively across and along the flywheel edge so as to scan the entire edge overlapping each previous scan by at least 10 percent of the transducer diameter.

7.0 EVALUATION OF INDICATIONS

All indications that produce a response greater than the following shall be investigated to the extent that the operator can determine the size, identity, and location of the reflectors.

7.1 For the "Keyway Corner" examination: All indications that exhibit a deviation from the normal geometry pattern of the keyways shall be recorded.

7.2 For the "radial gage hole" or "periphery" examinations: All indications having a response greater than the distance amplitude correction curve shall be recorded.

8.0 DATA RECORDING

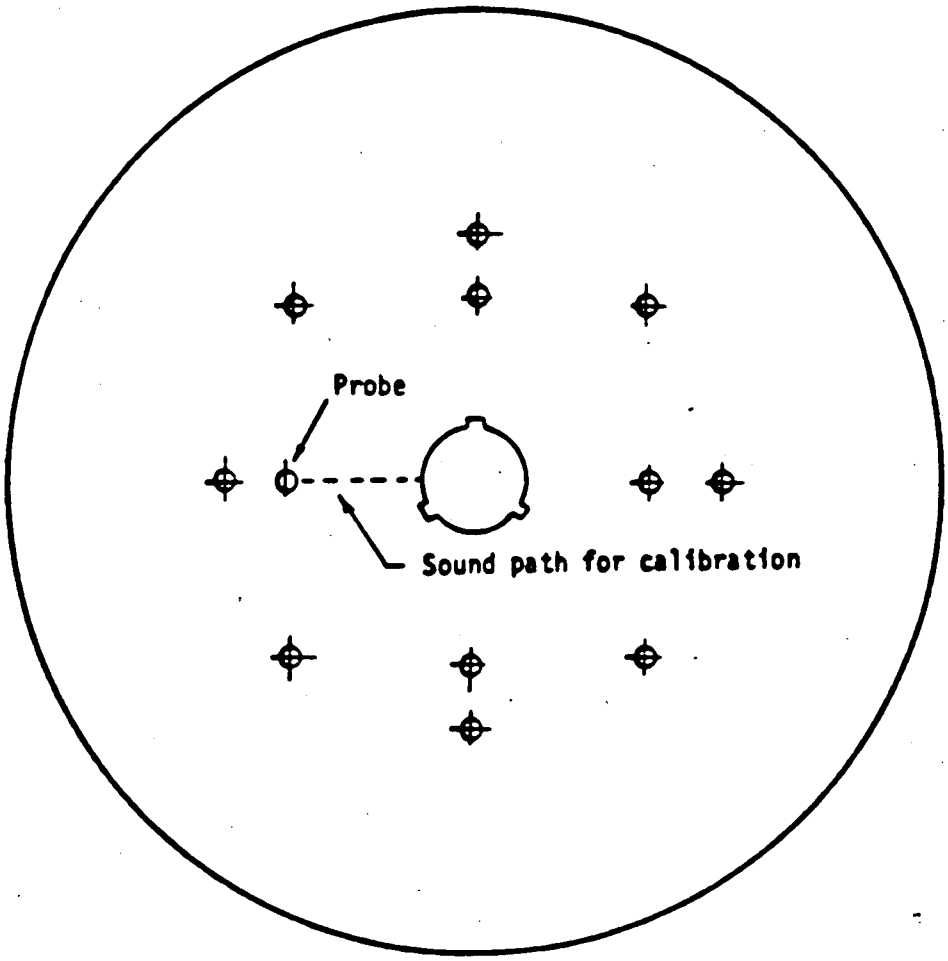
All data relative to the examinations and results shall be recorded in accordance with CPL-DOC-101.

SP-829
Illustrative Only

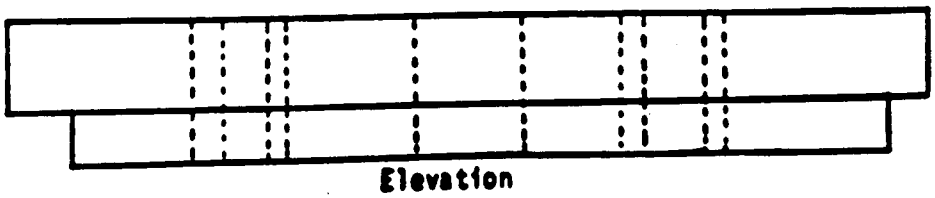
Rev. 0

Figure 1

Reactor Coolant Pump Flywheel



Plan



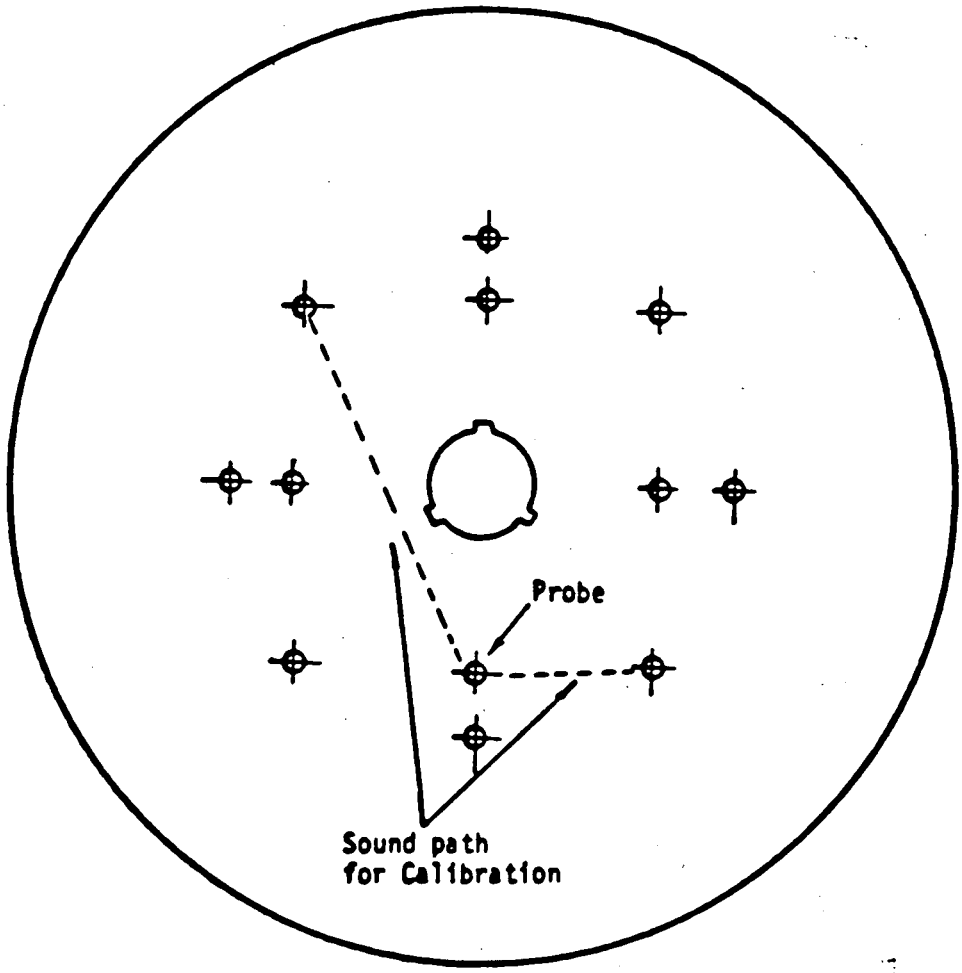
Elevation

SP-829 Rev. 0

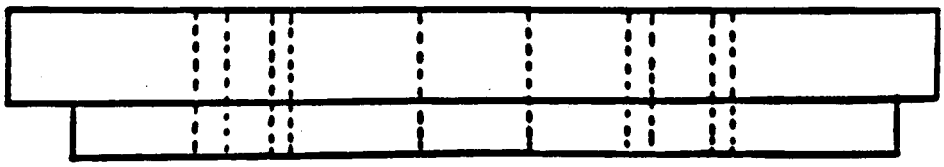
Illustrative Only

Figure 2

Reactor Coolant Pump Flywheel



Plan

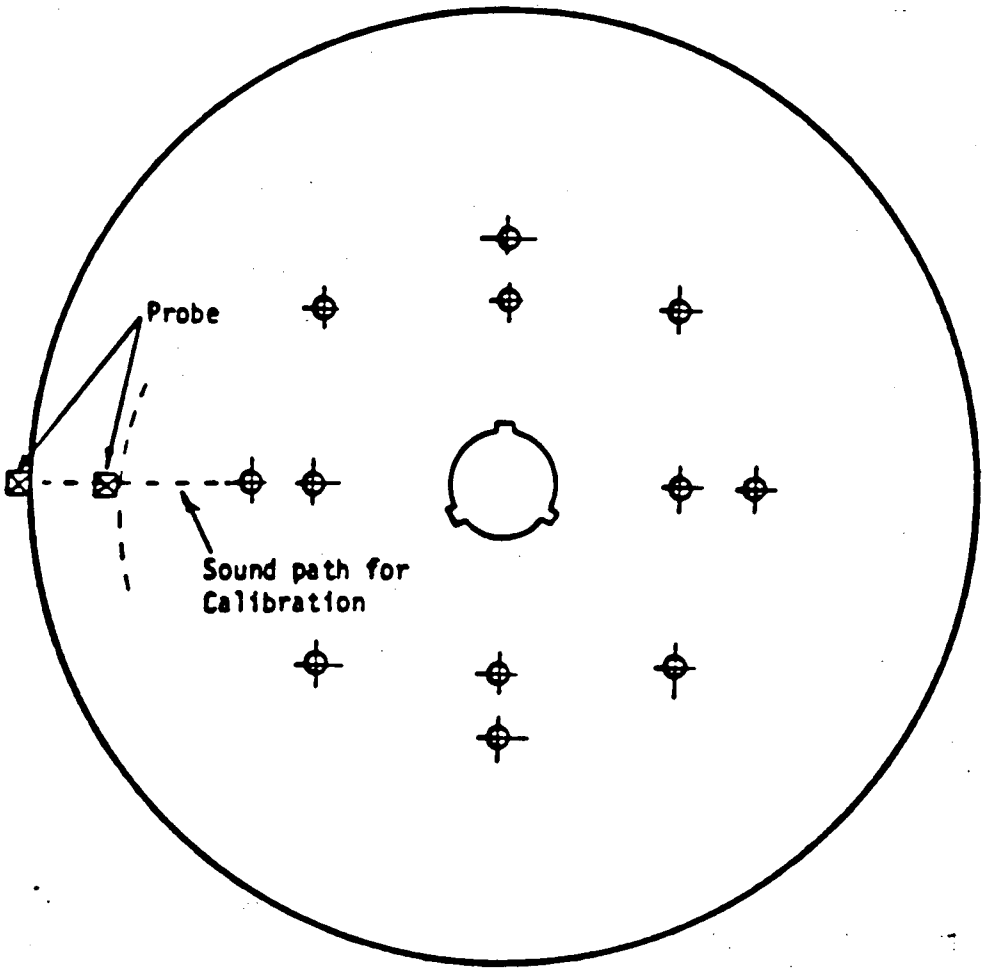


Elevation

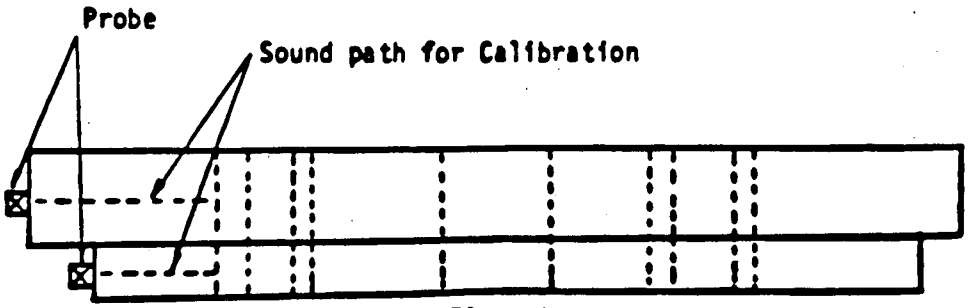
SP- 829
Illustrative Only
Figure 3

Rev. 0

Reactor Coolant Pump Flywheel



Plan



Elevation

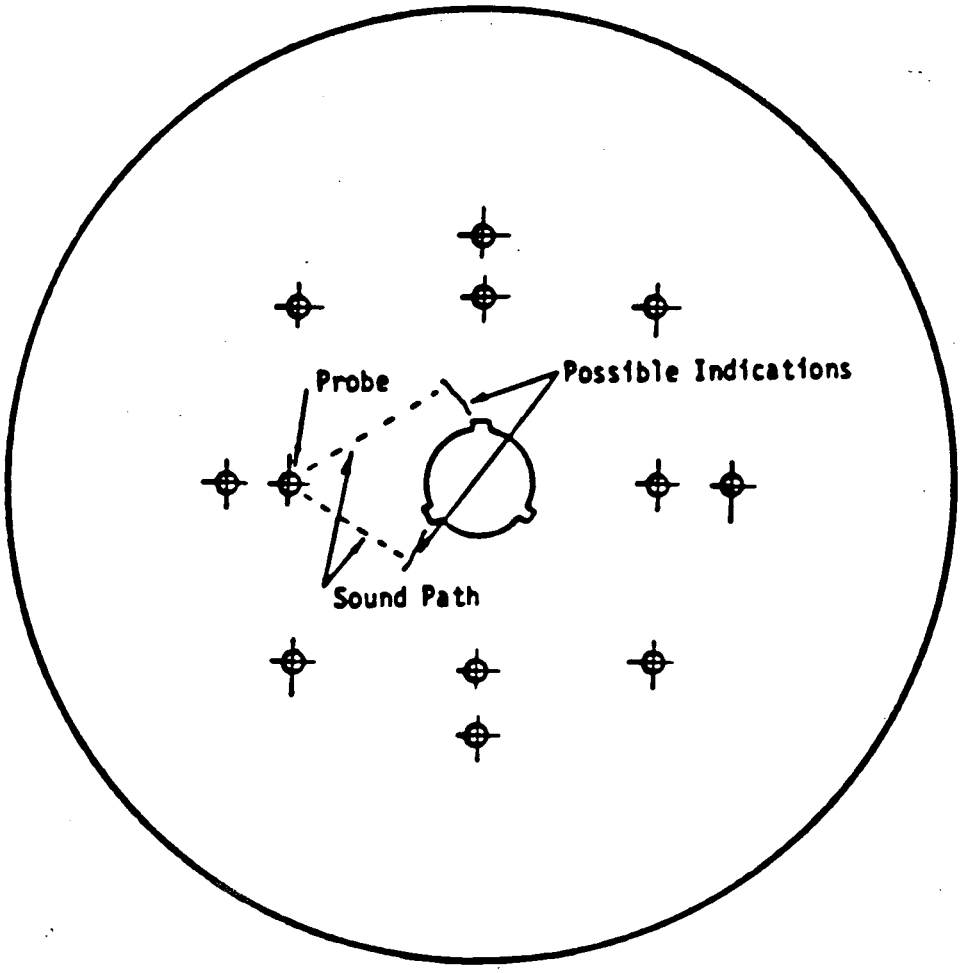
SP- 829

Rev. 0

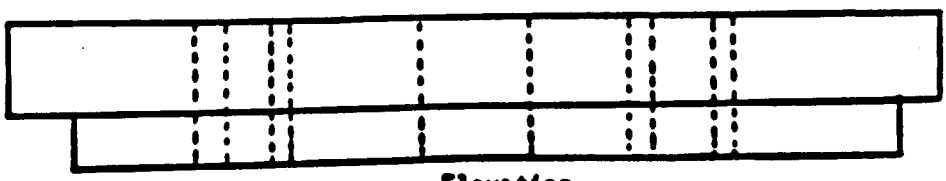
Illustrative Only

Figure 4

Reactor Coolant Pump Flywheel



Plan

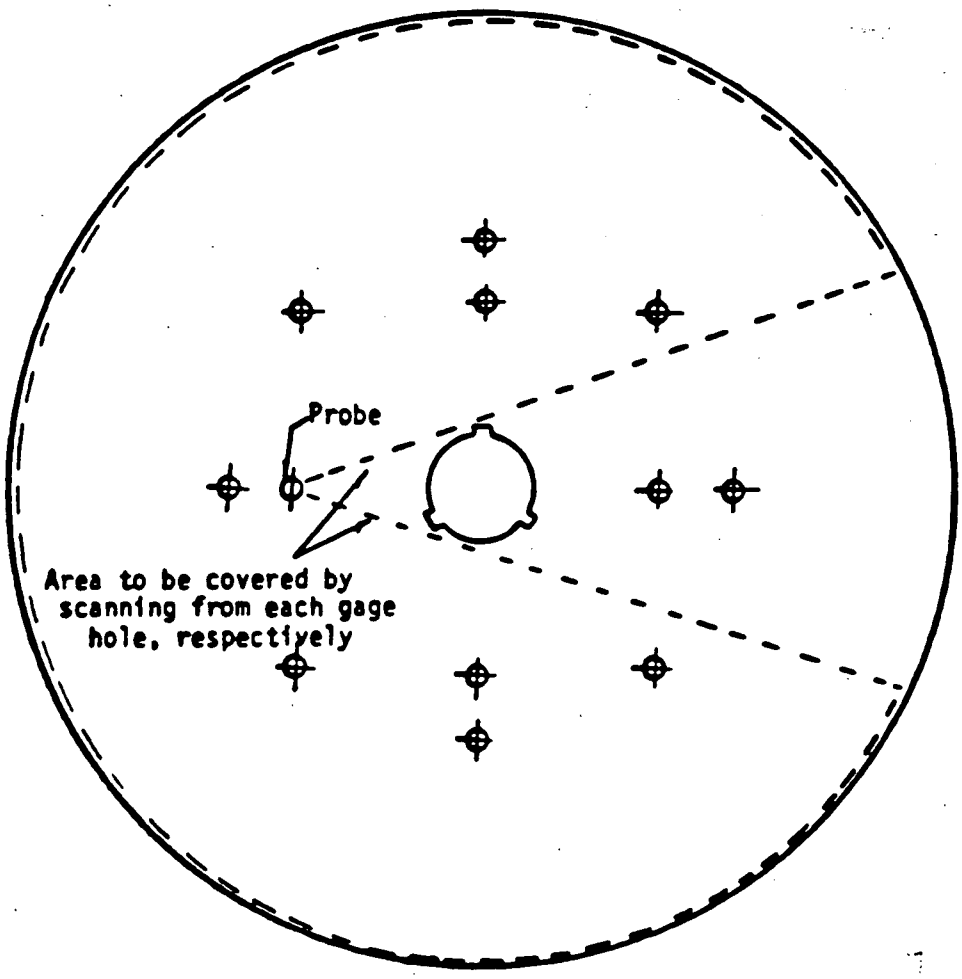


Elevation

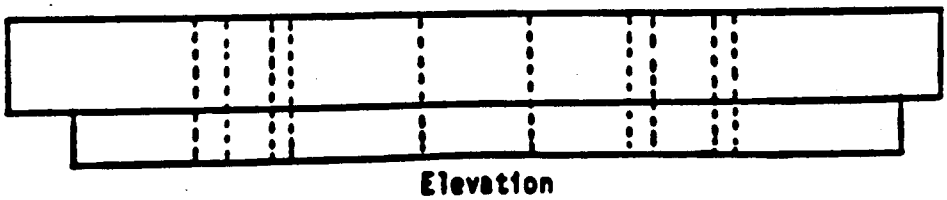
SP- 829
Illustrative Only
Figure 5

Rev. 0

Reactor Coolant Pump Flywheel



Plan

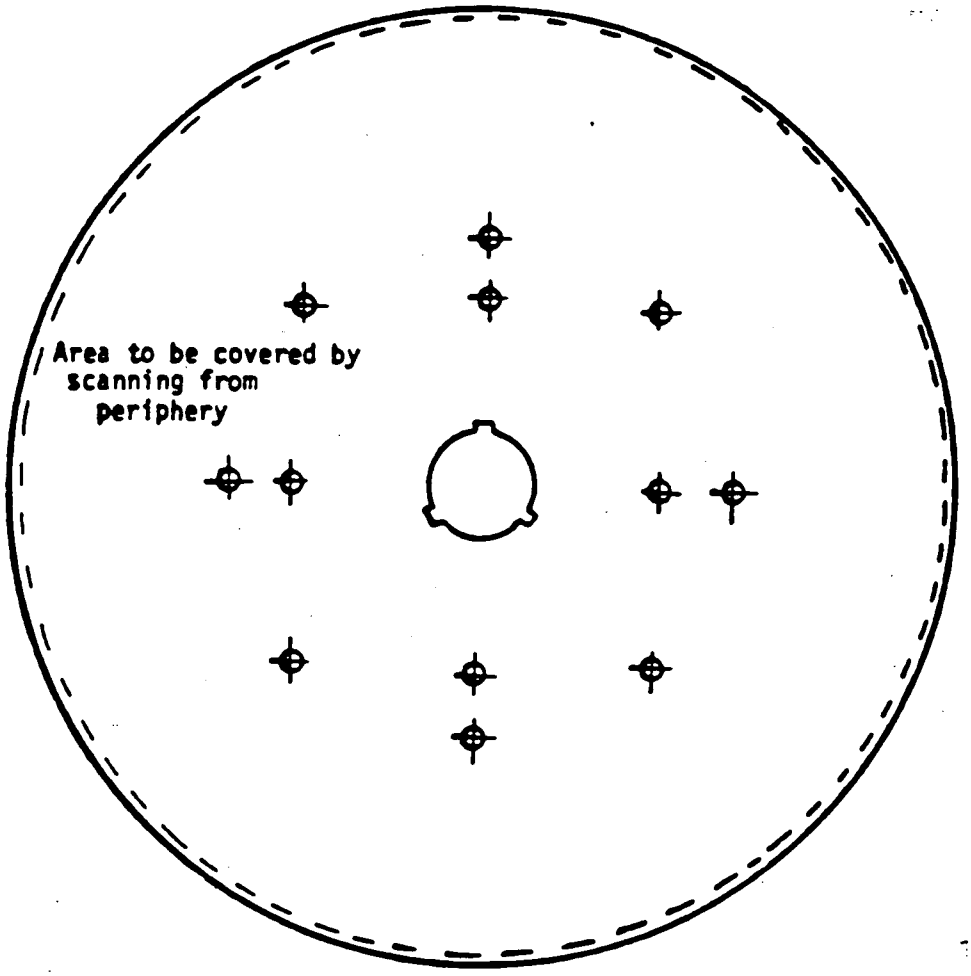


Elevation

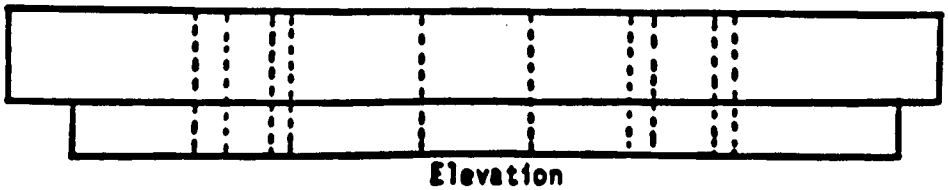
SP- 829
Illustrative Only
Figure 6

Rev. 0

Reactor Coolant Pump Flywheel



Plan



Elevation

9.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice-Inspection Report.

File: 06-15508

ATTACHMENT 6.1
Page 1 of 3

DISTRIBUTION:	
Admin. Supv. Original.....	1
ONS Review.....	1
Training Review.....	1
D. Weber Assigned Copies.....	4
Total (Minus Original)....	7

H. B. ROBINSON STEAM ELECTRIC PLANT
PROCEDURE REVIEW AND APPROVAL FORM

Effective Date...11-04-88
PCN.....16094
Revision No.....0
Spec Proc. No.....SP-823
Temp. Change No.....N/A
Temp. Change Expires N/A (21 Day

TO BE COMPLETED BY PREPARER

Volume Number N/A
Part N/A Procedure No. SP-823
Pages Effected Entire Procedure 1-15

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-IST-47 R/0 Manual Ultrasonic Examination of welds in Vessels.

B. Reason for Revision: (List any commitments causing this change.)
To ensure welds are examined in accordance with Section XI A.S.M.E. Code Requirements.

C. Does this Revision require other changes to the P.O.M? YES ____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES ____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B. Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure will enhance plant safety by inspecting pressure retaining components for defects without affecting the structural integrity of these components, therefore since there is no detrimental effect on plant equipment, no unreviewed safety question arises due to use of this procedure.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES____ NO ✓

(5) Does this item require a change to Technical Specifications? YES____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Weber DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES____ NO ✓

ALARA REVIEW REQUIRED? YES____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO____

B. REVISION RECOMMENDED BY: [signature] DATE 9/23/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) [signature] DATE 10/25/88
TSE
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B. Richard Weber — Richard B. Weber — 9/23/88
Safety Reviewer — Signature — Date

RICK DAYTON — [signature] 10/25/88 — Rick Dayton — 10/25/88
Safety Reviewer — Signature — Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

N/A

CNS Review — Date

PNSC Chairman — Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.

C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE ____

APPROVED: [signature] — 11/25/88 — 11-04-88
MANAGER/FUNCTIONAL AREA — APPROVED DATE — EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 823

MANUAL ULTRASONIC EXAMINATION OF WELDS

IN VESSELS

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/28/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 16	0

SP- 823

Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

MANUAL ULTRASONIC EXAMINATION OF WELDS IN VESSELS

FOR

H. B. ROBINSON UNIT 2

PREPARED BY: _____
B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: _____
Steve Armbrister, Manager
Inspection Services

MANUAL ULTRASONIC EXAMINATION OF WELDS IN VESSELS

1.0 SCOPE

1.1 This procedure defines requirements for manual ultrasonic examination (from the outside surface) of full penetration longitudinal and circular pressure retaining welds in ferritic vessel material (wrought or cast) greater than 2 inches thick.

1.2 Procedure CPL-DOC-101, Preservice and Inservice Documentation, and the Examination Program Plan (EPP) required therein are considered part of this procedure and are to be used as applicable.

1.3 Examinations in accordance with this procedure are intended to satisfy volumetric examination requirements based on Section XI of the ASME Boiler and Pressure Vessel Code 1977 Edition up to and including Summer 1978 Addenda.

2.0 GENERAL REQUIREMENTS

2.1 Personnel performing examinations to this procedure shall be certified to at least LEVEL II for ultrasonic examinations, based on a written procedure prepared in accordance with SNT-TC-1A, as may be modified Section XI of the ASME Boiler and Pressure Vessel Code noted in 1.3. Personnel certified to any LEVEL for ultrasonic examinations may provide physical assistance. Responsibility for satisfactory examination, results and documentation shall be solely that of the Level-II or III and he shall sign data sheets provided by such assistants.

2.2 Ultrasonic flaw detection instruments shall be of the pulse echo type with an A-Scan presentation and shall be qualified to the requirements of CPL-ISI-10 at the beginning and end of each period of extended use. Qualifications may be valid for a period not to exceed three months.

2.3 Piezoelectric transducers shall be a maximum of one (1) square inch of area, 2.25 MHz nominal frequency, and capable of producing calibration as required herein, at nominal beam angles of 0°, 45° and 60°. Other transducers may be used for investigations and where metallurgical characteristics or geometry preclude effective use of those specified above. If either or both 45° and 60° angles are changed, angular difference between the two transducers used shall be at least 10°. Maximum beam angle shall not exceed 70°.

2.4 Couplant shall be a suitable liquid, semi-liquid or paste, such as Echogel, Exosen, Sonotrace, Trim, Ultragel or glycerin, that is certified as containing not more than 1% by weight, of residual sulphur and halogens.

2.5 The item to be examined, including the required extent of adjacent volume to be examined, shall be as defined in the Examination Program Plan. This information shall be provided to the examiner assigned to conduct the examination. Examination of the required volume shall be to the maximum extent practical. Any area which precludes 100% coverage shall be recorded on Limitation to Examination Data Sheet. Reference 1.2.

2.6 Transducer scan surfaces including the weld crown, shall be essentially free of dirt, spatter, paint, coatings and irregularities that impair smooth uninterrupted contact of the search unit and coupling of the sound beam into the material.

2.6.1 Surface condition, and access support (e.g., scaffolds, lighting, etc.) if required, shall be the responsibility of the utility.

2.7 Generally the examinations conducted in accordance with this procedure will be done from the O.D. surface. When examinations are to be conducted from an I.D. surface, calibration must be accomplished on the I.D. of the appropriate calibration block and noted on the report.

2.8 Calibration Blocks

2.8.1 Calibration blocks that satisfy appropriate requirements of Section XI noted in 1.1 (as may be modified by plant technical specifications) and shall be provided by the Utility. Appropriate documentation of calibration blocks and their NDE applicability shall be the responsibility of the Utility.

2.8.2 Temperature difference between the surface of the block on which calibration is accomplished and the surface of the item to be examined shall not exceed 25°F.

3.0 SYSTEM CALIBRATION

3.1 Prior to and after conducting examinations, the complete system to be utilized shall be calibrated on the applicable calibration block for the examinations to be conducted. The system is defined as: the ultrasonic instrument (and battery pack if applicable), cable(s), transducer, couplant, and any other apparatus, instrument or circuit employed between the instrument and the calibration block surface. Once calibration has been established, any change to any part of the system will require at least a verification of the calibration. All calibration data, including scribe/reference line data shall be documented. Reference 10.0.

3.2 All peak indications shall be obtained with search unit beams oriented essentially perpendicular to the reflectors and shall not be enhanced by being redirected from any surface. The centerline of search units shall be directed at approximately mid-length of the reflectors.

3.3 Where the surface within the volume to be examined is clad, calibration and examination is limited to 1/2 node (1/2 Vee) technique.

3.4 Sweep range shall be sufficiently long so as to allow display of the volume required to be examined, within 100% of sweep. Sweep shall be calibrated to provide essentially equal spacing of the appropriate reflectors.

3.4.1 Position the search unit for the maximum response from the 1/4 T side drilled hole. Adjust the left edge of this indication to 20% of sweep scale with the delay control.

3.4.2 Position the search unit for the maximum response from the 3/4 T hole. Adjust the left edge of this indication to 60% of sweep scale with the range control.

3.4.3 Repeat delay and range control adjustments until the 1/4 T and 3/4 T hole reflections start at 20% and 60% of sweep respectively.

3.4.4 Position the search unit for maximum response from the square notch on the opposite surface. The indication will appear near 80% of sweep scale.

3.4.5 Two divisions on the sweep equals 1/4 T and range equals 1.25 T. (5/8 node).

3.4.6 When calibrating for a range that is greater than 5/8 node, or; when calibrating on blocks less than 4" thick, or; for examinations where "T" is or may be greater than 1.25 x cal. block "T", the sweep range and reflector positions specified in 3.4.1 thru 3.4.5 shall be altered as necessary to ensure that at least the maximum thickness of the volume required to be examined is displayed on 100% of sweep.

3.5 Reference sensitivity shall be established by positioning the search unit for maximum response from the hole reflector that provides the highest amplitude and adjusting sensitivity to set this signal to 80% FSH.

3.5.1 With the search unit at this peaked signal location, check vertical linearity of the system by decreasing signal amplitude 6dB, and then by an additional 6dB. The resulting signal decrease must be within 32% to 48% FSH and 16% to 24% FSH respectively.

3.5.2 Return primary reference signal to 80% FSH and without changing gain control, determine peak indication amplitude from the remaining applicable reflector positions in the examination region. Construct a distance amplitude curve (DAC) on the screen by a straight line connecting each of the peaked points.

3.5.3 For angle beam calibration, DAC curve shall be extended through at least the 5/8 node location by positioning the search unit to obtain peaked signals from the appropriate reflectors that represent the additional node points (when feasible) and extending the DAC curve as necessary to accommodate thickness of the examination area.

Additionally, peak signal amplitude from the opposite surface (ID) notch and; search unit beam exit point to SCRIBE/REF. line distances for peak and ±50% point locations of each calibration reflector shall be determined and noted by the examiner.

3.5.4 When it is not feasible to obtain the signal from a 5/8 node reflector (e.g. where block is clad) DAC curve amplitude point for the 5/8 node location shall be determined as follows:

a. Determine DB difference between the 1/2 T and 3/4 T calibrated reflector amplitudes.

b. Decrease the 3/4 T calibrated reflector amplitude by 2X the value determined in (a) and read the resulting amplitude of this signal to the nearest 1% of FSH.

c. Mark the resulting amplitude determined in (b) at the appropriate point above the % SWP that represents the 5/8 node position.

3.6 Reference points at 50% and 20% of DAC shall also be established on the screen by decreasing each DAC curve reference point by 6dB and then by an additional 8dB. The resulting 50% and 20% points shall be connected by straight lines drawn on the screen. To minimize screen clutter, lines connecting 50% points may be deleted, provided the points are clearly defined. When investigating indications which may or are required to be recorded at the 50% DAC level, a line connecting the applicable adjacent points must be considered or, alternatively, 2X reference sensitivity may be used, with the 100% DAC curve then representing the 50% DAC line.

4.0 SYSTEM CALIBRATION VERIFICATION

Calibration shall be verified at the beginning of each day of examination, and at the end of examinations for which calibration is applicable or every four hours, whichever is less, and with any change in examination personnel.

4.1 A DECREASE in sensitivity of more than 2DB shall require recalibration and re-examination of all items examined since the previous acceptable calibration or check. An INCREASE in sensitivity of more than 2 DB shall require recalibration and re-examination and data correction of all indications recorded since the previous acceptable calibration or check.

4.2 If any point on the DAC curve has moved on the sweep line more than 10% of the sweep division reading, correct the sweep range calibration and note the correction in the examination record. If recordable reflectors are on the data sheets, this data shall be voided, a new calibration established, and areas relative to the voided data shall be re-examined.

5.0 BASE METAL EXAMINATION

Prior to performing the initial angle beam examination the base material through which the angle beam will pass shall be completely scanned with a straight beam search unit to detect laminar reflectors which might interfere with the angle beam examination. This examination is to be done for preservice only.

5.1 Sensitivity shall be established on the examination surface at a location free of indications, by adjusting the first back surface reflector to 80% FSH. The reflector shall be positioned to 80% sweep, and the initial pulse to zero % sweep.

5.2 Areas containing laminar indications (other than clad interface) that cause either or both of the following shall be recorded:

a. All areas where the indications are equal to or greater than the remaining back reflection.

b. All areas that produce a continuous total loss of back reflection accompanied by a continuous indication in a singular plane.

5.3 The areas shall be investigated to determine if and to what extent they interfere with angle beam examinations. Where the reflectors do interfere, the angle beam technique (including beam angle and sweep range) shall be reviewed toward achieving at least the minimum required coverage of the volume required to be examined, and modified as is necessary and practical to accomplish this.

5.3.1 If criteria (a) or (b) in 5.2 is determined to be--not interferring--record data as GENERAL INDICATION; and if determined to be--interfering--record data as EXAMINATION LIMITATION.

5.3.2 The periphery of each area producing one or more indications shall be plotted at points not to exceed 1". Plotting shall be such that a plan view (C-trace) is developed, showing size, shape, and location of the area relative to zero reference, weld centerline and appropriate surface. For each point, sweep location of the indication in terms of % SWP and it's criteria, (a) or (b), shall be included in the data.

5.4 Alternatively, base metal examination may be conducted as an extension of straight beam examination in accordance with 6.0 if that resulting back surface sensitivity is at least equal to that required in 5.1. If laminar indications are detected by this

alternate method, they shall be investigated at the calibration required in 5.1 and recorded in accordance with 5.3.

6.0 WELD EXAMINATION

6.1 The examinations shall be conducted at 2X calibration sensitivity.

6.2 Rate of scanning shall not exceed 6 inches per second.

6.3 To assure effective coverage, scanning and indexing shall be such that beams overlap at least 10%.

6.4 The required volume (see 2.5) shall be examined with a straight beam and 2 beam angles calibrated in accordance with 3.0. These examinations are to detect indications having a planar orientation, where "planar" is defined as: being oriented in any single plane which is more than 10° from a plane parallel to the vessel. Beam angles shall be in accordance with 2.3.

6.4.1 For angle beam examinations, the weld metal shall be examined with 2 beam angles in 2 directions (directions 2 & 5) for indications parallel to the weld; and also for indications transverse to the weld (directions 7 & 8). Directions are as indicated in CPL-DOC-101.

6.4.2 The required volume of adjacent base metal on both sides of the weld shall be examined to the same extent as the weld metal but, for purposes of minimum required coverage, the base metal need not be examined with both angle beams from both directions. Any combination of 2 beam angles, both of which cover the entire volume (includes both sides) of adjacent base metal is sufficient.

7.0 INTERPRETATION AND INVESTIGATION

7.1 The Level II or III examiner shall interpret all indications that exceed 20% of the primary reference DAC such that he can assess their source and cause in terms of their being either valid or non-valid. Indications from or near the root of welds and clad surfaces may require other aids. See 7.3.

7.1.1 Valid indications are reflectors caused by flaws, such as cracks, lack of penetration or fusion, inclusions and porosity. All other indications are considered non-valid, including those due to: scanning noise, grain structure, beam redirection, internal liquid levels, clad interface, straight beam back surface and geometric reflectors.

7.2 Valid indications that exceed 20% of primary reference DAC shall be investigated by the examiner, in terms of the recording requirements of 8.0.

7.3 Other transducers, search units, frequencies, techniques, etc., may be used to aid the examiners interpretation and investigation. Such supplemental aids, if used in determining geometric reflectors, shall be noted by remarks or comments on the data sheet. Reference 10.0.

7.3.1 If such aids necessitate use of any control that cannot be positively returned to its calibrated position, (such as a potentiometer control on sweep, damping, uncalibrated gain, etc.) primary reference calibration shall be verified before use and re-established prior to continuing examinations.

8.0 RECORDING INDICATIONS

8.1 Prior to recording indications that require dimensioning, complete primary reference calibration, including linearity check shall be verified. Reference 4.0.

8.2 Valid flaw indications which provide a response equal to or greater than 50% of primary reference DAC and surface indications (other than clad interface) that equal or exceed the amplitude obtained from the notch reflector shall be considered as--recordable indication--and noted as RI.

8.2.1 For each such indication, peak amplitude, sweep position, and search unit location and direction shall be recorded. The indication shall also be dimensioned to record, as a minimum, sweep positions and search unit locations representing minimum and maximum 50% DAC points, parallel and perpendicular to the length axis of the indication. For indications that exceed DAC, the minimum and maximum 100% points shall also be noted.

8.3 Valid flaw indications which provide a response less than 50% of primary reference DAC and are (or may be) due to a crack shall be considered as--recordable indication--and tentatively noted as RI*.

NOTE: Enter * instead of X on Examination Data Sheet RI column and, enter as remarks, such as--for information. Recommend further investigation for RI/NRI determination.

8.3.1 Each such indication shall be noted on an Ultrasonic Indication data sheet and as a minimum, peak amplitude, sweep position, search unit location and scanning area thickness shall be noted.

8.4 Valid flaw indications not noted per 8.3 and which provide a response between 20% and 50% of primary reference DAC shall be considered as--non-recordable indication--and noted as NRI.

8.4.1 Each such indication area shall be noted on an Ultrasonic Indication data sheet and as a minimum, peak amplitude, sweep position, search unit location and direction shall be noted.

8.5 Non-valid indications, and valid indications not required to be noted per the above shall be considered as--no indication--and noted as NI.

9.0 POST CLEANING

9.1 Examined areas shall be dry-wiped to remove excess wet couplant, if necessary.

10.0 EXAMINATION RESULTS AND DOCUMENTATION

10.1 All data relative to examinations shall be recorded in accordance with CPL-DOC-101.

11.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice-Inspection Report.

File: 06-15508

ATTACHMENT 6.1
Page 1 of 3

DISTRIBUTION:	
Admin. Supv. Original.....	1
ONS Review.....	1
Training Review.....	1
R. Weber Assigned Copies.....	4
Total (Minus Original)....	7

H. B. ROBINSON STEAM ELECTRIC PLANT
PROCEDURE REVIEW AND APPROVAL FORM

Effective Date....	11-04-88
PCN.....	16097
Revision No.....	0
Spec Proc. No.....	SP-826
Temp. Change No.....	N/A
Temp. Change Expires (2. Day	N/A

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-826

Pages Effected Entire Procedure 1-12

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-ISI-70 R/0 Magnetic Particle Examinations

B. Reason for Revision: (List any commitments causing this change.)
To ensure Magnetic Particle Examinations are performed in accordance with Section V A.S.M.E. Code

C. Does this Revision require other changes to the P.O.M? YES ____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES ____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure will enhance plant safety by inspection of components for defects without affecting the structural integrity of these components. Since there is no detrimental affect on plant equipment, no unreviewed safety question arises due to use of this procedure.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES ____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES ____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES ____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES ____ NO ✓

(5) Does this item require a change to Technical Specifications? YES ____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES ____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Weber DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES ____ NO ✓

ALARA REVIEW REQUIRED? YES ____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES ____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO ____

B. REVISION RECOMMENDED BY: [signature] DATE 9/20/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) ISI [signature] DATE 10/25/88
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B. Richard Weber — Richard B. Weber — 9/23/88
Safety Reviewer — Signature — Date

RICK DAYTON — RAD 10/25/88 — Rick Dayton — 10/25/88
Safety Reviewer — Signature — Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

CNS Review N/A Date

PNSC Chairman Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.

C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE

APPROVED: [signature] — 10/27/88 — 11-04-88
MANAGER/FUNCTIONAL AREA — APPROVED DATE — EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP-826

MAGNETIC PARTICLE EXAMINATIONS

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/27/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 13	0

SP 826 Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

MAGNETIC PARTICLE EXAMINATIONS

FOR

H. B. ROBINSON

PREPARED BY: B. J. Lefebvre

B. S. Lefebvre, Level III
Inspection Services

APPROVED BY: S R Armbrister

S. R. Armbrister, Manager
Inspection Services

Rev. 0

SP-826

MAGNETIC PARTICLE EXAMINATIONS

1.0 SCOPE

1.1 This procedure is applicable to and describes requirements for magnetic particle examinations of ferromagnetic metals, welds and bolting for indications that are open to the surface, using longitudinal magnetization as produced by yoke or coil techniques. It is applicable on surfaces up to 600°F with dry particles and, up to 135°F with wet particles. Technical contents are based on Section XI of the ASME Boiler and Pressure Vessel Code 1977 Edition up to and including Summer 1978 Addenda, including Section XI IWA-2240 when dictated due to Code omissions and to implement upgraded technology or good practice.

1.2 Procedure CPL-DOC-101 Preservice and Inservice Documentation, and the Examination Program Plan (EPP) noted therein are considered part of this procedure and are to be used as applicable.

1.3 Examinations in accordance with this procedure are intended to satisfy surface examination requirements of Section XI of the ASME Boiler and Pressure Vessel Code that is noted in 1.1.

2.0 GENERAL

2.1 Personnel

2.1.1 Personnel performing examinations to this procedure shall be certified to at least LEVEL II for magnetic particle examinations, based on a written procedure prepared in accordance with SNT-TC-1A, as may be modified by Section XI of the ASME Boiler and Pressure Vessel Code noted in 1.0.

Personnel certified to any LEVEL for magnetic particle examinations may be employed as assistants. However, responsibility for satisfactory examination, results and documentation shall be solely that of the Level-II or III and he shall co-sign data sheets provided by such assistants

3.0 EQUIPMENT

3.1 Magnetizing equipment shall be alternating current (AC) electromagnetic yokes or prewound coils. Yokes shall be calibrated at least every 12 months, and following major repair, overhaul or damage.

3.1.1 AC yokes shall have a calibrated lifting power of at least 10 pounds at their maximum useable pole spacing. Alternatively, the maximum pole spacing for which yokes have been calibrated shall be securely attached to the yokes, and they shall not be used beyond that spacing.

3.1.2 Prewound coils shall be Magnaflux Model L-10 with AC. Use of such coils is limited to disassembled ferromagnetic bolting and wet fluorescent mediums. Since these coils operate on line current and have no moving parts or controls, calibration shall be based on adequacy of the magnetizing field they produce, as determined in accordance with paragraph 6.6 or by use of a test specimen containing natural or fabricated defect(s). Satisfactory results shall be noted as a remark on the data sheet (Ref. 9.1) e.g. "Field OK by MPFI" or "Field OK by Test Sample Ident. _____".

3.2 The examination medium shall be ferromagnetic particles and shall be selected from those listed in TABLE 1. The medium selected shall provide adequate contrast with the surface to be examined. "Adequate contrast" shall be the sole judgment of the examiner who must conduct and sign for the examination.

3.2.1 Wet mediums shall be prepared bath containers (spray cans).

3.2.2 Fluorescent mediums shall be such that the particles emit a brilliant fluorescence when exposed to a suitable "black-light". The degree of brilliance shall provide adequate contrast with the similarly exposed background of the surface being examined.

3.3 When fluorescent particles are used as the examination medium, "black-light" (light in the near ultraviolet range - 3500A to 3900A of wave length - just lower than visible light) shall be used to expose the particles and cause them to fluoresce. The light shall have been activated for at least 5 minutes prior to use in examination. The examiner shall have been in the darkened work area for at least 5 minutes prior to conducting examinations. If the examiner wears glasses or lenses, they shall not be photosensitive.

3.3.1 Suitable intensity of "black-light" in the area of examination and at the working distance utilized (light to surface distance), shall be determined to be a minimum of 800uW/cm^2, when measured with an ultraviolet intensity meter.

3.3.2 Alternatively, "black-light" intensity is considered suitable for examinations when it is used in determining adequacy of the magnetizing field, with a magnetic particle field indicator or a test specimen (as described in paragraphs 3.4 and 6.6), and the results are satisfactory.

SP 826 Rev. 0

3.3.3 Adequacy of black light intensity shall be verified prior to use in examinations and at least once during each 8 hours of continued operation and when examination area is changed.

3.4 A magnetic particle field indicator (MPFI) or a test specimen with natural or fabricated defect(s) shall be available to determine or verify suitability of examinations, equipment or materials, as may be necessary. The MPFI or test specimen may be used to determine or verify such as:

3.4.1 Adequacy and or direction of the magnetizing field;

3.4.2 Fluorescent suitability of fluorescent particle mediums and their compatibility with the "black-light" being utilized;

3.4.3 Adequacy of "black-light" intensity at the surface being examined; the working distance (light to examination surface) and the ambient lighting.

3.4.4 Range (extent of surface area) that may be examined and interpreted for any single "shot".

4.0 SURFACE AREA CONDITION

4.1 The surface area to be examined plus at least 1 inch on all sides and, the contact area for yokes if outside of this area, shall be free of paint, scale, slag, spatter, oily films and other extraneous matter that would interfere with the examination.

4.1.1 Surface irregularities that, in the sole judgment of the examiner, do or would mask indications or interfere with the examination shall be corrected.

4.2 Surface condition and, access support (e.g., scaffolds, lighting, etc.) if required shall be the responsibility of the utility.

5.0 EXTENT OF EXAMINATION

5.1 The item to be examined, including the required extent of adjacent surfaces to be examined, shall be as defined in the Examination Program Plan. This information shall be provided to the examiner assigned to conduct the examination. Examination of the required surface shall be to the maximum extent practical. Any area which precludes 100% coverage shall be documented as a Limitation to Examination. Reference 1.2.

6.0 EXAMINATION

6.1 Examinations shall be conducted by the continuous method. Examination mediums shall be applied lightly and sparingly, by dusting dry powders and spraying wet particles while the magnetizing field is on. Application of the mediums shall be stopped before the magnetizing current is turned off. Wet prepared mixes (cans) shall be agitated prior to application.

6.1.1 As an aid to interpretation when using wet mediums, the magnetizing current may be turned on again (for approximately one second) at least once, following application of the particles.

6.1.2 Removal of excess dry particles may be accomplished by a gentle stream of air, while the current is on.

6.2 When using the L-10 coil, the part must have a length to diameter ratio greater than 2 and, at least one area of the part shall be in contact with or within 2 inches of the ID surface of the coil. The area of examination shall be limited to within 5 inches on each side

of the coil. Parts longer than 12 inches shall be examined in sections not exceeding 11 inches nominal length.

6.3 When using yokes, the area of examination shall be limited to within 1/4 of the pole spacing on each side of the yoke.

6.4 Examinations shall be conducted in at least two directions, such that the lines of flux from one examination are approximately perpendicular to the other. Orientation of the lines of flux shall be such that welds are examined for parallel and transverse indications and, bolting is examined for circumferential and axial indications. Different means of magnetizing may be used for either direction.

6.4.1 When bolting is to be examined by both yoke and coil, the yoke may be used first to simplify demagnetizing.

6.5 Examinations shall be conducted with sufficient overlap to assure 100% coverage of the area required to be examined. Succeeding examinations shall overlap the appropriate area of the preceding examination by at least 1/8 inch.

6.6 Adequacy of the magnetizing field may be determined by positioning the MPFI on the surface to be examined. The flux intensity or field strength is suitable when a clearly defined line (or lines) of particles forms across its copper face when the particles are applied simultaneously with the magnetizing force.

6.6.1 Satisfactory definition of the line(s) on the MPFI verifies adequacy and suitability of technique, equipment, and lighting if conducted at the work area.

6.6.2 If the line(s) are not formed or not formed in the desired direction, the magnetizing technique, equipment or medium

shall be changed or adjusted so that the required examination in accordance with this procedure is achieved.

6.7 To demagnetize, slowly pass the bolting through the inside of an energized L-10 AC coil until it is approximately 2 feet beyond the coil. Demagnetizing may also be accomplished by moving the coil instead of the bolting.

6.7.1 Demagnetizing of other items is not required.

7.0 INVESTIGATING AND INTERPRETING INDICATIONS

7.1 Only indications with a major axis dimension of 1/16 inch and longer need be investigated and interpreted to determine if they are caused by valid surface indications (cracks, laps, lack of fusion, seams, cold shuts, etc.) or if they are false (not due to valid surface discontinuities).

7.1.1 Certain heavy or sharp build-up such as may occur at natural geometric discontinuities (e.g., deep weld ripples and abrupt toes, corners, etc.) may contain or mask valid indications and may be difficult to interpret accurately. Such cases shall be re-examined and may, in the sole judgment of the examiner who must make the interpretation and sign for the examination, require additional surface conditioning or preparation prior to re-examination. Such build-up shall be considered as valid indications until re-examined and interpreted to be otherwise.

7.2 Valid surface indications shall be recorded as required by 8.0.

8.0 INDICATIONS TO BE RECORDED

8.1 The following valid indications shall be considered as--recordable indications and recorded as RI. Provide sketch or describe to show location, size and orientation.

a. Linear and curvilinear having length of 1/16 inch and longer. Include all linear/curvilinear within 1/2 inch in all directions from the principle indication.

b. For bolting; linear and curvilinear oriented axially, 1/2 inch and longer; and for non-axially oriented, 1/8 inch and longer.

c. All indications due to surface condition that cannot be interpreted as false.

8.2 All valid indications not recordable as required by 8.1 shall be considered as non-recordable indication and noted as NRI.

a. For bolting; linear and curvilinear, oriented axially, 1/16 inch to less than 1/2 inch and, for non-axially oriented, 1/16 inch to less than 1/8 inch. The general location of such indications shall be recorded by examiners remarks, comments, or by a sketch.

8.3 All other indications and the absence of indications shall be considered as no indication and recorded as NI.

9.0 EXAMINATION RESULTS AND DOCUMENTATION

9.1 All data relative to the examination and recording of indications shall be recorded in accordance with CPL-DOC-101.

TABLE 1

COLOR	DRY		WET	
	MAGNAFLUX	DETEK	MAGNAFLUX	DETEK
BLACK	NO.3A	MPW-110 SERIES		
RED	NO.8A	MPW-210	NO. 9CM	
GREY	NO.1	MPW-310		
YELLOW	NO.2	MPW-410		
ORANGE	MX200			
GREEN	MX201			
FLUORESCENT			NO.14AM	MPW-542

10.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice-Inspection Report.

File: 06-15508

ATTACHMENT 6.1
Page 1 of 3

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date... 11-04-8
Admin. Supv. Original..... 1	PROCEDURE REVIEW AND APPROVAL FORM	PCN..... 1610
ONS Review..... 1		Revision No..... 0
Training Review..... 1		Spec Proc. No..... SP-83
D. Weber Assigned Copies..... 4		Temp. Change No..... N/A
Total (Minus Original).... 7		Temp. Change Expires N/A (21 Da

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-831

Pages Effected Entire Procedure 1-21

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-ISI-206 R/0 Manual Ultrasonic Examination of welds.

B. Reason for Revision: (List any commitments causing this change.)
To ensure pressure retaining components are inspected in accordance with Section XI ASME Code Requirements

C. Does this Revision require other changes to the P.O.M? YES ____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES ____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B. Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure will enhance plant safety by inspecting components for defects without affecting the structural integrity of these components. Since there is no detrimental affect on plant equipment, no unreviewed safety question arises due to the use of this procedure.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES____ NO ✓

(5) Does this item require a change to Technical Specifications? YES____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Weber DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES____ NO ✓

ALARA REVIEW REQUIRED? YES____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO____

B. REVISION RECOMMENDED BY: [signature] DATE 9/23/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: N/A TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: _____

NAME: N/A TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) ISI [signature] DATE 10/25/88
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B. [signature] Safety Reviewer [signature] Signature 9/23/88 Date

RICK DAYTON [signature] 10/25/88 Safety Reviewer [signature] Signature 10/25/88 Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

CNS Review N/A Date

PNSC Chairman Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.

C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE

APPROVED: [signature] MANAGER/FUNCTIONAL AREA 10/28/88 APPROVED DATE 11-04-88 EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 831

MANUAL ULTRASONIC EXAMINATION OF WELDS

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/28/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 22	0

SP- 831

Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

MANUAL ULTRASONIC EXAMINATION OF WELDS

FOR

H. B. ROBINSON UNIT 2

PREPARED BY: B. J. Lefebvre

B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: S Armbrister

Steve Armbrister, Manager
Inspection Services

SP-831 Rev. 0

MANUAL ULTRASONIC EXAMINATION OF WELDS

1.0 SCOPE

1.1 This procedure defines requirements for manual ultrasonic examination of full penetration circumferential and longitudinal butt welds, and adjacent base materials of these and fillet or corner welds. It is applicable to such welds in piping systems (.25" to 6" thick) and vessel materials (.25" to 2" thick), in ferritic or austenitic steels of either wrought or cast product forms. Technical contents are based on Section XI of the ASME Boiler and Pressure Vessel Code 1977 Edition up to and including Summer 1978 Addenda, including Section XI, IWA-2240, when dictated due to Code omissions and to implement upgraded technology or good practice.

1.2 Procedure CPL-DOC-101, Preservice and Inservice Documentation, and the Examination Program Plan (EPP) required therein are considered part of this procedure and are to be used as applicable.

1.3 Examinations in accordance with this procedure are intended to satisfy volumetric examination requirements based on Section XI of the ASME Boiler and Pressure Vessel Code that is noted in 1.1 above.

2.0 GENERAL REQUIREMENTS

2.1 Personnel performing examinations to this procedure shall be certified to at least LEVEL II for ultrasonic examinations, based on a written procedure prepared in accordance with SNT-TC-1A, as may be modified by Section XI of the ASME Boiler and Pressure Vessel Code noted in 1.1. Personnel certified to any LEVEL for ultrasonic examinations may be employed as assistants. However, responsibility for satisfactory examination, results and documentation shall be solely that of the Level-II or III and he shall sign data sheets provided by such assistants.

2.2 Ultrasonic flaw detection instruments shall be of the pulse echo type with an A-Scan presentation and shall be qualified to the requirements of CPL-ISI-10 at the beginning and end of each period of extended use. Qualifications may be valid for a period not to exceed three months.

2.3 Piezoelectric transducers shall be in accordance with TABLE 1 and shall be capable of providing the applicable calibration as required herein.

2.4 Couplant shall be a suitable liquid, semi-liquid or paste, such as Echogel, Exosen, Sonotrace, Trim, Ultragel or glycerin, that is certified as containing not more than 1% by weight, of residual sulphur and halogens.

2.5 The item to be examined, including the required extent of adjacent volume to be examined, shall be as defined in the Examination Program Plan. This information shall be available to the examiner assigned to conduct the examination. Examination of the required volume shall be to the maximum extent practical. Any area which precludes 100% coverage of the required volume shall be documented on Limitation to Examination Data Sheet Form. Reference 1.2.

2.6 Transducer scan surfaces including the weld crown, shall be essentially free of dirt, spatter, paint, coatings and irregularities that impair smooth uninterrupted contact of the search unit and coupling of the sound beam into the material.

2.6.1 Surface condition, and access support (e.g., scaffolds, lighting, etc.) if required, shall be the responsibility of the utility.

2.7 Generally the examinations conducted in accordance with this procedure will be done from the O.D. surface. When examinations are to be conducted from an I.D. surface, calibration must be accomplished on the I.D. of the appropriate calibration block and noted on the report.

2.8 Calibration Blocks

2.8.1 Calibration blocks that satisfy appropriate requirements of Section XI noted in 1.1 (as may be modified by plant technical specifications) shall be provided by the Utility. Appropriate documentation of calibration blocks and their NDE applicability shall be the responsibility of the Utility.

2.8.2 Temperature difference between the surface of the block on which calibration is accomplished and the surface of the item to be examined shall not exceed 25°F.

3.0 SYSTEM CALIBRATION

3.1 Prior to conducting examinations, the complete system to be utilized shall be calibrated on the applicable calibration block for the examinations to be conducted. The system is defined as; the ultrasonic instrument (and battery pack if applicable), cable(s), transducer, couplant, and any other apparatus, instrument or circuit employed between the instrument and the calibration block surface. Once calibration has been established, any change to any part of the system will require at least a verification of the calibration. All calibration data, including scribe/ref. line data shall be documented. Ref. 9.0.

3.2 Sweep range calibration shall be sufficiently long so as to allow examination of the entire required volume by a: full "vee path" from one side of the weld; half "vee path" from each side of the weld; or a combination of such coverage so that the entire volume

required to be examined is covered by at least 2 sound beam directions. Emphasis should be directed toward using the minimum sound beam travel path (metal path) that will provide examination of the maximum amount of the required volume. Reference Figures 1 through 4 for some illustrative and pertinent considerations.

3.2.1 A "vee path" is composed of a downward and an upward path or leg of the calibrated sound beam in the material through which it is traveling.

A 1/2 vee path is either a downward or an upward leg. Example: for 1 1/2 V (or 3T) calibration where the volume required to be completely covered by the first 1/2 V from one side and by the last (3rd 1/2V) from the opposite side, 1/2 vee path coverage from both sides has been satisfied. A 1 1/2 vee is composed of 3 half vees and 2 full vees, one of which is inverted.

3.2.2 Sweep shall be calibrated to provide essentially equal spaced increments of the appropriate reference reflectors. Table 2 specifies specific sweep limitations.

3.3 Reference sensitivity shall be established from notch reflectors except for vessels, castings, and when first 1/2 node technique is specified. Primary reference sensitivity shall be established from not nearer (in sweep time) the applicable reflector that provides the highest amplitude response. For pressure boundary base metal adjacent to and underneath integrally welded supports, sensitivity shall be established on an O.D. notch or on holes representing an up-leg.

3.4 Reference sensitivity shall be established by adjusting the peaked signal from the applicable calibration reflector to 80% of FSH (Full Screen Height).

3.4.1 Without moving the search unit from this peaked signal location point, check vertical linearity of the system by decreasing signal amplitude 6dB, and then by an additional 6dB. The resulting signal decrease must be within 32% to 48% FSH and 16% to 24% FSH respectively.

3.5 Return primary reference signal to 80% FSH and without changing gain control, determine peak indication amplitude from the remaining applicable reflector positions in the examination region. Construct a distance amplitude curve (DAC) on the screen by a curved line connecting each of the peaked points. The DAC may be extrapolated at either end for a distance of 1/2 T.

3.5.1 Where the primary reference sensitivity is established from a notch reflector, signals from the 1/4 T and 3/4 T holes may be used to establish slope of the DAC when 1/2 node examination is used. Alternatively, the next two notch reflector positions may be used to extrapolate the DAC slope to cover the examination range. Holes shall not be used to establish a DAC for examinations requiring a calibration . block of less than .8" thick.

3.5.2 For primary loop RC piping, slope of the DAC shall be established with the peaked signal from the 1/4 T hole set to 80% FSH and connecting the resulting peaks from the 1/2 T and 3/4 T holes with a curved line. The line shall extend through the 80% reference point and through a vertical line of the screen that represents a minimum of 1 1/4 T or thru 100% of sweep.

Note the amplitude and sweep position for the maximum response from the square notch on the opposite surface.

SP-831 Rev. 0

3.5.3 Reference points at 50% and 20% of DAC shall also be established on the screen by decreasing each DAC curve reference point by 6dB and then by an additional 8dB. The resulting 50% and 20% points shall be connected by curved lines drawn on the screen.

To minimize screen clutter, lines connecting 50% points may be deleted, provided the points are clearly defined and are separated by not more than approximately one major screen division. When investigating indications which may or are required to be recorded at the 50% DAC level, a line connecting the applicable adjacent points must be considered or, alternatively, 2X reference sensitivity may be used, with the 100% DAC curve then representing the 50% DAC line.

3.6 Calibration for reflectors transverse to the weld shall be based on 1/2 V.

3.7 Straight beam calibration for welds in vessels shall be as follows:

a. Welds less than .8" thick
The signal amplitude from the 1/2 T hole shall be set at 80 percent of full screen. A DAC curve is not required.

b. Welds .8" thick and greater
The signal amplitude from 1/4 T hole shall be set at 80 percent of full screen. Mark the amplitude of both the 1/4 T and 3/4 T holes to establish a DAC.

4.0 SYSTEM CALIBRATION VERIFICATION

Calibration shall be verified at the beginning and at the end of examinations for which calibration is applicable and, at least every four hours during the examination and, with any change in examination personnel.

4.1 A DECREASE in sensitivity of more than 2DB shall require recalibration and re-examination of all items examined since the previous acceptable calibration or check. An INCREASE in sensitivity of more than 2 DB shall require recalibration and re-examination and data correction of all indications recorded since the previous acceptable calibration or check.

4.2 If any point on the DAC curve has moved on the sweep line more than 10% of the sweep division reading, correct the sweep range calibration and note the correction in the examination record. If recordable reflectors are on the data sheets, this data shall be voided, a new calibration established, and areas relative to the voided data shall be re-examined.

5.0 EXAMINATION

5.1 Extent of Examination

5.1.1 Examination for reflectors parallel to the weld shall be conducted to achieve coverage of the required volume to the extent described in 3.2. As practicable, examination shall be conducted from both sides of the weld. The "second" side examination may be limited solely to coverage of that volume in which the required coverage was not achieved from the "first" side.

5.1.2 Calibrated straight beam (see 3.7) examination when required in the Examination Program Plan, shall be accomplished to examine all of the volume required to be examined, to the extent practicable. The extent that cannot be examined shall be noted. Ref. 2.5.

5.2 Rate of search unit movement shall not exceed 6" per second.

5.3 Scanning sensitivity shall be at least twice the primary reference sensitivity.

5.4 Base Metal Straight Beam Examination

5.4.1 Prior to performing angle beam examination the base material through which the angle beam will pass shall be completely scanned with a straight beam search unit to detect reflectors which might interfere with the angle beam examination. This examination is to be done for preservice only.

5.4.2 Sensitivity of the instrument shall be adjusted at a location free of indications so that the first reflection from the back surface will be 50 to 80 percent of full screen height. Sensitivity as adjusted above shall be continuously monitored during the examination, and adjusted as necessary to maintain at least this minimum amplitude. Alternatively, calibration in accordance with 3.7 may be used.

5.4.3 Areas containing indications (principally laminar) that affect angle beam examinations shall be noted, considered during that examination, and recorded on the data sheet if they are confirmed as interfering. See 9.0.

5.5 Angle Beam - Reflectors Parallel to the Weld

5.5.1 The scan pattern shall start with the search unit transmitting an angle beam perpendicular to and towards the weld. The search unit shall be moved towards and away from the weld such that a necessary amount of the beam path passes through the maximum accessible volume of weld and base metal to be examined. Concurrent with this scan, the search unit shall be angled right and left and progressively

indexed along the length of the weld such that the whole scan pattern follows a "saw-tooth" pattern. The "pitch" of the "saw-tooth" shall be such that the beam covers at least 10 percent of the area covered by the previous adjacent pass. The weld and required amount of adjacent base metal is to be fully scanned by this method. When necessary and practicable examination shall be accomplished from both sides of the weld. This relates to examination directions 2 and 5 in CPL-DOC-101.

5.6 Angle Beam - Reflectors Transverse to the Weld

5.6.1 This examination is to be accomplished only where satisfactory sound beam coupling into the weld can be achieved and maintained. Crowns should be flat for at least 90% of width.

5.6.2 The search unit shall be placed on one edge of the weld directing the angle beam into the material parallel to the weld axis. From this position, the search unit shall be moved parallel to the weld and indexed toward the opposite side such that the next scan will cover at least 10 percent of the area covered by the previous adjacent scan. Parallel scans shall be repeated in this manner until the length and width of the required volume under this surface has been scanned; and then repeated in the opposite direction. This relates to examination directions 7 and 8 as described in CPL-DOC-101.

6.0 INTERPRETATION AND INVESTIGATION

6.1 The Level II or III examiner shall interpret all indications such that he can assess their source and cause in terms of their being either valid or non-valid. Investigation should be conducted at the shortest vee or node path in which the indication is best

interpreted by the examiner. Indications from or near the root of welds may require other aids. See 6.3.

6.1.1 Valid indications are reflectors caused by flaws, such as cracks, lack of penetration or fusion, inclusions and porosity. All other indications are considered non-valid, including those due to: scanning noise, grain structure, beam redirection, internal liquid levels, clad interface, straight beam back surface and geometric reflectors.

6.2 Valid indications shall be investigated by the examiner, in terms of the recording requirements of 7.0.

6.3 Other transducers, search units, frequencies, techniques, etc., may be used to aid interpretation and investigation. When such supplemental aids are used in determining geometric reflectors, they shall be noted by remarks or comments on the examination data sheet. Ref. 9.0.

6.3.1 If such aids necessitate use of any control that cannot be positively returned to its calibrated position, (such as a potentiometer control on sweep, damping, uncalibrated gain, etc.) primary reference calibration shall be verified before use and re-established prior to continuing examinations.

7.0 RECORDING INDICATIONS

7.1 Prior to recording indications that require dimensioning, complete primary reference calibration, including linearity check shall be verified. Ref. 4.0.

7.2 Valid flaw indications which provide a response equal to or greater than 50% of primary reference DAC shall be considered as--recordable indication--and noted as RI.

7.2.1 For each such indication, peak amplitude, sweep position, and search unit location and direction shall be recorded. The indication shall also be dimensioned to record, as a minimum, sweep positions and search unit locations representing minimum and maximum 50% DAC points, parallel and perpendicular to the length axis of the indication. For indications that exceed DAC, the minimum and maximum 100% point shall also be noted.

7.3 Valid flaw indications which provide a response less than 50% of primary reference DAC and are (or may be) due to a crack shall be considered as--recordable indication--and tentatively noted as RI*.

NOTE: Enter * instead of X on Examination Data Sheet RI column and, enter as remarks, such as--for information. Recommend further investigation for RI/NRI determination.

7.3.1 Each such indication shall be noted on an Ultrasonic Indication data sheet and as a minimum, peak amplitude, sweep position, search unit location and scanning area thickness shall be noted.

7.4 Valid flaw indications not noted per 7.3 and which provide a response between 20% and 50% of primary reference DAC shall be considered as--non-recordable indication--and noted as NRI.

7.4.1 Each such indication area shall be noted on an ultrasonic indication data sheet, and as a minimum, peak amplitude, sweep position, and search unit location and direction shall be noted.

7.5 Non-valid indications, and valid indications not required to be noted per the above shall be considered as--no indication--and noted as NI.

8.0 POST CLEANING

8.1 Examined areas shall be dry-wiped to remove excess wet couplant, if necessary.

9.0 EXAMINATION RESULTS AND DOCUMENTATION

9.1 All data relative to examinations shall be recorded in accordance with CPL-DOC-101.

9.2 Geometric reflectors which provide a response equal to or greater than 50% of primary reference DAC shall be noted. As a minimum: note the maximum amplitude, location, extent and the side it is in, if other than in the root. Ref. 6.3

SP- 831

Rev. 0

TABLE 1

ANGLE BEAM EXAMINATION

NOMINAL MATERIAL THICKNESS	MAX. SIZE	TRANSDUCER (1) MINIMUM (nominal) FREQ. MHz	NOMINAL ANGLE
.250" to .750"	1/4"	2.0	45°S
.751" to 1.000"	1/2"	2.0	45°S
1.001" to 1.200"	3/4"	2.0	45°S
1.201" and Greater	1"	2.0	45°S
Main Loop Piping	1"	1.0	41°L

STRAIGHT BEAM EXAMINATION

	SIZE Min.	SIZE Max.	Max. Freq. MHz
Main Loop Piping	1"	1.25"	2.25
All other to 12" Dia.	1/4"	1/2"	5.0
12" Dia. and greater	1/4"	1"	5.0

NOTES:
(1) Other transducers may be used where metallurgical characteristic or geometry impede effective use of the above listed angle beams or frequencies. Size is the element viewed from the side and shall not be increased.

TABLE 2

1/4 T = 1/8 Node = 1/8V	1 1/4 T = 5/8 Node = 5/8V
1/2 T = 2/8 Node = 1/4 V	1 1/2 T = 6/8 Node = 3/4 V
3/4 T = 3/8 Node = 3/8 V	1 3/4 T = 7/8 Node = 7/8 V
1 T = 4/8 Node = 1/2 V	2 T = 8/8 Node = 1 V
	ETC.

SWEEP RANGE CALIBRATION

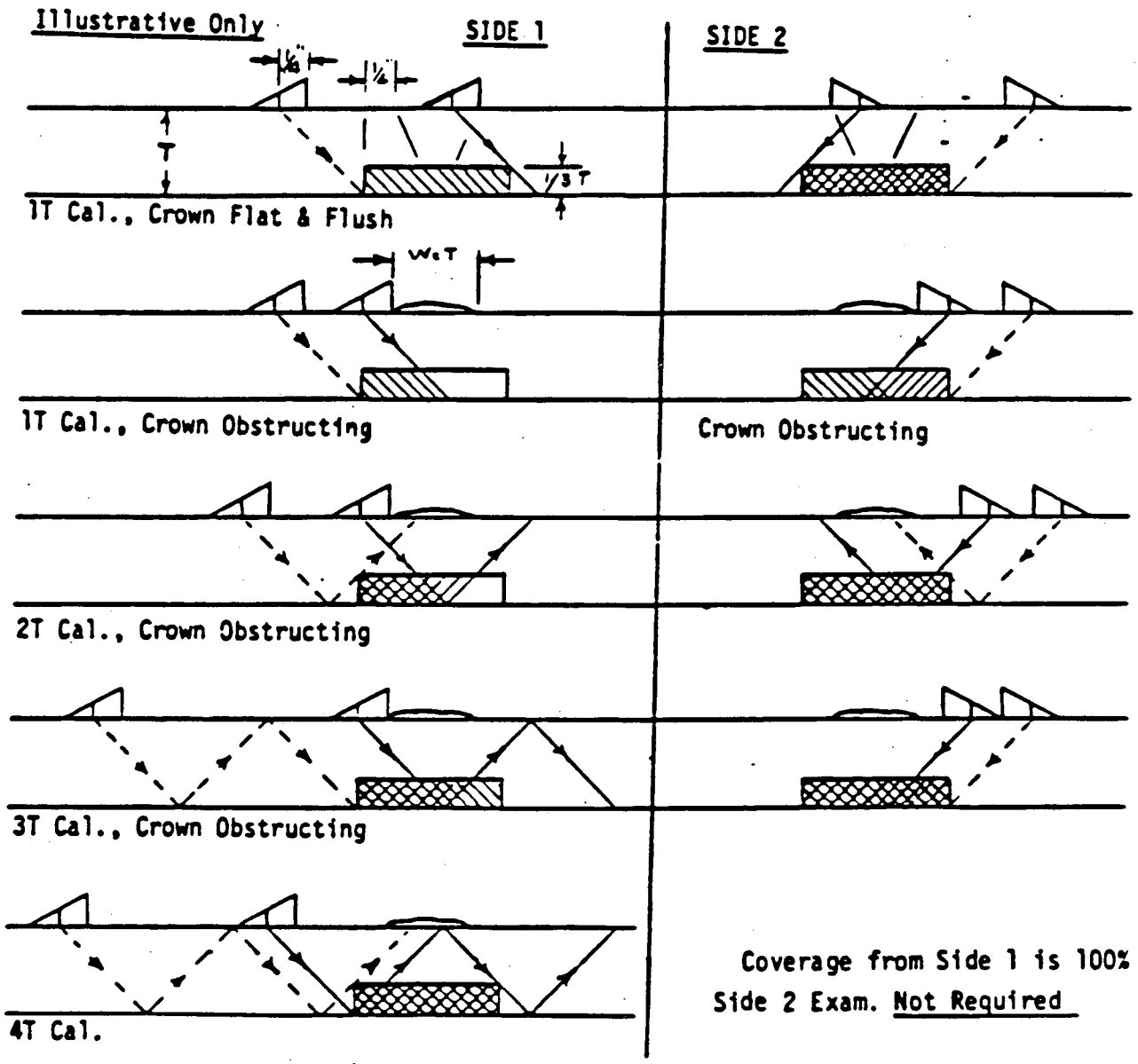
FOR SWP. RANGE CAL. OF:	MAX. LAST LEG % SWP. LOCATION (1)
1 T	70
2 T	75
3 T	75
4 T	75

(1) Applicable for "T" calibration point from notch reflector, or last "T" point as extrapolated or extended from calibration hole reflectors. Maximum last leg location indicated, is based on piping calibration block at minimum "T" and of volume to be examined at maximum "T". Last leg positions indicated above may be changed if thickness of calibration block and the examination area are determined to be other than this basis. Calculate for maximum last leg position as follows:

$$100 \div \frac{\text{EXAM. VOL. "T"}}{\text{CAL. BLOCK "T"}} = \text{MAX. \%SWP. LOCATION FOR LAST LEG}$$

SP- 831

Rev. 0



Broken Beam = Exam. Start

Solid Beam = Exam completion or Maximum access.

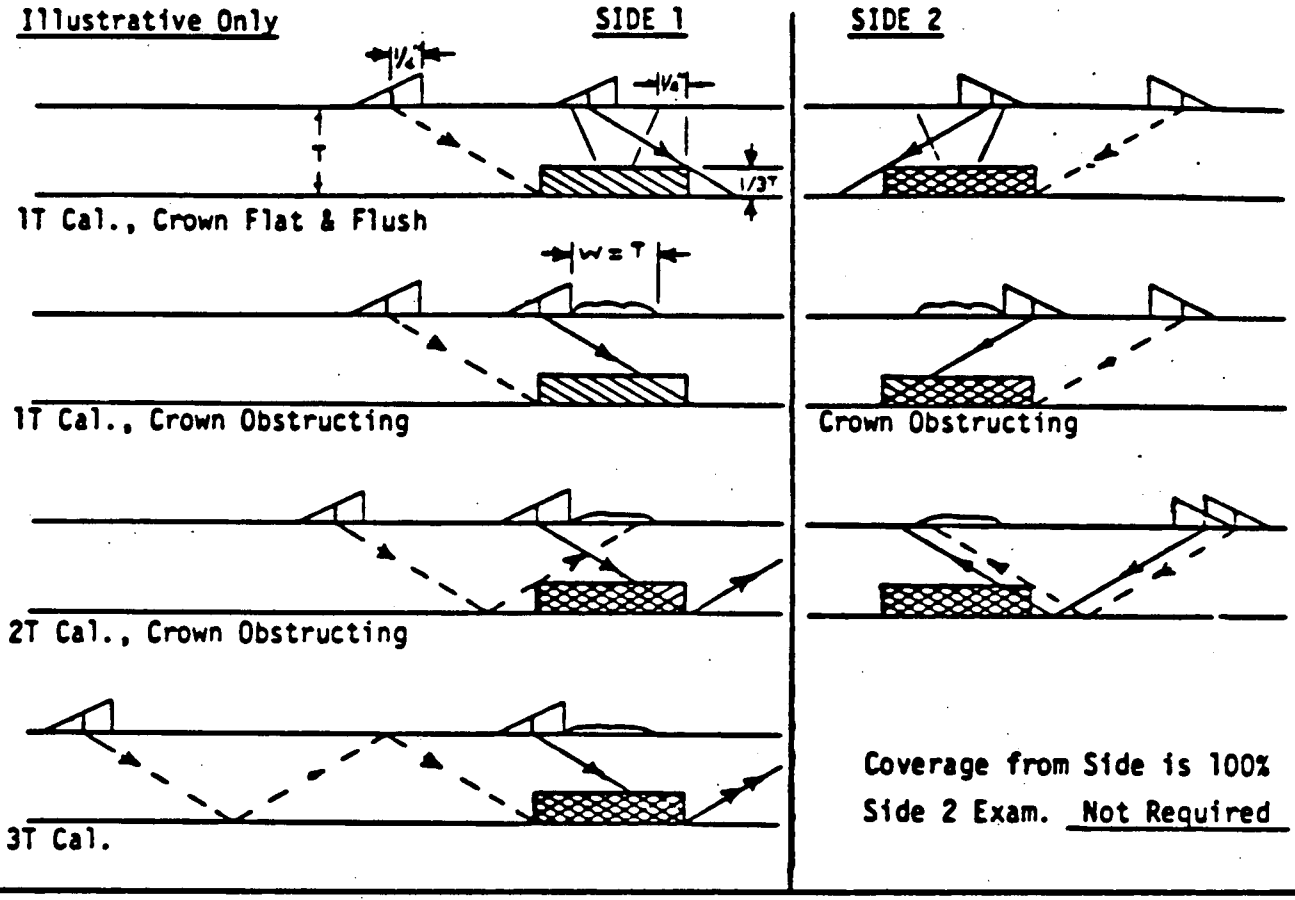
ALL BEAM ANGLES - 45°

SEE FIGURE 2 FOR COMMENTARY

FIGURE 1

SP- 831 Rev. 0

Illustrative Only



Coverage from Side is 100%
Side 2 Exam. Not Required

Broken beam = Exam. start. Solid beam = Exam. completion or maximum access.

ALL BEAM ANGLES-60°

Figures and views illustrate extent of examination volume coverage that is obtained based on parameters depicted. Actual parameters existing for or during each examination alter significantly the depicted coverage.

Key parameters depicted are:

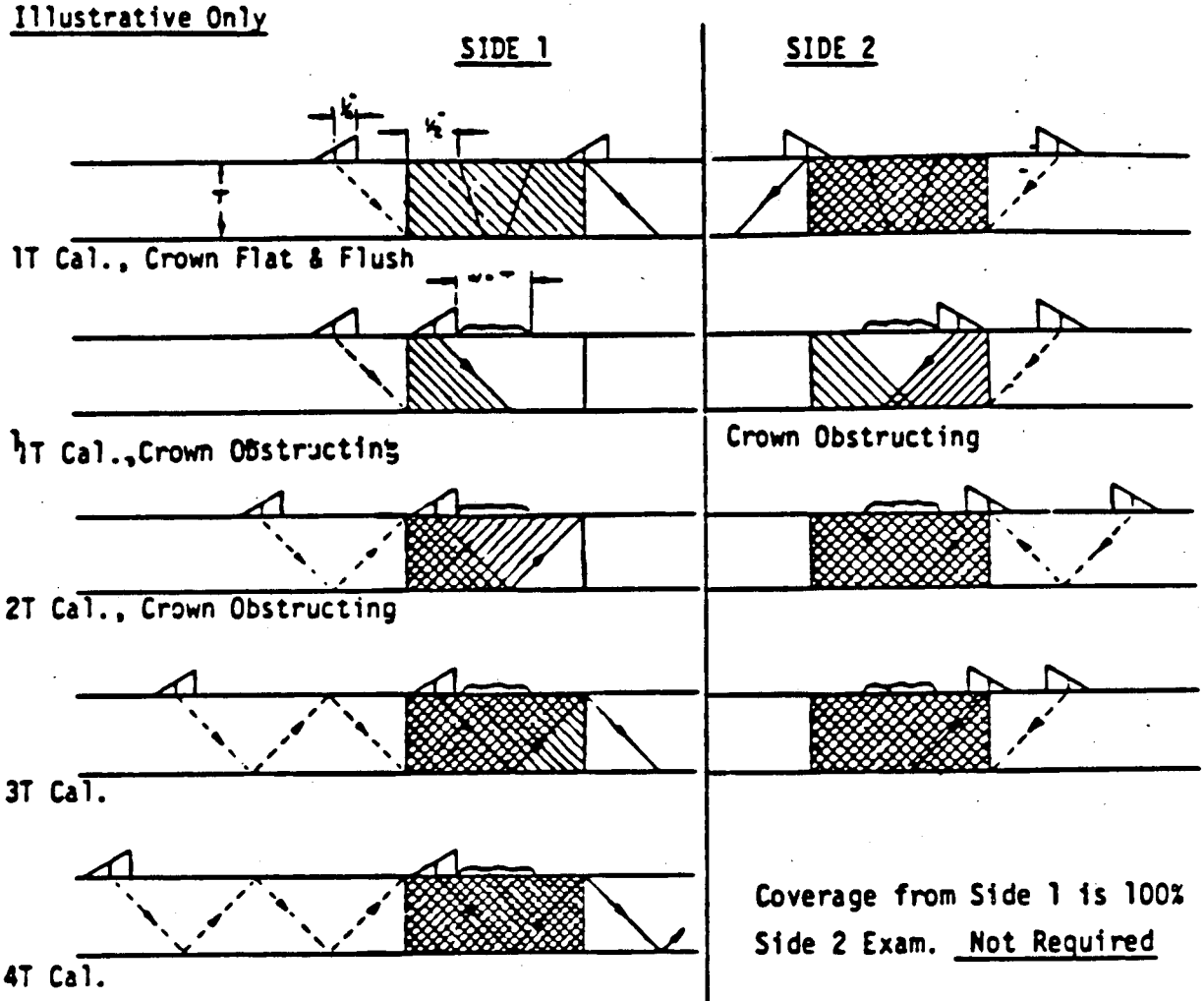
1. Search unit is essentially minimum size
2. Nominal beam angle (in the part) is achieved and maintained
3. Beam has zero spread
4. Beams reflect from parallel planes equal to T at I.D. and crown areas
5. Width of obstructing crown is equal to T
6. Scan access is available on both sides.

Where weld crown is not obstructing, 2T cal. range or greater can satisfy required coverage from one side.

Cal. range and transducer or angle shall be such that examination and data required (see 2.5) can be satisfied. Maximum extent of required coverage achieved during examination is, that volume that has been "cross-hatched" by calibrated beams, as perceived solely by the examiner.

FIGURE 2

Illustrative Only



Coverage from Side 1 is 100%
Side 2 Exam. Not Required

Broken Beam = Exam. Start

Solid Beam = Exam. Completion or Maximum Access

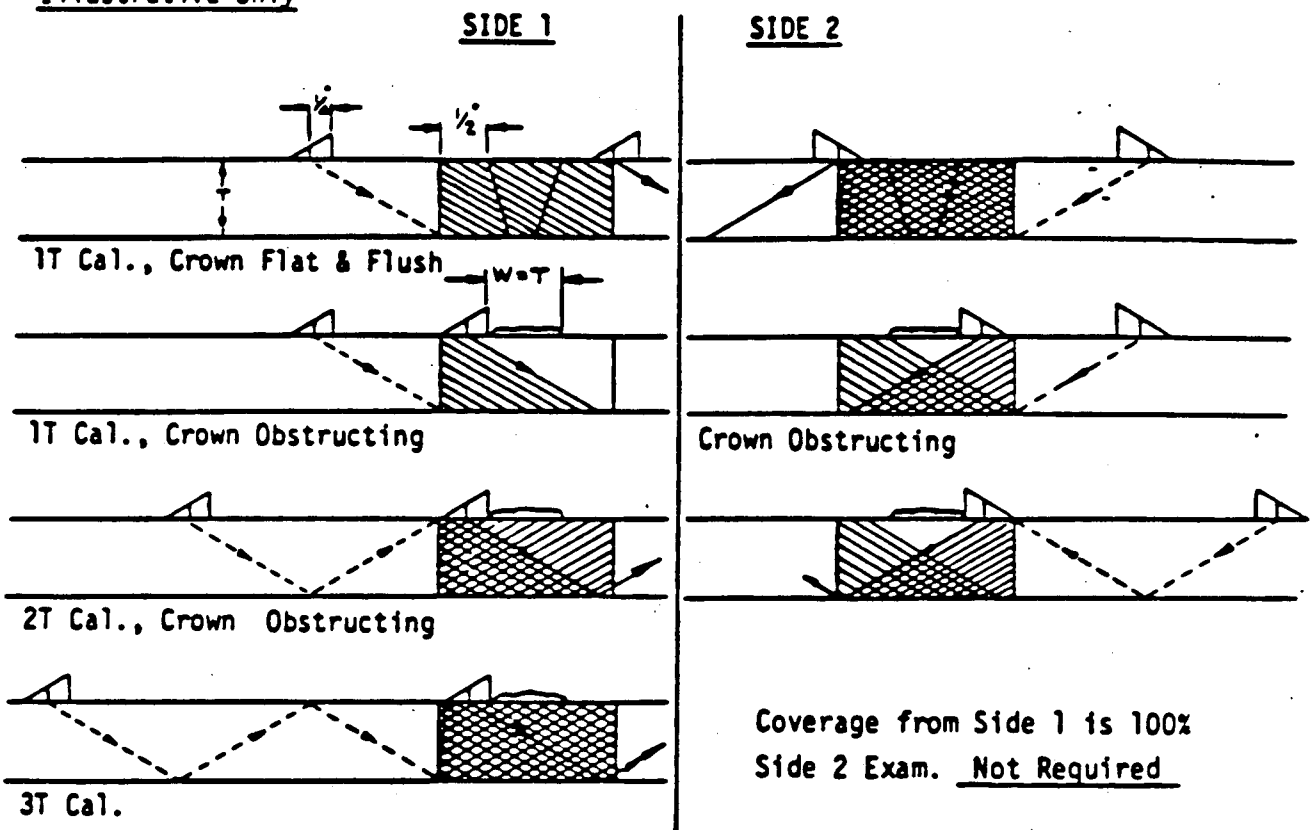
ALL BEAM ANGLES - 45°

SEE FIGURE 4 FOR COMMENTARY

FIGURE 3

SP- 831 Rev. 0

Illustrative Only



Coverage from Side 1 is 100%
Side 2 Exam. Not Required

Broken beam = Exam. start. Solid beam = Exam. completion or maximum access.

ALL BEAM ANGLES-60°

Figures and views illustrate extent of examination volume coverage that is obtained based on parameters depicted. Actual parameters existing for or during each examination alter significantly the depicted coverage.

Key parameters depicted are:

1. Search unit is essentially minimum size
2. Nominal beam angle (in the part) is achieved and maintained
3. Beam has zero spread
4. Beams reflect from parallel planes equal to T at I.D. and crown areas
5. Width of obstructing crown is equal to T
6. Scan access is available on both sides

Where weld crown is not obstructing, 2T cal. range or greater can satisfy required coverage from one side.

Cal. range and transducer or angle shall be such that examination and data required (see 2.5) can be satisfied. Maximum extent of required coverage achieved during examination is, that volume that has been "cross-hatched" by calibrated beams, as perceived solely by the examiner.

FIGURE 4

10.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice-Inspection Report.

File: 06-15508

DISTRIBUTION:	
Admin. Supv. Original.....	1
ONS Review.....	1
Training Review.....	1
D. Weber Assigned Copies.....	4
Total (Minus Original)....	7

H. B. ROBINSON STEAM ELECTRIC PLANT

PROCEDURE REVIEW AND APPROVAL FORM

Effective Date.....	11-04-88
PCN.....	16098
Revision No.....	0
Spec Proc. No.....	SP-827
Temp. Change No.....	N/A
Temp. Change Expires (21 Day	N/A

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-827

Pages Effected Entire Procedure 1-9

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-TBA-100 R/0 Thickness and Beam Angle by Ultrasonics

B. Reason for Revision: (List any commitments causing this change.)
To provide instructions to inspection personnel on the performance of thickness and beam angle by ultrasonics.

C. Does this Revision require other changes to the P.O.M? YES ____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES ____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B. Heller DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure will enhance plant safety by assuring that the correct thicknesses and beam angles are achieved and documented prior to ultrasonic examination. Plant equipment is not affected by this procedure therefore no unreviewed safety question rises due to the use of this procedure.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES____ NO ✓

(5) Does this item require a change to Technical Specifications? YES____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Wilb DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES____ NO ✓

ALARA REVIEW REQUIRED? YES____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO____

B. REVISION RECOMMENDED BY: [signature] DATE 9/23/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: N/A TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) [signature] DATE 10/25/88
IST
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B. RICK DAYTON [signature] 10/25/88 RBW 9/23/88
Safety Reviewer 10/25/88 Signature Date

[signature] [signature] 9/23/88
Safety Reviewer Signature Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

N/A
CNS Review Date

PNSC Chairman Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.

C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE ____

APPROVED: [signature] 10/25/88 11-04-88
MANAGER/FUNCTIONAL AREA APPROVED DATE EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 827

THICKNESS AND BEAM ANGLE BY ULTRASONICS

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/28/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 11	0

SP- 827

Rev. 0

W NUCLEAR SERVICES DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

THICKNESS AND BEAM ANGLE BY ULTRASONICS

FOR

H. B. ROBINSON UNIT 2

PREPARED BY: _____
B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: _____
Steve Armbrister, Manager
Inspection Services

SP- 827 Rev. 0

THICKNESS AND BEAM ANGLE BY ULTRASONICS

1.0 SCOPE

This procedure describes methods which may be used on ferritic and austenitic materials for (1) determining a thickness value and (2) determining a beam propagation angle based on 1/2 the distance required for 1 full vee of travel time. The determinations are achieved by use of pulse-echo ultrasonic waves and accuracy is therefore subject to acoustic variations in the materials involved.

2.0 GENERAL REQUIREMENTS

2.1 Ultrasonic instruments shall be of the pulse echo type with an A-Scan presentation. Digital readout may be employed as an accessory or an aid to the A-Scan readout. When a digital readout is employed, the CRT sweep need not be calibrated to the graticule baseline.

2.2 For Thickness Values, the transducer should generally be straight beam longitudinal wave, 5 MH_Z, .5 in. dia. or square and, single or dual element. Other frequency/size may be necessary for materials with "difficult" sonic characteristics.

For Beam Angle Determination, transducers shall be in accordance with Table 1.

2.3 Couplant shall be a suitable liquid, semi-liquid or paste, such as Echogel, Exosen, Sonotrace, Trim, Ultragel or glycerin, that is certified as containing not more than 1% by weight, of residual sulphur and halogens.

2.4 Calibration block material shall be the same as the material of the part to be contacted i.e. carbon steel block for carbon steel part and stainless steel block for stainless steel part.

Step blocks that provide incremental thickness that exceed the minimum and maximum dimensions expected to be encountered, including multiple back surface techniques, are acceptable. Single or multiple blocks for min./max. calibration may be used if acceptable to the UT Level II or III.

Thickness at the transducer contact area of all blocks used for thickness value calibration have been verified to at least 3 decimal positions by mechanical gauging.

2.5 The area to be contacted by the search unit shall be cleaned to ensure that it is free of dirt, scale, weld spatter or loose foreign matter that would impair free movement of the search unit or affect the results.

3.0 THICKNESS DETERMINATION

3.1 A minimum of two (2) thickness signals shall be used for calibration; at least 15% greater and at least 15% less than the nominal thickness expected to be encountered.

3.2 Calibration shall be accomplished by using the leading edge of the back surface signals, after the signals have been adjusted to 50% of full screen height. These locations shall be marked on the baseline.

3.2.1 Sweep controls shall be adjusted to position the back surface calibration reflectors at convenient linear spacing on the horizontal scale, so that 1% of sweep represents not less than .004 inch and not more than .008 inch.

e.g. A - Back reflection and 2 multiples from .25 in. block adjusted to 1/3, 2/3 and 100% of scale respectively = 0.75 in. Full sweep = .0075 in/1%.

e.g. B - Back reflections from 1/4 in. and 3/4 in. block adjusted to 0% and 100% respectively = 0.5 in. Full sweep = .005 in/1%.

NOTE

IN THIS EXAMPLE, THE FIRST 1/4 IN. OF THICKNESS IS NOT INCLUDED IN THE SWEEP BUT, IT MUST BE ADDED TO THE APPROPRIATE BACK SURFACE SWEEP READING TO OBTAIN THE THICKNESS VALUE.

3.3 Depending on the transducer and/or the technique employed, the initial pulse may or may not appear on the CRT.

3.4 Unless otherwise directed, the area of interest for thickness values is generally 1.5 x nom "T" from the toe of the weld on the pipe side. This area shall be scanned to determine the location(s) of thickest and thinnest regions, indicated by the back surface signal shifting on the CRT display. When the region is located, the area shall be searched to determine the maximum or minimum local reading.

3.5 The instrument gain shall then be adjusted to provide a pulse amplitude of 50% from each area and the measurements recorded on forms similar to FIG. 2.

4.0 BEAM ANGLE DETERMINATION

4.1 Location of the beam angle check shall be at the area of maximum thickness value as noted on the data sheet completed per 3.5.

4.2 The transmitting search unit and the receiver/reflector shall generally be arranged as illustrated in FIG. 1. (Transmitted beam travelling toward the weld).

SP- 827

4.3 Scan the transmitting search unit so as to detect and peak (at approximately 50% FSH) the first full vee signal from the receiver/reflector. Care should be exercised when the transmit and the receiver/reflector are close enough to trap couplant between them. Couplant scraped between the two units may provide cross-talk, resulting in a false vee signal.

4.4 Determine distance "D" as illustrated in FIG. 1 and note it on the same form used to record data per 3.5.

4.5 Calculate beam angle value according to FIG. 1 and complete the appropriate entries on the same data sheet used per 4.4.

5.0 At the conclusion of thickness value measurements, if done separately, and following beam angle determination, the surfaces shall be dry-wiped to remove excess couplant.

TABLE 1
ANGLE BEAM TRANSDUCER

NOMINAL MATERIAL THICKNESS	TRANSDUCER MAX. SIZE(1)	MINIMUM FREQ. MHz	NOMINAL(2) ANGLE ± 2°DEG.
.2 to .350	1/4"	2.25	60°S
.351 to .750	1/4"	2.25	45°S
.751 to 1.000	1/2"	2.25	45°S
1.001 to 1.200	3/4"	2.25	45°S
1.201 and greater	1"	2.25	45°S

NOTES:

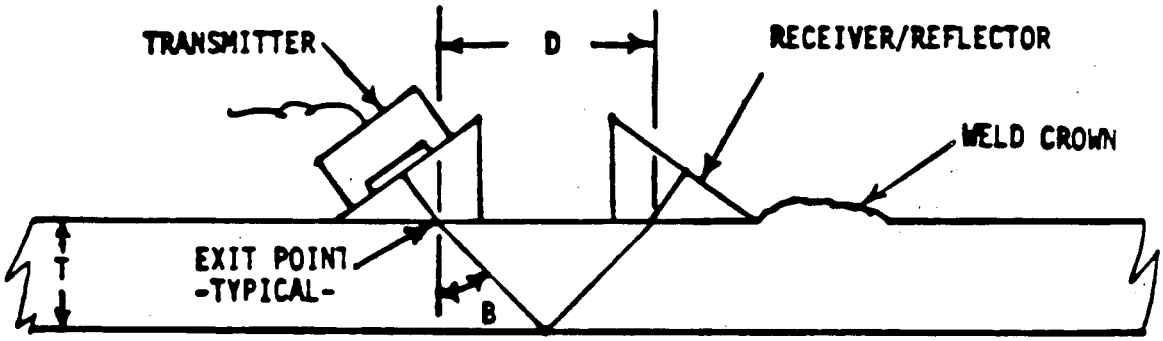
(1) Size is the transducer element dimension as viewed from the side of the search unit.

(2) Nominal angle of the search unit and the beam exit point as determined on a standard IIW block or, a similar block with provisions for refracted angle interpretation. Beam exit point shall be verified/corrected.

Specified angle applies to transmitter. Receiver/reflector should be matched to the transmitter within 1 degree.

Beam exit points of the transmitter and of the receiver/reflector shall be verified as within 1/64 in. or, re-established to within 1/64 in.

FIGURE-1



T= MEASURED THICKNESS VALUE

D= SURFACE DISTANCE BETWEEN EXIT POINTS MEASURED TO NEAREST 1/32 INCH

B= BEAM ANGLE VALUE IN THE MATERIAL =ARC TAN $\frac{.5D}{T}$

FIGURE-2

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

THICKNESS AND BEAM ANGLE DATA

PLANT _____ UNIT _____ SKETCH _____

SYST/COMP _____ PROCEDURE _____

EXAMINER _____ LEVEL ☐ DATE _____

EXAMINER _____ LEVEL ☐ DATE _____

		TRANSDUCER			
	INSTRUMENT	"T"	TRANSMITTER	RECEIVER/ REFLECTOR	CAL. BLOCK
MAKE					
S/N					
SIZE					
FREQ.					
ANGLE					
COUPLANT:			BATCH		

			MINIMUM		MAXIMUM		ANGLE		
WELD (LEN)	SURFACE 2"	SURFACE 5"	DIR. 5" LOCATION	CALCULATED THICKNESS	DIR. 5" LOCATION	CALCULATED THICKNESS	DIR. 0	CALCULATED ANGLE	REMARKS

* REFERENCE CPL-DOC-101 FOR KEY/INTERPRETION

6.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice-Inspection Report.

File: 06-15508

ATTACHMENT 6.1
Page 1 of 3

DISTRIBUTION:		H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date.... 11-04-
Admin. Supv. Original.....	1	PROCEDURE REVIEW AND APPROVAL FORM	PCN..... 16 10
ONS Review.....	1		Revision No..... 0
Training Review.....	1		Spec Proc. No..... SP-8
D. Weber Assigned Copies.....	4		Temp. Change No..... N/A
Total (Minus Original)....	7		Temp. Change Expires N/A (2: Da

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-830

Pages Effected Entire Procedure 1-GK 62 11/03/88

I. A. Proposed Revision: Addition of new procedure - Special Procedure CPL-DOC-101 R/0 Preservice and Inservice Inspection Documentation.

B. Reason for Revision: (List any commitments causing this change.)
To provide instructions to examination and inspection personnel on documenting examination results.

C. Does this Revision require other changes to the P.O.M? YES ____ NO ✓
If "Yes" List them in the "Remarks" Section.

D. Does this Revision require changes to HBR Drawing? YES ____ NO ✓
If "Yes" List drawing number in the "Remarks" Section.

E. Revision/Change Requested by: Richard B. Weber DATE 9/8/88

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure will allow a permanent record of completed examinations to be maintained. It provides instruction on what is to be included in the documentation package for each examination. This procedure has no direct affect on plant equipment. Therefore no unreviewed safety question arises and no changes to Techn. Specs or UFSAR is required due to this change.

(If additional space is required use additional paper and attach them to this form.)

B. Based on above Safety Analysis:

(1) Does this item increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety as previously analyzed in the Updated FSAR? YES ____ NO ✓

(2) Does this item create the possibility for an accident or malfunction of a different type than any previously evaluated in the Updated FSAR? YES ____ NO ✓

(3) Does this item reduce the margin of safety as defined in the basis for any Technical Specification? YES ____ NO ✓

(4) Based on positive answers to any of questions B.(1) through B.(3), does this item constitute an unreviewed safety question? YES ____ NO ✓

(5) Does this item require a change to Technical Specifications? YES ____ NO ✓

(6) Does this item constitute a change or addition to the Updated FSAR? YES ____ NO ✓

SAFETY ANALYSIS PREPARED BY: Richard B. Weber DATE: 9/8/88

TO BE COMPLETED BY RESPONSIBLE SUPERVISOR

III. A. QA/QC REVIEW REQUIRED? YES ____ NO ✓

ALARA REVIEW REQUIRED? YES ____ NO ✓

FIRE PROTECTION REVIEW REQUIRED? YES ____ NO ✓

TECHNICAL REVIEW REQUIRED? YES ✓ NO ____

B. REVISION RECOMMENDED BY: [signature] DATE 9/23/88
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: N/A DATE N/A
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) [illegible] DATE 10/25/88
Signature

(2) N/A DATE N/A
Signature

VI. SAFETY REVIEW (Supervisor: Check applicable expertise blocks and assign reviewers.)

A. __Nuclear Plant Operations __Reactor Engineering ✓Mechanical
__Electrical I&C __Structural/Seismic/Thermal __Metallurgy
__Chemistry/Radiochemistry __Health Physics __Admin.Controls

B. Richard Weber — Richard B. Weber — 9/23/88
Safety Reviewer — Signature — Date

RKK DAYTON — Rick Dayton — 10/25/88
Safety Reviewer 10/25/88 — Signature — Date

(Attach additional Documentation as necessary.)

VII. A. IF SAFETY REVIEW STEPS II.B.(4) OR (5) ARE ANSWERED "YES", CNS AND PNSC REVIEWS AND NRC APPROVAL IS REQUIRED PRIOR TO IMPLEMENTATION.

N/A — Date
CNS Review

PNSC Chairman — Date

VIII. ALL REQUIRED REVIEWS HAVE BEEN COMPLETED AND:

A. ✓ PROCEDURE APPROVED FOR IMPLEMENTATION.
B. ____ TEMPORARY CHANGE CANCELLED.

C. ____ YES ✓ NO TRAINING SHOULD BE ACCOMPLISHED FOR THE FOLLOWING PERSONNEL PRIOR TO IMPLEMENTATION:

TARGET DATE ____

APPROVED: [illegible] — 10/25/88 — 11-04-88
MANAGER/FUNCTIONAL AREA — APPROVED DATE — EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ____ YES ✓ NO

REMARKS:

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 830

PRESERVICE AND INSERVICE INSPECTION DOCUMENTATION

REVISION 0

Effective Date 11-04-88

Expiration Date 5-03-89

RECOMMENDED BY: _____ 10/26/88
Project Engineer - In-House Design Date

APPROVED BY: _____ 10/28/88
Manager - Technical Support Date

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 62	0

SP-830 Rev. 0

W NUCLEAR SERVICES INTEGRATION DIVISION
INSPECTION SERVICES
NONDESTRUCTIVE EXAMINATION PROCEDURE

TITLE

PRESERVICE AND INSERVICE EXAMINATION DOCUMENTATION

FOR

H. B. ROBINSON UNIT 2

PREPARED BY: B. J. Lefebvre

B. J. Lefebvre, Level III
Inspection Services

APPROVED BY: S R Armbrister

Steve R. Armbrister, Manager
Inspection Services

PRESERVICE AND INSERVICE EXAMINATION DOCUMENTATION

1.0 PURPOSE

This document describes the methods, procedures, and special requirements for documenting and recording the performance of non-mechanized nondestructive preservice and inservice examinations conducted to satisfy Section XI of the ASME Boiler and Pressure Vessel Code 1977 Edition up to and including Summer 1978 Addenda.

2.0 SCOPE

2.1 The scope of examinations that are to be performed on all welds, areas, items systems and components shall be fully defined in the Examination Program Plan (EPP) prepared for each appropriate outage.

2.2 The Examination Program Plan shall be identified by the use of the three letter alpha designation (CPL) applicable to H. B. Robinson.

2.3 The Examination Program Plan shall also define the specific item/area planned to be examined, the extent of examination if less than 100%, the volume or surface area subject to examination and, it shall contain a listing of applicable calibration blocks, sketches illustrating the general location of the item/areas and, the NDE procedures expected to be used.

3.0 PERFORMANCE

3.1 All examinations shall be conducted in accordance with approved written procedures. Specific procedures to be utilized shall be identified in the Examination Program Plan.

3.2 To provide consistency and reproducibility of examinations, all data shall be recorded in accordance with the following requirements.

4.0 DATUM POINTS

To ensure uniformity of the manner in which all indications are recorded during the performance of non-mechanized nondestructive examinations, their locations shall be referenced to an identifiable datum point.

4.1 Datum points shall only be established in the event that indications are to be recorded.

4.2 Datum points shall either be permanently marked on the component or the location adequately described such that subsequent relocation of the area can be achieved within an accuracy of 0.5 inches.

4.3 When permanent marking of datum points is to be performed, the point shall be denoted by a capital letter "D".

4.4 The locations of datum points shall be established in accordance with the following rules.

4.4.1 For horizontal pipelines (Ref. Figure 1), the datum point shall be located on the intersection of the weld centerline and the top centerline of the pipe.

4.4.2 For vertical pipelines, the datum point shall be located on the intersection of the weld centerline and the centerline through the outside (extrodos) of the elbow or bend that is in the direction of the lower weld identification number.

4.4.3 For vessel or component circumferential welds, the datum point shall be located on the intersection of the weld centerline and the centerline of the adjacent longitudinal weld. Should there be more than one, or no adjacent longitudinal weld, the location of the datum point shall be predetermined and indicated on the vessel or component weld identification sketch.

4.4.4 For vessel longitudinal welds, the datum point shall be located at the intersection of the weld centerline and the centerline of the intersecting upper circumferential weld. For horizontal vessels, one end of the vessel shall be identified as the "top" on the sketch.

4.5 Reference points may be established along the centerline of any weld to avoid the necessity of relating the location of indications back to the datum point for extensive distances.

4.5.1 Reference points, if utilized, shall be located on the centerline of the weld and shall be placed at an exact number of feet from the datum point.

4.5.2 Reference points shall be either permanently marked or the location described in the same manner as specified in Paragraph 4.2 above.

4.5.3 When permanent marking of reference points is to be performed, the point shall be denoted by the use of a capital letter "R" with a numeral to indicate the specific number of feet measured from the datum point.

5.0 DIMENSIONING ULTRASONIC INDICATIONS

Location of recordable indications noted during the performance of nondestructive examinations shall be recorded with reference to datum points established in accordance with Section 4.0 of this document.

5.1 Length and location of indications parallel to the weld shall be recorded as the distance along the axis of the weld from the datum (or related reference) point, to each end of the indication (starting and finishing points defining the length).

5.2 Depth and width and location of the indications parallel to the weld shall be recorded as the perpendicular distance from the centerline of the weld to each side of the indication (starting and finishing points defining the width).

5.3 Length and location of indications transverse to the weld shall be similarly recorded by the perpendicular distance from the centerline of the weld to each end of the indication.

5.4 Depth and width and location of indications transverse to the weld shall be similarly recorded by the distance along the axis of the weld from the datum or related reference point to each side of the indication.

5.5 Measurements between a datum point and an indication circumferentially around a vessel or pipe weld shall be taken in a clockwise direction (in the same direction as examination scan 7: Ref. Figure 3).

5.6 Clockwise direction shall be established as viewed from the "top" of a vessel or with the directional arrow in piping systems (viewed in the direction of examination scan 5).

5.7 Length and width (depths) of ultrasonic indications shall be determined to the points where the signal amplitude response falls to a value of fifty (50) percent of the calibration DAC level (DAC -6 db).

5.8 Measurements of ultrasonic indications shall be referenced to the biaxial point of sound exit from the search unit (Ref. Figure 2).

5.9 When an indication located transverse to the weld is found to extend either side of the datum reference point, the distances from the datum to the ends shall be identified as to the direction of

measurement. This is achieved by including ( ) the surface identify applicable to the side of the weld appropriate to the measurement (i.e., 4" (2), 6-1/2" (5), etc.); (Ref. Figure 3).

6.0 DATA RECORDING

Information and data relative to performance and results of nondestructive examinations shall be recorded on the data sheet similar to those illustrated in Appendix A and documented as required.

6.1 Information applicable to the qualification of ultrasonic equipment prior to the performance of examinations shall be recorded in accordance with the requirements of CPL-ISI-10.

6.2 Information applicable to the examination of piping system, vessel, or component welds shall be recorded on the Weld Ultrasonic Examination forms for Preservice or Inservice Examinations, as applicable.

6.3 Information applicable to indications to be recorded during the performance of weld ultrasonic examinations shall be recorded on the Ultrasonic Indication Data Form.

6.4 All information applicable to the surface examinations shall be recorded on the Surface Examination Data Form. Indications recorded during the performance of surface examinations may be pictorially represented on the Surface Indication Data Form.

6.5 The Visual Examination Data Form shall be used for visual examinations. Indications recorded during the performance of visual examinations shall be recorded on the General-Indication Data Form.

6.6 All information applicable to the ultrasonic examination of studs, bolts, and nuts shall be recorded on the Ultrasonic Examination Data Form for Stud, Bolts, and Nuts. Indications recorded during the performance of the ultrasonic examinations of studs, bolts, and nuts shall be recorded on the General-Indication Data Form.

6.7 Information applicable to ultrasonic examination of Reactor Coolant Pump Flywheels shall be recorded on the applicable Ultrasonic Examination Data Form for RC Pump Flywheel and indications noted during the performance of Ultrasonic, Surface, or Visual examination of Reactor Coolant Pump Flywheels shall be recorded on the Indication Data Form for RC Pump Flywheels.

6.8 Limitations which are encountered during NDE examinations and cannot be recorded on other report forms shall be recorded on Limitation to Examination form (welds) or (general), as applicable.

7.0 EXAMINATION PERSONNEL

7.1 A record shall be made of all examination personnel utilized for the performance of examinations and documented on the applicable form listed in Appendix A.

8.0 EXAMINATION EQUIPMENT

Records shall be made of equipment and consumables utilized for the performance of the Examination Program and documented on the applicable forms in Appendix A.

8.1 A record shall be made of the manufacturer, model, and serial number of each ultrasonic flaw detection instrument and its attachments utilized for the performance of examinations.

8.2 A record shall be made of the manufacturer, model, and type of each magnetic particle examination equipment utilized for the performance of examinations.

8.3 A record shall be made of the size, material, and heat number of all calibration standards utilized for the performance of ultrasonic examinations. Each standard shall be given a unique identification applicable to the individual plant and the size of pipe or component.

8.4 A record shall be made of the manufacturer (or trade name), type, and batch number of consumable materials, such as dye penetrants and couplant materials, utilized for the performance of examinations.

SP- 830

Rev. 0

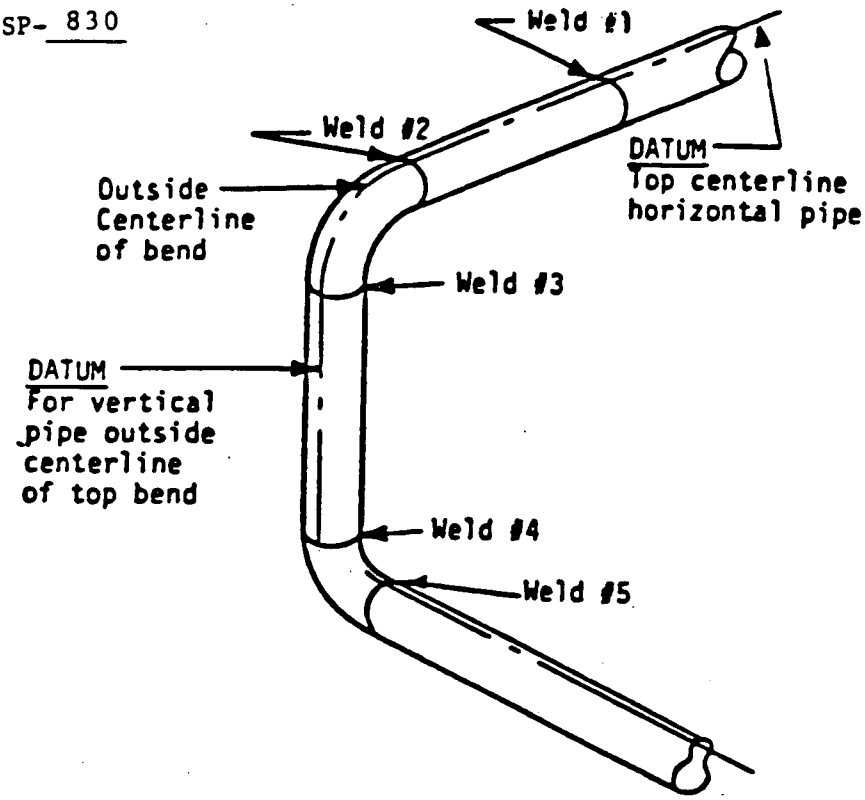


FIGURE 1

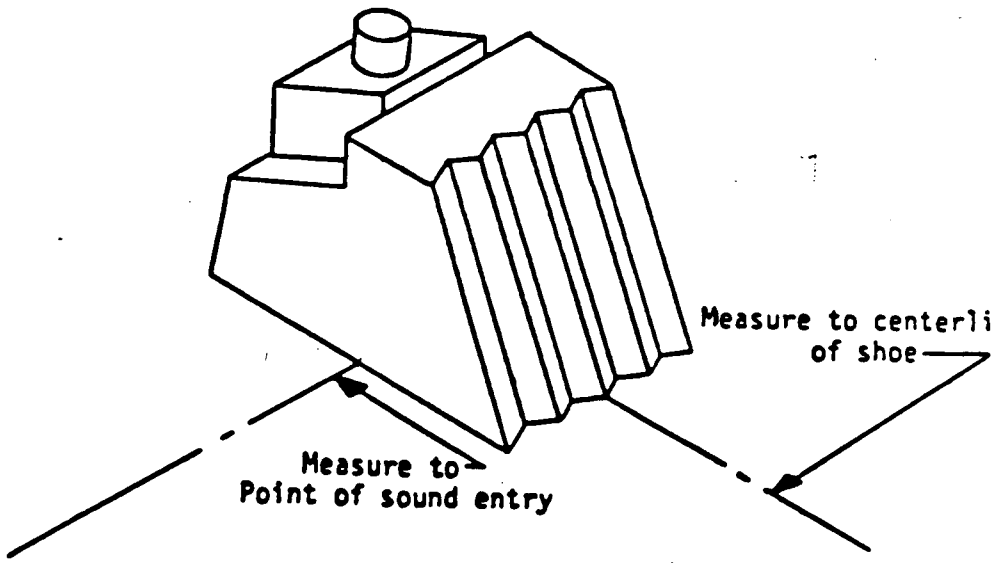
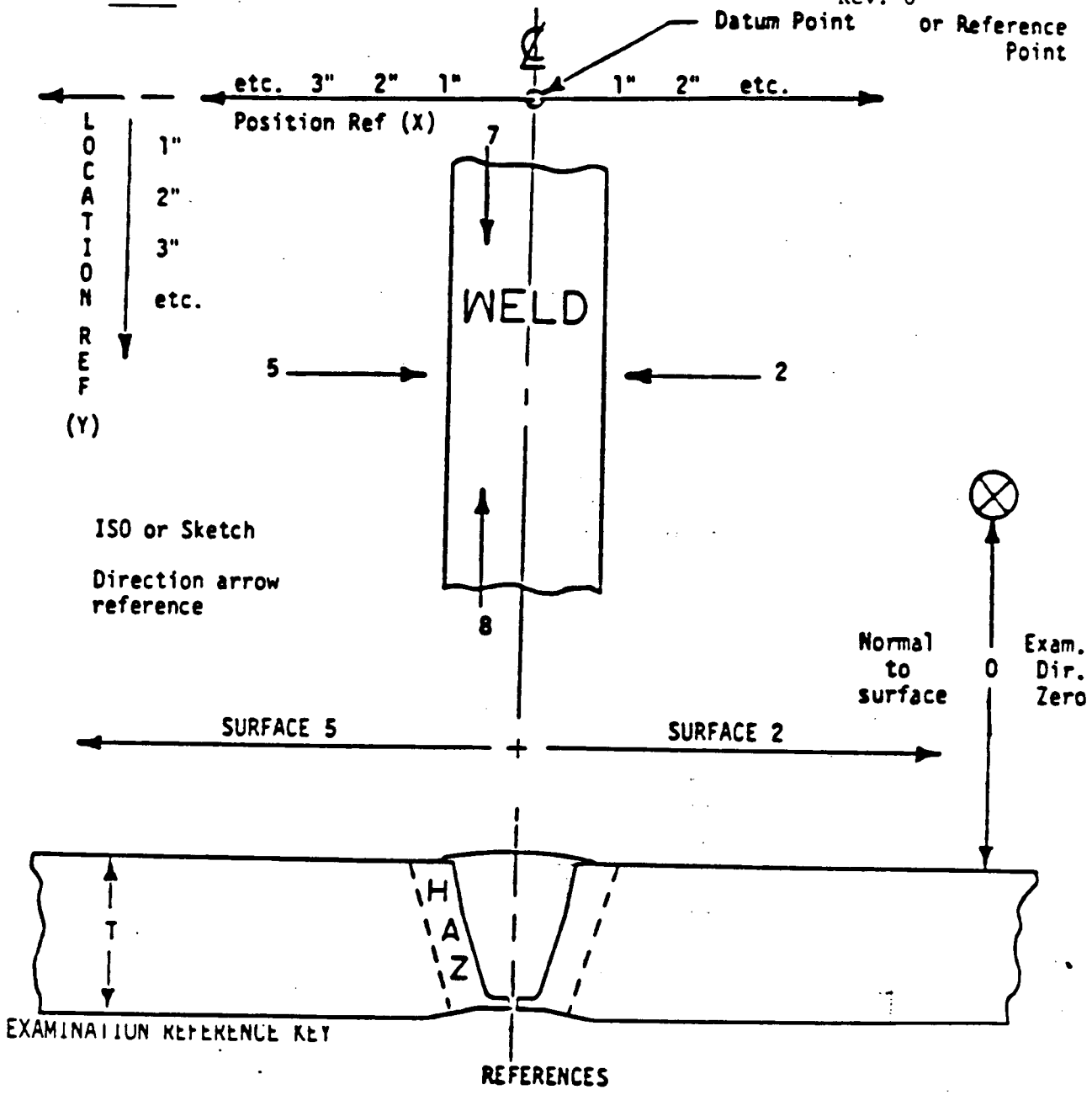


FIGURE 2



Vessels - As viewed from "TOP"
Circumferential Welds - Direction 7 Points Clockwise - (Direction 5 points down)
Vertical Welds - Direction 7 Points Down - (Direction 5 points clockwise)

Piping - As viewed in Direction of Weld Numbering (toward face of clock)
Circumferential Welds - Direction 7 Points Clockwise (Direction 5 points - Direction Weld-#)
Longitude Welds - Direction 7 Points in Direction Numbering - (Direction 5 = CCW)

FIGURE 3

APPENDIX A

TITLE

1. Weld Ultrasonic Examination
2. Weld Ultrasonic Examination - (Continuation Sheet)
3. Ultrasonic Indication Sheet
4. Ultrasonic Examination Data for Studs, Bolts, and Nuts
5. Ultrasonic Examination Data for RC Pumps Flywheels
6. Indication Data for RC Pump Flywheels
7. Surface Examination Data
8. Surface Examination Data (Continuation Sheet)
9. Surface Indication Data
10. Visual Examination Data
11. Limitation to Examination (Welds)
12. Limitation to Examination (General)
13. General - Indication Data
14. Examination Personnel
15. Ultrasonic Equipment (Instruments)
16. Ultrasonic Equipment (Transducers)
17. Magnetic Particle Equipment
18. Calibration Blocks
19. Examination Consumable Materials

SP- 830 Rev. 0

WELD ULTRASONIC EXAMINATION PRESERVICE AND INSERVICE

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification (number)
4.	Identity of system or component from sketch title.
5.	Procedure identity including revision, amendment and field change, as appropriate.
6. & 7.	Examiners signature and date certifying that calibration, examinations, results and documentations have been performed in accordance with the procedure identified in Block 5.
8.	Ultrasonic instrument model and serial number.
9.	Rep. rate setting at system calibration.
10.	Reject control setting at system calibration.
11.	Damping control setting at system calibration.
12.	Filter switch setting at system calibration.
13.	Enter sat. - when a vertical linearity check is required as part of the system calibration in accordance with the procedure identified in Block 5 and if linearity is satisfactory. If not satisfactory follow procedure instructions.
14.	Transducer search unit cable type and length.
15.	Ultrasonic couplant type and batch number.
16.	Transducer serial number.
17.	Nominal transducer size.
18.	Nominal transducer frequency.
19.	Nominal transducer/search unit beam angle as determined from a standard IIW block. (Angle beams only).

WELD ULTRASONIC EXAMINATION PRESERVICE AND INSERVICE (cont)

Block	Information Required
20.	Time & date of initial calibration and time of subsequent calibration checks.
21.	Time and date of final calibration check.
22.	Enter the location of the calibration reflectors utilized to accomplish calibration.
23.	For straight beam calibration enter peak signal amplitude in % FSH for each appropriate reflector.
24.	For straight beam calibration enter screen sweep position for each appropriate reflector.
25.	For axial angle beam calibration enter peak signal amplitude in % FSH for each appropriate reflector.
26.	For axial angle beam calibration enter screen sweep position for each appropriate reflector.
27.	For axial angle beam calibration, record, the peak distance from scribe/ref. line to the Search Unit Sound Exit Point (Reference Figure 2) in inches to the nearest 1/32" for each appropriate reflector. NOTE: The scribe/ref. line is defined as a reference line on the calibration block surface that is directly above the center of the appropriate hole and directly above the reflector side of the appropriate notch.
28.	For axial angle beam calibration, record, the minimum 50% distance from scribe/ref. line to the Search Unit Sound Exit Point (Reference Figure 2) in inches to the nearest 1/32" for each appropriate reflector.
29.	For axial angle beam calibration, record, the maximum 50% distance from scribe/ref. line to the Search Unit Sound Exit Point (Reference Figure 2) in inches to the nearest 1/32" for each appropriate reflector.
30.	For circumferential angle beam calibration enter peak signal amplitude in % FSH for each appropriate reflector.

WELD ULTRASONIC EXAMINATION PRESERVICE AND INSERVICE (cont)

Block	Information Required
31.	For circumferential angle beam calibration enter screen sweep position for each appropriate reflector.
32.	For circumferential angle beam calibration record, when required by examination procedure noted in Block 5, the peak distance from scribe/ref. line to the Search Unit Sound Exit Point (Reference Figure 2) in inches to the nearest 1/32" for each appropriate reflector. NOTE: The scribe/ref. line is defined as a reference line on the calibration block surface that is directly above the center of the appropriate hole and directly above the reflector side of the appropriate notch.
33.	For circumferential angle beam calibration record, when required by examination procedure noted in Block 5, the minimum 50% distance from scribe reference line to the Search Unit Sound Exit Point (Reference Figure 2) in inches to the nearest 1/32" for each appropriate reflector.
34.	For circumferential angle beam calibration record, when required by examination procedure noted in Block 5, the maximum 50% distance from scribe reference line to the Search Unit Sound Exit Point (Reference Figure 2) in inches to the nearest 1/32" for each appropriate reflector. NOTE: Where the calibration block has no distinct provisions for circumferential scan calibrations, as may be the case for such calibration blocks for vessels or for examination surfaces having a diameter greater than 20 inches the data for blocks 30, 31, 32, 33 and 34 will be identical to the data for Blocks 25, 26, 27, 28 and 29. In this case enter - same as axial - across these boxes.
35.	Calibration gain in DB's for the appropriate scan direction required to establish the primary reference sensitivity.
36.	Calibration Block Identity
37.	Calibration Block thickness (from calibration report).

WELD ULTRASONIC EXAMINATION PRESERVICE AND INSERVICE (cont)

Block	Information Required
38.	Calibration Block temperature in degrees fahrenheit at time of calibration.
39.	Record the identification number of the weld subject to examination from the Reference Sketch.
40.	Determine and record the temperature difference of the weld identified in Block 39 at the time of examination and the calibration in Block 38. Record as + or - degress F from Block 38.
41.	Indicate Y-B (Yes-Back Surface) when any base metal examination has been performed of the required volume utilizing a calibration of the back surface. Indicate Y-A (Yes-Alternate) when any base metal examination has been performed of the required volume utilizing a calibrated straight beam. Indicate No if no base metal examination has been performed of the required volume.
42.	Indicate Yes when any axial examination scan has been performed of the required volume from the 2 side. Indicate No if no axial examination scan has been performed of the required volume from the 2 side.
43.	Indicate Yes when any axial examination scan has been performed of the required volume from the 5 side. Indicate No if no axial examination scan has been performed of the required volume from the 5 side.
44.	Indicate Yes when any circumferential examination scan has been performed of the required volume from the 7/8 direction. Indicate No if no circumferential examination scan has been performed of the required volume from the 7/8 direction.
45.	Indicate Yes when any straight beam examination scan has been performed of the required volume. Indicate No if no straight beam examination scan has been performed of the required volume.
46.	Record all limitations (valves, flanges, weld crown, etc.) that restrict examination of 100% of the required volume. For preservice, include an estimate of the % considered by the examiner to be not examinable.

WELD ULTRASONIC EXAMINATION PRESERVICE AND INSERVICE (cont)

Block	Information Required
47.	Enter the general configuration of the weld surface (as welded, rounded, flat, flush, wavy etc.).
48.	Enter X in the appropriate box as required by the examination procedure identified in Block 5.
49.	Enter any information that may be pertinent or necessary to provide additional clarification of the examination performed. The presence of geometric reflectors producing amplitude greater than the recording level for flaws (RI) is to be noted here, e.g. counterbore, Side 5, 90% DAC, 120°/290°. Include supplemental aids used, if any, e.g. 0° - 5 MHZ Sup.
50.	Examiners, Do Not Write in This Space.

NSD

4008R/182R880909:50

SP- 830

Rev. 0

CPL-DOC-101 REV 0

EFFECTIVE DATE October 1, 1988

PAGE 19 of 62

REVISED DATE

NSD 1014 07-88 wp/032841

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT 1	UNIT 2	SKETCH 3	
SYST/COMP 4		PROCEDURE 5	
EXAMINER (LEVEL II) 6		DATE 7	

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N 8	S/N	6		6					6					INITIAL TIME 20
	SIZE	7		7					7					
	FREQ	8		8					8					
	ANGLE	9		9					9					
REP. RATE 9	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF LINE TO			SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF LINE TO			
						PEAK	50% DAC LOCATIONS				PEAK	50% DAC LOCATIONS		
REJECT 10	22	23	24	25	26	27	28	29	30	31	32	33	34	
DAMPING 11														
FILTER 12														FINAL TIME 21
LIN CHECK 13														
SU CABLE 14														CAL BLOCK 36
COUPLANT 15	CAL GAIN	35		35					35					THICKNESS 37
														TEMP 38

WELD NUMBER	TEMP	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
39	40	41	42	43	44	45	46	47	48	48	48	49

50

SP- 830 Rev. 0

WELD ULTRASONIC EXAMINATION (CONTINUATION SHEET) PRESERVICE AND INSERVICE

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification (number)
4.	Identity of system or component from sketch title.
5.	Procedure identity including revision, amendment and field change, as appropriate.
6. & 7.	Examiners signature and date certifying that calibration, examinations, results and documentations have been performed in accordance with the procedure identified in Block 5.
8.	Record the identification number of the weld subject to examination from the Reference Sketch.
9.	Determine and record the temperature difference of the weld identified in Block 39 at the time of examination and the calibration in Block 38. Record as + or - degress F from Block 38.
10.	Indicate Y-B (Yes-Back Surface) when any base metal examination has been performed of the required volume utilizing a calibration of the back surface. Indicate Y-A (Yes-Alternate) when any base metal examination has been performed of the required volume utilizing a calibrated straight beam. Indicate No if no base metal examination has been performed of the required volume.
11.	Indicate Yes when any axial examination scan has been performed of the required volume from the 2 side. Indicate No if no axial examination scan has been performed of the required volume from the 2 side.
12.	Indicate Yes when any axial examination scan has been performed of the required volume from the 5 side. Indicate No if no axial examination scan has been performed of the required volume from the 5 side.

WELD ULTRASONIC EXAMINATION (CONTINUATION SHEET) PRESERVICE AND INSERVICE (cont)

Block	Information Required
13.	Indicate Yes when any circumferential examination scan has been performed of the required volume from the 7/8 sides. Indicate No if no circumferential examination scan has been performed of the required volume from the 7/8 sides.
14.	Indicate Yes when any straight beam examination scan has been performed of the required volume. Indicate No if no straight beam examination scan has been performed of the required volume.
15.	Record all limitations (valves, flanges, weld crown, etc.) that restrict examination of 100% of the required volume as well as estimated not examinable in % FSH. Forms 48745 and 49077 shall be required if limitations preclude 100% coverage of required volume.
16.	Enter the general configuration of the weld surface (as welded, rounded, flat, flush, etc.).
17.	Enter X in the appropriate box as required by the examination procedure identified in Block 5.
18.	Enter any information that may be pertinent or necessary to provide additional clarification of the examination performed. The presence of geometric reflectors producing amplitude greater than the recording level for flaws (RI) is to be noted here, e.g. counterbore, Side 5, 90% DAC, 120°/290°. Include supplemental aids used, if any, e.g. 0° - 5 MHZ Sup.
19.	Examiners, Do Not Write in This Space.

NSD

400BR/182R880909:50

SP- 830

Rev. 0

CPL-DOC-101 REV 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
WELD ULTRASONIC EXAMINATION
(CONTINUATION SHEET)
INSERVICE

PLANT	UNIT	SKETCH
1	2	3
SYST/COMP 4		PROCEDURE 5
EXAMINER (LEVEL II) 6		DATE 7

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
8	9	10	11	12	13	14	15	16	17	17	17	18
												19

EFFECTIVE DATE October 1, 1988

PAGE 22 of 62

REVISED DATE

NSD 1014 07-88 wp:02841

SP- 830

Rev. 0

ULTRASONIC INDICATION DATA FORM

Block		Information Required
1.		H. B. Robinson
2.		Unit 2
3.		Sketch identification (number)
4.		Identity of system or component from sketch identification.
5.		Procedure identity including revision, amendment and field change, as appropriate.
6.		Examiners signature and date of completion certifying that calibration, examinations, results and documentations have been performed in accordance with the procedure identified in Block 5.
7.		Enter date or dates examinations were performed.
8.		Enter sat. - when a linearity and cal. check is required as part of the system calibration in accordance with the procedure identified in Block 5.
9.		Enter calibration block thickness from calibration block report.
10.		Record the identification number of the weld subject to examination from the Reference Sketch.
11.	*	Measure and record in inches to the nearest 1/32" the distance from the Datum Reference Point (Reference Section 4.0) to the nearest end of the reflector at the point where the response signal has reduced to an amplitude of 50% (percent) of DAC.
12.	*	Measure and record in inches the distance from the Datum Reference Point (Reference Section 4.0) to the furthest end of the reflector at the point where the response signal has reduced to an amplitude of 50% (percent) of DAC.

* For transverse indications the "from - to" length dimensions are the same.

SP- 830 Rev. 0

ULTRASONIC INDICATION DATA FORM (cont)

Block	Information Required
13.	Record screen sweep position of the sound path distance (depth) of the reflector at the point where the response signal has reduced to an amplitude of 50% (percent) of DAC nearest to the surface (i.e. minimum depth).
14.	Record in inches to the nearest 1/32" the distance from the point of sound entry at the point where the response signal has reduced to an amplitude of 50% (percent) of DAC nearest to the surface (i.e. minimum depth) to the Datum Reference Point (Reference Section 4.0).
15.	Record screen sweep position of the sound path distance (depth) of the reflector at the point where the response signal has reduced to an amplitude of 100% (percent) of DAC nearest to the surface.
16.	Record in inches to the nearest 1/32" the distance from the point of sound entry at the point where the response signal has reduced to an amplitude of 100% (percent) of DAC nearest to the surface to the Datum Reference Point (Reference Section 4.0).
17.	Record screen sweep position of the sound path distance (depth) of the reflector at the point where the response signal is at its maximum peak.
18.	Record in inches to the nearest 1/32" the distance from the point of the sound entry at the point where the response signal is at its maximum peak to the Reference Point (Reference Section 4.0).
19.	Record the maximum signal response from the reflector in terms of DB from DAC e.g, DAC + 6DB, DAC - 4DB.
20.	Record screen sweep position of the sound path distance (depth) of the reflector at the point where the response signal has reduced to an amplitude of 50% (percent) of DAC farthest to the surface.

SP- 830 Rev. 0

ULTRASONIC INDICATION DATA FORM (cont)

Block	Information Required
21.	Record in inches to the nearest 1/32" the distance from the point of sound entry to the point where the response signal has reduced to an amplitude of 100% (percent) of DAC farthest to the surface to the Datum Reference Point (Reference Section 4.0).
22.	Record screen sweep position of the sound path distance (depth) of the reflector at the point where the response signal has reduced to an amplitude of 50% (percent) of DAC farthest to the surface (i.e. maximum depth).
23.	Record in inches to the nearest 1/32" the distance from the point of sound entry of at the point where the response signal has reduced to an amplitude of 50% (percent) of DAC farthest to the surface (i.e. maximum depth) to the Datum Reference Point (Reference Section 4.0).
24.	Record the nominal beam angle of the search unit.
25.	Record the search unit scan direction(i.e. 0, 2, 5, 7 or 8). If Box 24 is 0, enter the surface (2 or 5) it is on.
26.	Measure and record in inches to the nearest 1/32" the thickness of the base metal on the 2 side of the weld where the reflector is recorded.
27.	Measure and record in inches to the nearest 1/32" the thickness of the weld at or near the centerline of the weld where the reflector is recorded.
28.	Measure and record in inches to the nearest 1/32" the thickness of the base metal on the 5 side of the weld where the reflector is recorded.
29.	Enter any information that may be pertinent or necessary to provide additional clarification of the reflector recorded.

NSD

4008R/182R880909:50

SP- 830

Rev. 0

CPL-DOC-101 REV 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC INDICATION DATA

PLANT 1	UNIT 2	SKETCH 3
SYST/COMP 4		PROCEDURE 5
EXAMINER (LEVEL III) 6		DATE 7
LINEARITY AND CAL CHECK 8	CAL BLOCK THICKNESS 9	

WELD NUMBER	INDICATION LENGTH		MIN 50%		MIN 100%		PEAK			MAX 100%		MAX 50%		BEAM		THICKNESS			REMARKS
	FROM	TO	SWP.	IN. TO REF.	SWP.	IN TO REF	SWP	IN TO REF	DAC AMPL.	SWP	IN TO REF	SWP	IN TO REF	ANGLE	DIR	SURF 2	WELD	SURF. 5	
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

EFFECTIVE DATE October 1, 1988

PAGE 26 of 62

REVISED DATE

NSD 1014 07-88 wp/02841

SP- 830 Rev. 0

ULTRASONIC EXAMINATION DATA FOR STUDS, BOLTS AND NUTS FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying that calibration, examinations, results and documentations have been performed in accordance with the procedure identified in Block 5.
8.	Ultrasonic instrument model and serial number.
9.	Rep. rate setting at system calibration.
10.	Reject control setting at system calibration.
11.	Damping control setting at system calibration.
12.	Filter switch setting at system calibration.
13.	Ultrasonic couplant type and batch number.
14.	Transducer serial number.
15.	Transducer size.
16.	Transducer frequency, nominal.
17.	Transducer search unit beam angle, nominal.
18.	Calibration Block Identity
19.	Record first signal in % FSH of full height screen.

ULTRASONIC EXAMINATION DATA FOR STUDS, BOLTS AND NUTS FORM (cont)

Block	Information Required
20.	Record second signal in % FSH of full screen height.
21.	Record calibration sensitivity in DB at time of calibration.
22.	Record initial checks and final calibration time.
23.	Record examination sensitivity in DB at time of examination.
24.	Record back surface 80% FSH.
25.	Record calibration sensivity in DB at time of calibration.
26.	Record initial and final calibration times.
27.	Record examination sensitivity in DB at time of examiation.
28.	Record calibration checks times.
29.	Record the identification number subject to examination from the Reference Sketch.
30.	Enter X in the appropriate box as required by the examination procedure identified in Block 5.
31.	Enter any information that may be pertinent or necessary to provide additional clarification of the examination performed.
32.	Examiners, Do Not Write in This Space.

32

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EXAMINATION DATA FOR STUDS, BOLTS AND NUTS

PLANT 1 UNIT 2 SKETCH 3

SYST/COMP. 4 PROCEDURE 5

EXAMINER 6 LEVEL II DATE 7

EQUIPMENT

INST. S/N 8

REP. RATE 9

REJECT 10 DAMPING 11

FILTER 12

COUPLANT 13

TRANSDUCER

SERIAL NUMBER 14

SIZE 15

FREQUENCY 16

ANGLE 17

CALIBRATION

STUDS AND BOLTS 4" DIA. AND GREATER

CALIBRATION BLOCK 18

CURVE "A" 1ST SIGNAL 19 % FSH

2ND SIGNAL 20 % FSH

CURVE "B" CURVE "A" PLUS (+) 12 DB

CALIBRATION SENSIT. 21 DB

CALIBRATION TIME 22

EXAM SENSIT. 23 DB

NUTS, STUDS AND BOLTS LESS THAN 4" DIA.

BACK SURFACE 24 % FSH

CALIB. SENSIT. 25 DB

CAL. TIME 26

EXAM. SENSIT. 27

CAL. CHECKS 28

IDENT NUMBER	UT RESULTS			REMARKS
	NI	NRI	RI	
29	30	30	30	31

SP- 830 Rev. 0

ULTRASONIC EXAMINATION DATA FOR RC PUMP FLYWHEELS FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying that calibration, examinations, results and documentations have been performed in accordance with the procedure identified in Block 5.
8.	Ultrasonic instrument model and serial number.
9.	Rep. rate setting at system calibration.
10.	Reject control setting at system calibration.
11.	Damping control setting at system calibration.
12.	Filter switch setting at system calibration.
13.	Ultrasonic couplant type and batch number.
14. & 18.	Transducer serial number.
15. & 19.	Nominal transducer size (.25", .375", .50" etc.).
16. & 20.	Nominal transducer frequency (1.0 MHz, 2.25 MHz etc.).
17. & 21.	Nonimal transducer search unit beam angle 0°.
22.	Record upper plate full screen height signal amplitude in % (percent).
23.	Record lower plate full screen height signal amplitude in % (percent).

SP- 830 Rev. 0

ULTRASONIC EXAMINATION DATA FOR RC PUMP FLYWHEELS FORM (cont)

Block	Information Required
24.	Record initial, checks and final calibration times.
25.	Record 90% (percent) bore back reflection.
26.	Record initial, checks and final calibration times.
27.	Record near full screen height signal amplitude in % (percent).
28.	Record far full screen height signal amplitude in % (percent).
29.	Record initial, checks and final calibration times.
30.	Enter X in the appropriate box for the periphery examination as required by the examination identified in Block 5.
31.	Enter any information that may be pertinent or necessary to provide additional clarification of the periphery examination performed and of non-geometric limitations encountered.
32.	Enter X in the appropriate box for the Keyway Corner Examination as required by the examination procedure identified in Block 5.
33.	Enter X in the appropriate box for the Radial Gauge Hole Examination as required by the examination identified in Block 5.
34.	Examiners, Do Not Write in This Space.

3

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EXAMINATION DATA FOR RC PUMP FLYWHEELS

PLANT 1 UNIT 2 SKETCH 3

SYST COMP 4 PROCEDURE 5

EXAMINER 6 LEVEL II DATE 7

EQUIPMENT

INST S N 8

REP RATE 9

REJECT 10

DAMPING 11

FILTER 12

COUPLANT 13

TRANSDUCERS

PERIPHERY EXAM.

SER. NO 14

SIZE 15

FREQ. 16

ANGLE 17

GAGE HOLE AND KEYWAY CORNER

SER NO. 18

SIZE 19

FREQ. 20

ANGLE 21

CALIBRATION

1 PERIPHERY – REAM BOLT HOLE REFLECTION UPPER PLATE 22 FSH LOWER PLATE 23 FSH CAL. TIME/CHECK 24

2 KEYWAY CORNER – BORE BACK REFLECTION 25 (VERIFY 90% MIN.) CAL TIME/CHECK 26

3. RADIAL GAGE HOLE – REAM BOLT HOLE REFLECTION – NEAR 27 FSH FAR 28 FSH CAL. TIME/CHECK 29

	IDENT NUMBER	UT RESULTS NI	NRI	RI	REMARKS
PERIPHERY	PUMP 1	30	30	30	3
	PUMP 2				
	PUMP 3				
	PUMP 4				
KEYWAY COR	PUMP 1	3	3	3	3
	PUMP 2				
	PUMP 3				
	PUMP 4				
RADIAL GA HOLE	PUMP 1	3	3	3	3
	PUMP 2				
	PUMP 3				
	PUMP 4				

SP- 830 Rev. 0

INDICATION DATA FOR RC PUMP FLYWHEELS FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying indication data for RC Pump Flywheels documentation has been performed in accordance with the procedure identified in Block 5.
8.	Enter X on the appropriate line the examination indication was noted.
9.	Enter X on the appropriate line the examination indication was noted.
10.	Record the maximum indication amplitude full screen height in % (percent).
11.	Record in inches to nearest 1/32" size of indication area.
12.	Enter X on the appropriate line the indication was detected by.
13.	Record information as required on form.
14.	Examiners, Do Not Write in This Space.

14

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INDICATION DATA FOR RC PUMP FLYWHEELS

PLANT 1 UNIT 2 SKETCH 3

SYST COMP 4 PROCEDURE 5

EXAMINER 6 LEVEL ☐ DATE 7

EXAM. PERIPHERY 8 KEYWAY CORNER 8 RADIAL GAGE HOLE 8

INDICATION FROM TOP PLATE 9 BOTTOM PLATE 9

MAXIMUM INDICATION AMPLITUDE 10

SIZE OF INDICATION AREA (50% DAC OR CAL. REF.) 11

DETECTED BY U/T 12 P/T 12 M/T 12 V/T 12

MAKE SKETCH SHOWING SIZE AND LOCATION OF INDICATION AREA. INCLUDE TRANSDUCER LOCATION, BEAM DIRECTION AND OTHER INFORMATION PERTINENT TO LOCATING AND SIZING THE INDICATION.

13

SP-830

Rev. 0

SURFACE EXAMINATION DATA FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying that examinations, results and documentations have been performed in accordance with the procedure identified in Block 5.
8.	Manufacturer type and batch number.
9.	Manufacturer type and batch number.
10.	Manufacturer type and batch number.
11.	Manufacturer type and batch number.
12.	Manufacturer, type and serial number of all equipment used.
13.	Manufacturer and batch number of dry power or wet particle.
14.	Record initial, check and time.
15.	Record the identification number subject to examination from the Reference Sketch.
16.	Enter X in the appropriate box as required by the examination procedure identified in Block 5.
17.	Enter any information that may be helpful to provide additional clarification of the examination performed.
18.	Enter the temperature of the part examined.
19.	Examiners, Do Not Write in This Space.

SP- 830

Rev. 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

19

SURFACE EXAMINATION DATA

PLANT 1 UNIT 2 SKETCH 3

SYST/COMP 4 PROCEDURE 5

EXAMINER 6 LEVEL II DATE 7

P/T	BATCH NOS	M/T	
CLEANER	8	EQUIPMENT	12
PENETRANT	9	THERMOMETER	12
DEVELOPER	10	EXAM MEDIUM	13
REMOVER	11	BLACK-LIGHT CHECK TIME	14

IDENT NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP °F
15	16	16	16	17	18
REVIEW				ANII	

FORM 40830

SP- 830

Rev. 0

SURFACE EXAMINATION DATA (CONTINUATION SHEET) FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying that calibration, examinations, results and documentations have been performed in accordance with the procedure identified in Block 5.
8.	Record the identification number subject to examination from the Reference Sketch.
9.	Enter X in the appropriate box as required by the examination procedure identified in Block 5.
10.	Enter any information that may be pertinent or necessary to provide additional clarification of the examination performed.
11.	Examiners, Do Not Write in This Space.

SP- 830

Rev. 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

11

SURFACE EXAMINATION DATA
(CONTINUATION SHEET)

PLANT 1 UNIT 2 SKETCH 3

SYST/COMP 4 PROCEDURE 5

EXAMINER 6 LEVEL II DATE 7

IDENT. NUMBER	SURF. RESULTS			REMARKS
	NI	NRI	RI	
8	9	9	9	10

SP- 830

Rev. 0

SURFACE INDICATION DATA FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying that examinations, results and documentations have been performed in accordance with the procedure identified in Block 5.
8.	Enter X on the appropriate line the indication was detected by.
9.	Record identification number of the weld the indication was noted on.
10.	Enter visual aids (flashlight, 6" rule etc.).
11.	Enter sufficient information to describe, size, location, type of indication, etc.
12.	Record information describing size, location, configuration, type of indication, etc.
13.	Examiners, Do Not Write in This Space.

SP- 830 Rev. 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

13

SURFACE INDICATION DATA

PLANT 1 UNIT 2 SKETCH 3

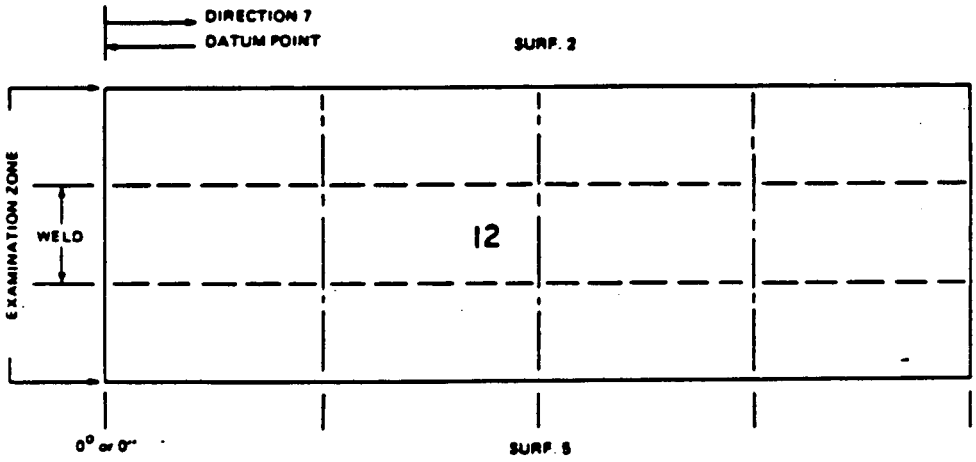
SYST/COMP 4 PROCEDURE 5

EXAMINER 6 LEVEL II DATE 7

PT 8 MT 8 WELD NO. 9

VISUAL AIDS 10

REMARKS 11



SP- 830

Rev. 0

VISUAL EXAMINATION DATA FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying that examinations, results and documentations have been performed in accordance with the procedure identified in Block 5.
7.	Enter date or dates examinations were performed.
8.	Record the identification number subject to examination.
9.	Enter X on the appropriate box as required by the examination procedure identified in Block 5.
10.	Enter flashlight, binoculars, etc. as required.
11.	Enter any information that may be pertinent or necessary to provide additional clarification of the examination performed (i.e. support type, spring hanger setting, number of valve bolting etc.).
12.	Examiners, Do Not Write in This Space.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

12

VISUAL EXAMINATION DATA

PLANT 1 UNIT 2 SKETCH 3

SYST/COMP 4 PROCEDURE 5

EXAMINER 6 DATE 7
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
8	9	9	9	10	11

SP- 830 Rev. 0

LIMITATION TO EXAMINATION FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying documentation results have been performed in accordance with the procedure identified in Block 5.
8.	Enter X on the appropriate line the limitation is related to.
9.	Record identification item the limitation was noted on.
10.	Record information as required on form.
11.	Examiners, Do Not Write in This Space.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

11

LIMITATION TO EXAMINATION

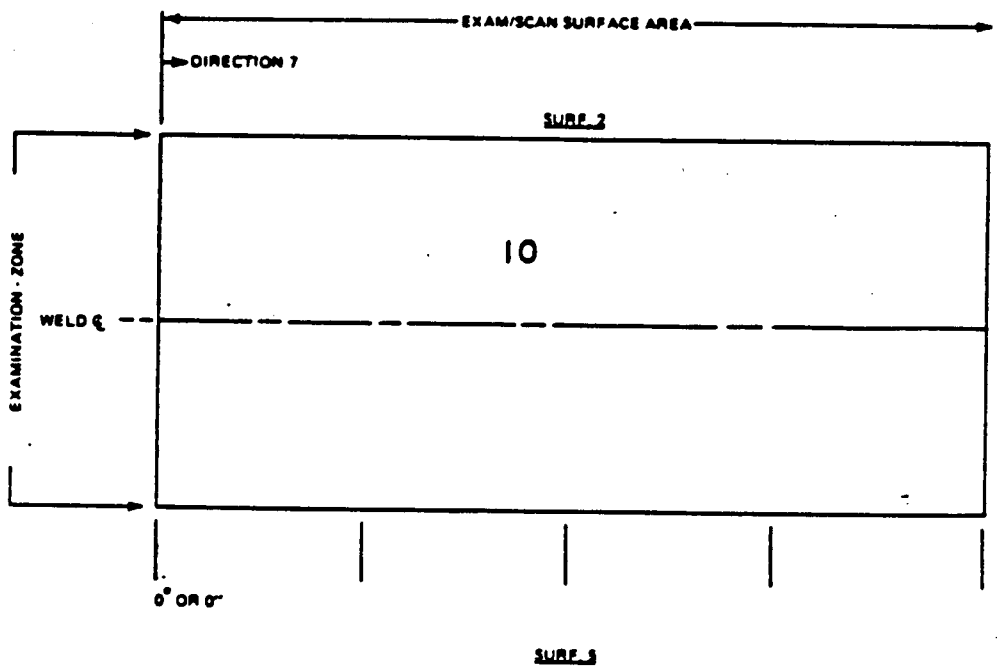
PLANT 1 UNIT 2 SKETCH 3

SYST/COMP 4 PROCEDURE 5

EXAMINER 6 LEVEL II DATE 7

RELATED TO: U/T 8 P/T 8 M/T 8 V/T 8 ITEM(S): 9

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



SP- 830 Rev. 0

LIMITATION TO EXAMINATION FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying documentation have been performed in accordance with the procedure identified in Block 5.
8.	Enter X on the appropriate line the limitation is related to.
9.	Record identification item the limitation was noted on.
10.	Record information as required on form.
11.	Examiners, Do Not Write in This Space.

SP- 830 Rev. 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

11

LIMITATION TO EXAMINATION

PLANT 1 UNIT 2 SKETCH 3

SYST/COMP 4 PROCEDURE 5

EXAMINER 6 LEVEL II DATE 7

RELATED TO: U/T 8 P/T 8 M/T 8 V/T 8 ITEM(S) 9

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.

10

SP- 830 Rev. 0

GENERAL - INDICATION DATA FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Sketch identification
4.	Identity of system or component from sketch title identification.
5.	Procedure identity including revision, amendment and field change, as applicable.
6. & 7.	Examiners signature and date of completion certifying documentation have been performed in accordance with the procedure identified in Block 5.
8.	Enter X on the appropriate line the indication is related to.
9.	Record identification item the indication was noted on.
10.	Record information as required on form.
11.	Examiners, Do Not Write in This Space.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

11

GENERAL – INDICATION DATA

PLANT 1 UNIT 2 SKETCH 3

SYST/COMP 4 PROCEDURE 5

EXAMINER 6 DATE 7
LEVEL II

DETECTED BY U/T 8 P/T 8 M/T 8 V/T 8 IDENT NO. 9

PROVIDE SUFFICIENT INFORMATION TO DESCRIBE SIZE, LOCATION AND TYPE OF INDICATION. DESCRIBE EXTRA OR SPECIAL EQUIPMENT IF USED FOR SIZING OR REPORTING. IF NECESSARY INCLUDE SKETCH SHOWING GENERAL CONFIGURATION OF ITEM OR AREA.

10

SP- 830

Rev. 0

EXAMINATION PERSONNEL FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Year examinations performed
4.	Examiner's name
5.	Examiner's level of certification

SP- 830 Rev. 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

EXAMINATION PERSONNEL

PLANT 1 UNIT 2 YEAR 3

EXAMINER	U/T	P/T	V/T	M/T	R/T
4	5	5	5	5	5

SP- 830 Rev. 0

ULTRASONIC EQUIPMENT (INSTRUMENTS) FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Year examinations performed
4.	Ultrasonic instrument number (1, 2, 3, etc.)
5.	Ultrasonic instrument manufacturer (Sonic, Branson, etc.)
6.	Ultrasonic instrument model (Sonic MKI, Branson 301, etc.)
7.	Ultrasonic instrument serial number

SP-830

Rev. 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EQUIPMENT
(INSTRUMENTS)

PLANT 1 UNIT 2 YEAR 3

INSTRUMENT NO.	MANUFACTURER	MODEL	SERIAL NO.
4	5	6	7

SP- 830

Rev. 0

ULTRASONIC EQUIPMENT (TRANSDUCERS) FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Year examinations were performed
4.	Transducer number (1, 2, 3, etc.)
5.	Transducer manufacturer (Aerotech, Parametrics, etc.)
6.	Transducer size (.50", .375", etc.)
7.	Transducer frequency (1.0 MHz, 2.25 MHz, etc.)
8.	Transducer serial number

SP-830 Rev. 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
ULTRASONIC EQUIPMENT
(TRANSDUCERS)

PLANT 1 UNIT 2 YEAR 3

TRANSDUCER NUMBER 4	MANUFACTURER 5	SIZE 6	FREQUENCY 7	SERIAL NO. 8

SP-830

Rev. 0

MAGNETIC PARTICLE EQUIPMENT FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Year examinations were performed
4.	Magnetic Particle Equipment number (1, 2, 3, etc.)
5.	Magnetic Particle Equipment manufacturer (Magnaflux, Detek, etc.)
6.	Magnetic Particle Equipment model (L-10, Y-5, etc.)
7.	Magnetic Particle Equipment serial number

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

MAGNETIC PARTICLE EQUIPMENT

PLANT 1 UNIT 2 YEAR 3

INSTRUMENT NO. 4	MANUFACTURER 5	MODEL 6	SERIAL NO. 7

SP-830 Rev. 0

CALIBRATION BLOCKS FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Calibration block identification
4.	Calibration block size or schedule (10" SCH 120, 8" SCH 160, etc.) from cal block report
5.	Calibration block material (A376TP316 Stainless Steel, A106 Grade B Carbon Steel, etc.)
6.	Calibration block heat number

NOTE
Calibration block information may be replaced by similar information maintained by the utility.

SP-830 Rev. 0

CALIBRATION BLOCKS

PLANT 1 UNIT 2

BLOCK IDENTIFICATION 3	SIZE OR SCHEDULE 4	MATERIAL 5	HEAT NO. 6

SP-830 Rev. 0

EXAMINATION CONSUMABLE MATERIALS FORM

Block	Information Required
1.	H. B. Robinson
2.	Unit 2
3.	Year examination was performed
4.	Ultrasonic couplant manufacturer (Echo Laboratories, etc.).
5.	Ultrasonic couplant type (Sonotrace 40, etc.).
6.	Ultrasonic couplant batch number.
7.	Dye penetrant cleaner manufacturer (Magnaflux, DUBL-Check, etc.).
8.	Dye penetrant cleaner type (Spotcheck-SKC-NF, DUBL-Check-DR 60, etc.).
9.	Dye penetrant cleaner batch number.
10.	Dye penetrant manufacturer (Magnaflux, DUBL-Check, etc.).
11.	Dye penetrant type (Spotcheck-SKL-HF, DUBL-Check DP-51, etc.).
12.	Dye penetrant batch number.
13.	Dye penetrant developer manufacturer (Magnaflux, DUBL-Check, etc.).
14.	Dye penetrant developer type (Spotcheck SKD-NF, DUBL-Check-D100, etc.).
15.	Dye penetrant developer batch number.
16.	Dye penetrant remover manufacturer (Magnaflux, DUBL-Check, etc.).
17.	Dye penetrant remover type (Spotcheck-SKC-NF, DUBL-Check-DR60, etc.).
18.	Dye penetrant remover batch number.

SP-830 Rev. 0

EXAMINATION CONSUMABLE MATERIALS FORM (cont)

Block	Information Required
19.	Magnetic particle powder manufacturer (Magnaflux, Detek, etc.).
20.	Magnetic particle type (8A RED, M10-100, etc.).
21.	Magnetic particle batch number.
22.	Radiographic film manufacturer (Kodak, etc.).
23.	Radiographic film type (1, 2, etc.).
24.	As applicable (Magnetic particle, wet particle, etc.).

SP-830 Rev. 0

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

EXAMINATION CONSUMABLE MATERIALS

PLANT 1 UNIT 2 YEAR 3

	MANUFACTURER	TYPE	BATCH
U/T COUPLANT	4	5	6
DYE PENETRANT			
CLEANER	7	8	9
PENETRANT	10	11	12
DEVELOPER	13	14	15
REMOVER	16	17	18
POWDER	19	20	21
FILM	22	23	
OTHER	24		

9.0 This special procedure will be sent to the vault in the 1988 90-Day Inservice-Inspection Report.